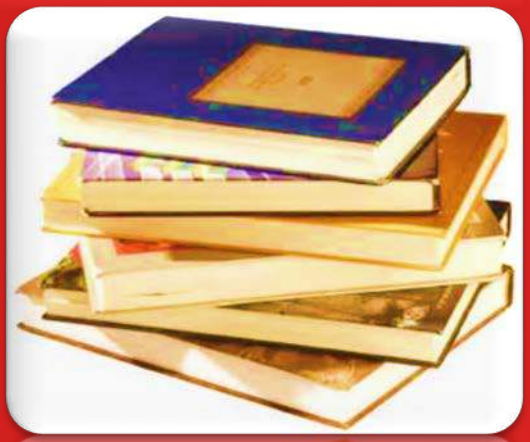
ICSE CLASS 6 SYLLABUS

ENGLISH

English



English language occupies a central place in the school curriculum because it is the medium for learning. Proficiency in the language is a pre-requisite for effective communication and knowledge acquisition. Language learning does not necessarily take place only in the language classroom. It cuts across the curriculum of different disciplines. English plays an important and integral role in the domains of education, medicine, business and international relations, judiciary, industry, etc. It is central to children's intellectual, social, and emotional growth and all round development.

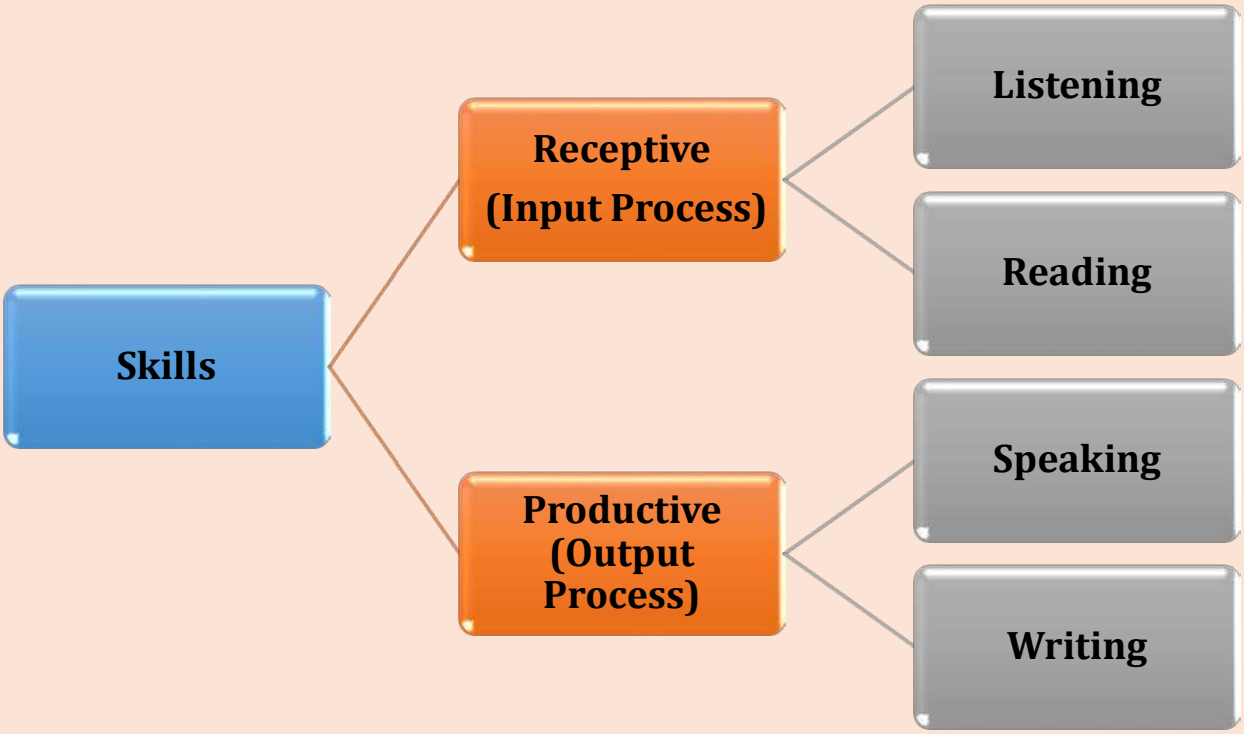
The content of the language curriculum should be broad enough to encompass the needs and interests of children. Classroom activities need to be linked to life outside the classroom. Socio-cultural contexts that encourage children to participate actively in understanding and creating appropriate communicative practices should be promoted through development of linguistic skills. English as a language should be developed progressively through meaningful experiences rather than a mere drill or rote exercise.

Children need to be able to use language to express their feelings, ideas and later to express their opinions based on extensive readings and research. As they gradually become aware of the various purposes for which language is used and the diverse forms it can take, they learn to use language appropriate to context. They also develop an awareness of how language is used in different formal and informal situations. Language is also the basis for thinking, communicating, learning and developing life skills. Children need language skills in order to comprehend ideas and information, interact socially, inquire into areas of interest and study, and express themselves clearly and fluently with confidence

Learning to communicate with clarity and precision, orally, in writing, and through a variety of media, helps children understand the world around them. Through a rich variety of literary, academic, and media related texts, children learn to read and reflect on the world around them and appreciate different worldviews and critically interpret a range of texts. Importantly, through language children can be sensitized to the physical and social environment, life skills and values.

Life skills such as communication skills, critical thinking, sharing, caring, becoming aware of the self, showing concern for others and developing sensitivity to the world around them, should be an inbuilt component of an English Classroom. It is important to nurture these life skills among children by giving them ample opportunities for experiencing such situations. Texts and tasks in the classroom need to have scope for developing the desired life skills as per the topic/theme, which may be linked across the curriculum.

Since language development refers to the skills used in expressing and communicating ideas, it involves the four basic aspects of listening, speaking, reading and writing, which would also inculcate elements of critical thinking.



At the primary level, children's process of learning gradually and progressively moves from hearing to listening, to speech to reading and finally writing. With progression of time children continue to develop and refine their skills in these aspects of language. The emphasis on the development of skills in a language class is not to be viewed as a mechanical activity devoid of life but as the cornerstone of experience, appreciation and creative expression. Feeling, expression and its application all move together, so when a child acquires proficiency in reading and writing, the door to literary appreciation and creativity is opened.

By the time they reach Class VI, children would have acquired basic proficiency in English language and hence opportunities must be provided to further hone their skills. They need to interact with social media, have diverse exposure and develop independent thinking. Their experiences need to be channelled as creative expressions in the English classroom.

The English language curriculum has been planned to develop language skills. The broad **objectives of language teaching and learning** are:

(a) To develop listening skills: Children learn to use verbal and non-verbal cues in a non-linear way to comprehend and draw inferences.

(b) To develop speaking skills: Children develop effective communicative skills and are able to engage in meaningful conversation in various situations. They engage in discussions in a logical, analytical, and creative manner.

(c) To develop reading skills: Children develop the habit of independent reading and are able to construct meaning by drawing inferences and relating the text to their previous knowledge. They also develop the confidence of reading the text critically and are able to pose questions accordingly.

(d) To develop writing skills: Children develop the confidence to express thoughts effortlessly and in an organized manner. They follow the process approach to writing that enables them to write for a variety of purposes and situations, ranging from informal to formal.

To achieve these objectives children are to be provided with an environment to facilitate language learning. This could take shape in the form of textbooks, story books, magazines, newspapers, audio/visual aids, children chosen texts etc. according to the interest, age and cognitive levels of children. All modalities like visual, auditory and kinaesthetic may be used in pedagogical processes. Care must be taken by teachers to provide support to differently abled children in the classroom transactional processes. For example, material in Braille for the sight impaired and sign language devices for hearing impaired children i.e. adopting and adapting the curriculum according to the learning abilities of children with special needs.

Though skills have been outlined and graded, textual material that are used at a school and the time spent at each level may vary. However, we urge teachers to maintain the experiential background of children and ensure the availability of materials. The curriculum provides space to teachers to use their initiative to supplement and substitute matter according to their contexts.

Guidelines for English language learning:

Content/ Themes

The language classroom is a place where contemporary concerns and issues can be included as the curriculum ranges from non-literary to literary texts, from local to global covering a wide range of areas like environmental issues, sustainable development, maintenance of resources, concern for animals and plants, human rights, etc. The selection of the materials can draw upon the following and additional themes in an integrated manner:

Self, family, home, friends, neighbourhood, environment, animals, plants, arts, culture sports, travel, tourism, mass media, science and technology, health and hygiene, peace, life skills etc.

Integrating Language Teaching with other Areas

Along with the above themes the choice of texts should also focus on myths, legends, and folktales to develop appreciation for socio-cultural and linguistic heritage. Translated texts from Indian languages and the other languages of the world may be included in classroom teaching to encourage children to experience the rich diversity of language.

(a) Guiding Principles for English language:

- Connecting learning to the outside world.
- Integrating English with other subjects across the curriculum
- Adopting multilingualism as a learning resource.
- Using contexts to develop language as a whole.
- Making assessment for learning a part of the teaching learning process.
- Ensuring an active participation of children by using a variety of activities and tasks.

(b) Suggested Generic Classroom tasks that can be included as classroom procedures (Classes VI to VIII)

LISTENING AND SPEAKING

- Circle time
- Picture/ photograph description, etc.
- Story narration
- Role play, dramatisation, mime
- Elocution/ Recitation - Singly and in a group
- Intra-class debates
- Group discussions on specified topics.
- Dramatisation of poems/ prose
- Music– to be used to teach poetry, speech and drama
- Language Games – Word building, Pictionary, dumb charades, Guess the word etc.
- Build and use a class library
- Puzzles and crosswords, Scrabble
- Project presentations (oral)
- Film and audio clips

READING AND WRITING

- Reading – Loud, Group and silent (Literature)
- Word Wall (Literature)
- Vocabulary tree
- Completing a story
- Picture composition
- Poetry writing – limerick, doggerel, haiku, cinquain, Tanka, jingle
- Poster making, slogan and caption writing
- Writing newspaper reports and travel brochures
- Writing advertisements/ posters/ notices
- Recording a process (How I taught someone to cook/ read/ cycle/ swim, etc.)
- Maintaining a diary/ journal/ log book

- Book Talk, book review (Literature)
- Film review
- Restaurant review
- Illustrations of characters from texts (Literature)
- Comprehension – Seen text (Literature) and Unseen text.
- Comprehension of poems - seen (Literature) and unseen.
- Music to be used as a stimulus for aural comprehension.
- Comprehension/ literature questions must allow scope for
  (i) inference,
  (ii) personal response. Dissenting voices must be encouraged.
- Spell Check
- Pictogram
- Word search
- Spot the differences, unscramble the scrambled words
- Mind mapping
- Word Games
- Contributions to School magazine / Newsletter / Soft boards / Newspaper

VOCABULARY AND GRAMMAR IN CONTEXT

- Grammar activities in context
- Worksheets to consolidate grammatical concepts in context.
- Use of internet as a resource

CREATIVE WRITING

It is recommended that children write 10 - 12 written assignments / tasks in an academic year.

- The stimuli could be a picture, object/s or a set of words.
- Picture compositions must be conducted at all levels. The Picture should be in colour and depict a story having a human interest appropriate to the class level. Each child should have access to the picture.
- All writing exercises must begin with a class level conversation and words arising from the discussion must be noted on the blackboard (The words may be suggested by children). This scaffolding as pre-teaching helps children undertake their written tasks independently.
- Argumentative essays to be introduced in Class VIII, on issues that the children can identify with (e.g. “School Uniforms must be abolished”, “Homework must be made compulsory”).
- Classes VI & VII to write informal letters. ***Topics for letters should be within the range of children’s experiences (example- letters to Parent, friends, relatives, neighbours etc.).***
- Formal letters to be introduced in Class VIII. ***Topics for letters should be within the range of children’s’ experiences (example- letters to Principal, Teacher, Editor, Librarian, community function, etc.).***

Listening and Speaking

Listening at this stage is crucial so that children listen carefully to views put forward, reflect on them, and respond accordingly. They listen to a range of texts with comprehension. From this stage onwards listening to radio, film, television and other media occupy a major space. Appreciation of non-verbal clues are also developed. While speaking children express themselves with confidence that reflects a sense of persuasiveness and interpretation.

Learning Outcomes:

Children will be able to:

- **understand and answer** a variety of questions on a given passage for aural/written comprehension;
- **comprehend** issues/topics raised in spoken texts (public address, guest speaker, televised interview, social media/internet videos) and ask for clarification or elaboration of ideas;
- **participate** in group discussions as leader or facilitator, enhancing the levels of discussion by asking probing/ reflective questions;
- use class-level appropriate vocabulary to express their point of view;
- **apply** their understanding from the use of multi-media to make presentations adding perspective to texts/issues. (the use of visual aids is accompanied by a commentary citing sources of information or diverse points of view;
- **develop** a sense of confidence and self-control while making presentations or challenging a stated opinion;
- **evaluate** and respond to opposing points of view logically using appropriate language and physical gestures;
- **develop** the ability to analyse, interpret and evaluate the use of language in different contexts (newspapers, television, billboards and advertising campaigns).
- **adapt** speech to a variety of contexts and tasks;
- **accustom** language as appropriate to the purpose: to persuade, explain/provide information, or express an opinion;
- **include multimedia components** (e.g., graphics, images, music, sound) and visual displays in presentations;
- **interpret information presented in diverse media and formats** (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

Listening and Speaking

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
▸ Listen to a range of texts such as story, poems, narratives, lecture etc. for aural/written comprehension. ▸ Listen and comprehend issues/topics raised in spoken texts (public address, guest speaker,	▸ Reviewing and building on previous learning ▸ Reading aloud/ playing audio recordings of poems, narratives, anecdotes, dialogues, etc. and asking children to identify the main aspects (e.g. listen to the story and talk about the main character)	▸ Online resources including /audio/video clips/cartoons /poems/ narratives / autobiographies /biographies/ famous speeches, debates, drama etc.

Listening and Speaking

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
televised interview, Social media/internet videos) and asks for clarification or elaboration of ideas. • Group discussions, debates, speech, drama, presentations etc. • (use of graphics, images, music, sound and visual displays in presentations.) • Analyse and evaluate the use of language in different contexts (newspapers, television, billboards and advertising campaigns) and its interpretation. • Adapt speech to a variety of contexts and tasks e.g. ☛ *tone* ☛ *gestures* ☛ *stress* ☛ *facial expressions* ☛ *body language* ☛ *voice modulation* • Dictation of Chunks of language.	• Providing issue based texts/ topics across the curriculum and encouraging children to have discussions on it. e.g. What is understood by "Gender Equality"? • Creating opportunities to lead/ facilitate group discussions etc. • Creating situations that require the learner to note down main ideas/ points based on text that is read out/ speech that is delivered. • Providing chances for children to express their personal opinion/ views through activities such as role-play (assigning specific roles/ perspectives from which to approach the topic under discussion. E.g. 'No Home work for students' – to be discussed from the point of view of the Principal/ teacher/ School leaders/ Students etc.). • Encouraging children to use multi-media clips and inputs along with commentary to add depth and perspective to class presentations. • Creating opportunities and situations for children to listen to, respond and question/ challenge others' views in a well-reasoned/ logical and polite manner. • Creating opportunities to question/ challenge claims made by an author and put forward an alternate view through class room discussions and debates. • Ensuring that children have ample opportunities to speak/debate/ express their opinions and thoughts in the class. • Encouraging the children to observe and emulate the body language/ intonation/ clarity etc. of effective speakers. • Giving dictation on chunks of language. ***NOTE**: The examples given above are intended merely as guidelines. The teachers are welcome to be as*	• Posters/Models/ advertisements/ Charts etc.

Listening and Speaking		
Suggested areas/Content	**Suggested Transactional Processes**	**Suggested Learning Resources**
	innovative as the classroom situation allows. *The activities / tasks suggested above are not necessarily restricted to listening and speaking. As the language teacher is well aware, all four language skills are inter-related and often overlap.*	

NOTE: Recitation should form an integral part of the school class-table and may be evaluated and included for Internal Assessment.

Reading

Children develop extensive and intensive reading skills that involve a variety of texts. They discuss and express their views based on their reading via their speaking/ writing.

Learning Outcomes:

Children will be able to:

- understand the text, draw conclusions and make inferences;
- **comprehend the** central idea of a text and how it is conveyed through particular details including how characters in a story or drama, respond to challenges or how the speaker in a poem reflects upon a topic;
- **understand and appreciate the narrative and poetic structures** to comprehend and predict outcomes;
- **identify the salient points in the text** as distinct from personal opinions or judgments;
- **determine the meaning of words and phrases as they are used in a text**, including figurative and connotative meanings;
- read and **comprehend literature,** including stories, dramas, poems, travelogues, autobiographies, reports, speeches, articles, features, etc (graded reading).

Reading

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
Texts (Literary and Non-literary) covering different themes and registers for comprehension and inference. The themes may include: ☛ *Self, Family, Home, Friends,* ☛ *Neighbourhood and Community at large* ☛ *The Nation – diversity (socio-cultural, religious and ethnic, as well as linguistic), heritage* ☛ *Myths/legends/ folktales)* ☛ *The World – India's neighbours and other countries (their cultures, literature and customs)* ☛ *Adventure, Imagination and creativity* ☛ *Sports and Yoga* ☛ *Issues relating to Adolescence* ☛ *Science and Technology*	Reviewing and building on previous learning Introducing different types of seen and unseen texts such as prose, poetry, drama to enhance the learner's understanding and appreciation of different forms of literature. Providing opportunities for the learner to read, evaluate and objectively sum up the ideas expressed in the passage. Providing a range of texts to facilitate appropriate interpretation of mood/ tone/ use of figurative language/imagery etc. Encouraging children to raise questions based on their personal reading. Discussing concepts such as rhyme, rhythm, metre, imagery, metaphors, simile etc. in a poem.	Self / teacher created materials (audio-video) Magazines, newspapers Activities for relating ideas of the text with their lives. Text types: Very short stories, poems and songs, texts with visuals, etc. Age appropriate magazines, newspapers, picture books, story books etc. for reading and connecting it to their own experiences. Realia/ Flashcards/ Posters/ puppets/ Charts etc. to stimulate language. Group/ pair work Build a class library

☛ *Peace and Harmony* ☛ *Travel and Tourism* ☛ *Mass Media* ☛ *Art and Culture* ☛ *Health and Reproductive health* ☛ *experience of children,* ☛ *Personalities & achievers,* ☛ *Environmental concerns – water conservation, cleanliness and sanitation, Safety –personal safety & awareness about child abuse, conservation energy* ➢ Extensive and intensive reading of the texts		

Writing

Children write independently following the process approach to writing. They write with a sense of audience and follow the rules of the mechanics of writing.

Learning Outcomes:

Children will be able to:

- write real or imagined experiences or events using relevant descriptive details, and well-structured sentences and sequence;
- **write arguments to** support ideas with clear reasons and relevant evidence;
- produce clear and **coherent writing keeping in view** the organization and style that are appropriate to task, purpose, and audience;
- **collect relevant information** from multiple print and digital sources; collates the data;
- **use precise and descriptive vocabulary** to create tone and voice and varied sentence structure;
- **follow process approach to writing by planning, revising, editing, rewriting**;
- write at least three paragraphs of about 200 words at a more advanced level on any given topic;
- write narratives that recount a well-elaborated event or short sequence of events; include details to describe actions, thoughts, and feelings;
- **organise and structure** meaningful sentences in a sequential manner;
- make correct use of linkers such as 'firstly', 'then', 'later', 'finally', etc. to link sentences to indicate passage of time and provide a sense of closure;
- draw from personal experiences or real life situations;
- **demonstrate** the ability to use words and phrases to the grade appropriate level, including those that convey emotions, actions, etc.;
- write basic notices/ messages/letters.

Writing		
Suggested areas/Content	**Suggested Transactional Processes**	**Suggested Learning Resources**
Simple messages, invitations, short paragraphs, letters (formal and informal) applications, Short compositions based on pictures simple narrative and descriptive pieces, etc. Creative writing: stories, poems, dialogues, etc. organise and structure thoughts in writing. Organise and structure meaningful sentences in a sequential manner. use of linkers such as 'firstly', 'then', 'later', 'finally', etc. to link	Reviewing and building on previous learning Creating situations/context to write letters /narratives/ First Person accounts/ imaginative accounts/ e-mails/ etc. Providing rubric / checklists to revise and edit written material Facilitating team work and collaborative activity through assignments and projects that require children to work in groups and produce written assignments. Providing opportunities to write on a specific topic to produce a well sequenced, cohesive piece of writing	Age appropriate worksheets / activities / Flashcards/ Posters/ puppets/ Charts etc. to stimulate language. Group/ pair work Newspaper/ magazines/ articles/ pictures/ advertisement etc.

sentences to indicate passage of time and provide a sense of closure. - Age appropriate use of words and phrases - Follow process approach to writing i.e. planning, revising, reviewing, editing, rewriting.	making appropriate use of linkers, grade appropriate vocabulary and register. - Providing stimuli either through a picture, object/s or a set of words. - Introducing all composition exercises as a whole class activity. - Helping develop relevant vocabulary for the topic via discussion, brain storming and conversation. - Creating situations for children to write notices for the class e.g. (information about an excursion, loss of pencil box etc.) - Providing topics for letter writing appropriate to the level, interest, age of children, their experiences (example- letters to Parent, friends, relatives, community etc.). *Providing Topics for the letters from the children' context such as letters to Parent, friends, family, relatives, community, etc.).*	

Grammar and Vocabulary in Context

Children use context to understand and develop vocabulary and grammar. They use basic grammar appropriately while speaking and writing.

Learning Outcomes:

Children will be able to:

- **use English according to the basic** conventions of English grammar and usage when writing or speaking;
- **use** pronouns in the proper case and reflexive pronouns appropriately;
- **recognise correct and** incorrect / inappropriate shifts in pronoun number and person;
- **follow the basic conventions of English language** when writing, speaking, reading, or listening using varied sentence patterns for meaning, reader/listener interest, and style;
- **use context as a clue** to the meaning of a word or phrase;
- **use** common, grade-appropriate affixes and roots as clues to the meaning of a word;
- **consult reference materials**, both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or part of speech;
- interpret figures of speech in context;
- **use subject-verb** agreement with intervening phrases and clauses;
- **learn the use of and the difference** between transitive and intransitive verbs;
- **use pronoun - antecedent** agreement to include indefinite pronouns;
- **follow consistent** tense inflections across paragraphs;
- use the **correct spelling** for frequently used words;
- form and use perfect verb tenses to convey time, sequence, state, and condition.
- recognise correct and inappropriate shifts in verb tense.

Grammar and Vocabulary in Context

Suggested areas/Content	Suggested Transactional Processes	Suggested Learning Resources
▸ Pronouns in the proper case, reflexive pronouns, pronoun number and person, pronoun - antecedent agreement to include indefinite pronouns. ▸ Subject-verb agreement with intervening phrases and clauses. ▸ Transitive and intransitive verbs. ▸ Tenses to convey time, sequence, state, and condition. ▸ Recognition of correct and incorrect /inappropriate	▸ Reviewing and building on previous learning. ▸ Providing examples of grammar in context to make children understand its various aspects that include a focus on the use of pronouns, reflexive pronouns, phrases, clauses, transitive and intransitive verb etc. ▸ Creating activities / tasks for children to use grammar in context/ identify and use figurative language (e.g. irony, pun, personification, alliteration, metaphor, simile, assonance, onomatopoeia). ▸ Providing worksheets/ contexts to use tenses showing/using time line. ▸ Providing audio - visual aids and verbal clues to reinforce the use of grammar	▸ Self / teacher created materials e.g. worksheets, activities on grammar in context. ▸ Audio, video, print / text ▸ Authentic tasks and activities of short duration which would bring in an engagement with ☛ *words,* ☛ *word chunks,* ☛ *formulaic use* ☛ *collocations* ☛ *expressions in dialogue.* ☛ *Word / Languages games.*

shifts in verb tense. • Vocabulary in context as a clue to the meaning of a word or phrase. • Age-appropriate affixes and roots as clues to the meaning of a word. • Dictionary and reference materials, print, digital and tactile, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech. • Figures of speech in context.	and develop language skills. • Providing a variety of contexts for children to use language in speech and writing. • Encouraging children to refer to dictionaries (print, digital and tactile) to understand the meaning, pronunciation, different uses of the word etc.	• Vocabulary in context • Realia / Flashcards/ Posters / puppets/ Charts etc. to stimulate language.

HINDI

हिंदी

परारंभिक सतर पर हिंदी भाषा अधिगम (द्वितीय भाषा)

किसी भी शिक्षा व्यवस्था में भाषा-शिक्षण का महत्वपूर्ण स्थान होता है। विभिन्न विषयों केसार्थक अधिगम के साथ-साथ बच्चोंकेसंवेगात्मक, संज्ञानात्मक और सामाजिक विकास केलिए भाषा बहुत महत्वपूर्ण होती है। भाषा की शिक्षा बच्चों में मूल्यों का विकास करती है और उनकी स्वाभाविक सृजनात्मकता एवं कल्पना का पोषण करती है। भाषा विकास से बच्चों में स्वतंत्र चिंतन, मत प्रकाशन और घटनाओं केतार्किक विश्लेषण की योग्यता उत्पन्न होती है। भाषा किसी भी बच्चे केपास, किसी भी समय पर, ज्ञान का सबसे समृद्ध स्रोत भी होती है।

भारत एक बहुभाषी देश है जिसमें बहुत-सी क्षेत्रीय भाषाएँ रची-बसी है। यूँ तो भारत की सभी भाषाएँ समान रूप से महत्वपूर्ण हैं और देश केसभी नागरिकों को उनका सम्मान करना चाहिए, किंतु हिंदी की स्थिति सर्वथा भिन्न है। हिंदी को भारतीय संविधान के अनुसार भारत संघ की राजभाषा का दर्जा दिया गया है। यही नहीं, जनसंचार केमाध्यमों समाचार पत्र, सिनेमा, प्रोद्योगिकी, रेडियो, टेलीविज़न आदि द्वारा प्रचार-प्रसार से आज हिंदी बड़ी तीव्र गति से संपर्कभाषा केरूप में विकसित हो रही है और देश की सार्वजनीन भाषा बनती जा रही है, अतः प्राथमिक स्तर पर अंग्रेज़ी भाषा या क्षेत्रीय भाषा के प्रथम भाषा केरूप में सिखाए जाने केसाथ-साथ हिंदी भाषा का द्वितीय भाषा के रूप में सिखाना महती आवश्यकता बन गया है। कक्षा एक से ही द्वितीय भाषा केरूप में हिंदी शिक्षण अधिगम प्रारंभ किया जाए ताकि पूरे भारत में परस्पर संवाद और संचार के रास्ते खुलें।

उच्च प्राथमिक स्तर पर हिंदी (द्वितीय भाषा) शिक्षण-अधिगम केउद्देश्य

उच्च प्राथमिक स्तर पर हिंदी भाषा केशिक्षण-अधिगम काक मुख्य केंद्र बिंदु भाषा की विभिन्न दक्षताओं और कौशलों के उत्तरोत्तर विकास एवं संवर्धन केसाथ-साथ बच्चों में साहित्य केप्रति रुचि उत्पन्न करना और उन्हें साहित्य केतत्वों से परिचित करना है ताकि वे एक उत्सुक और जिज्ञासु पाठक बनें और उनमें सृजनशीलता का विकास हो।

कक्षा 6 – 8

उच्च प्राथमिक स्तर पर हिंदी शिक्षण अधिगम केउद्देश्य हैं –

- दैनिक जीवन में हिंदी में समझने-बोलने के साथ-साथ लिखने / सृजनात्मकता का विकास करना।
- विभिन्न संदर्भों में प्रयुक्त होने वाली शब्दावली का विकास करना।
- बाल साहित्य, समाचार पत्र व पत्रिकाओं को पढ़कर समझ जाना और उसका आनंद उठाने की योग्यता का विकास करना।
- औपचारिक विषयों और संदर्भों में बातचीत में भाग ले पाने की क्षमता का विकास करना।

- हिंदी भाषा में अपने अनुभव संसार को लिखकर सहज अभिव्यक्ति की क्षमता विकसित करना।
- संचार के विभिन्न माध्यमों (प्रिंट और इलेक्ट्रॉनिक) में प्रयुक्त हिंदी के विभिन्न रूपों को समझने की योग्यता का विकास करना।
- कक्षा में बहुभाषिक, बहुसांस्कृतिक संदर्भों के प्रति संवेदनशील सकारात्मक सोच बनाना।
- अपनी मातृभाषा और परिवेशगत भाषा को साथ रखकर हिंदी की संरचनाओं की समझ बनाना और मौखिक तथा लिखित अभिव्यक्ति में व्याकरण सम्मत भाषा का प्रयोग करना।
- साहित्य के विविध रूपों से परिचित होना।

हिंदी भाषा के विषय / क्षेत्र

यह पाठ्य चर्या हिंदी भाषा सीखने-सिखाने के 'समग्र भाषा पद्धति' के दृष्टिकोण पर आधारित है। यह पाठ्य चर्या अनुशंसा करती है कि हिंदी शिक्षण अधिगम का दायरा इतना विस्तृत, व्यापक एवं वैविध्यपूर्ण हो कि बच्चे हिंदी के व्यापक और विविध स्वरूप के प्रति गहरी समझ बना सकें।

हिंदी शिक्षण अधिगम केवल भाषा की कक्षा तक ही सीमित नहीं होता। किसी भी विषय को सीखने का मतलब है उसकी अवधारणाओं को सीखना, उसकी शब्दावली को सीखना, उसके बारे में आलोचनात्मक ढंग से चर्चा करना और उसके बारे में लिखना। अतः हिंदी शिक्षण अधिगम एकांगी न हो अपितु अन्य पाठ्य चर्यक विषयों से सह संबंध बनाते हुए भाषा का विकास करने वाला हो। इसके लिए बच्चे भिन्न-भिन्न विषयों की पुस्तकों का अध्ययन करें।

हिंदी कक्षा में समसामयिक विषयों, मुद्दों व सरोकारों जैसे पर्यावरणीय चिंता, संसाधनों का संरक्षण, प्राणी जगत व वनस्पति जगत की सुरक्षा व संरक्षण, मानव अधिकार आदि को पाठ्यचर्या में सम्मिलित किया जाना आवश्यक है। घर-परिवार, मित्र, पड़ोसी, पर्यावरण, पशु-पक्षी, पेड़-पौधे, कलाएँ, खेल, त्योहार आदि कुछ सुझावित विषय हैं जिनसे संबंधित पठन सामग्री उपलब्ध कराई जा सकती है। पाठ्य सामग्री में हिंदी से इतर भाषाओं की हिंदी में अनूदित रचनाओं का भी समावेशन हो जिससे बच्चों को अनुवाद की दुनिया में पाँव पसारती हिंदी के स्वरूप का रसास्वादन करवाया जा सके। पाठ्य-सामग्री बच्चों के मानसिक स्तर रुचियों और अनुभवों के अनुकूल होनी आवश्यक है। इसके अतिरिक्त लोककथाएँ, काल्पनिक व पौराणिक कथाएँ, परी कथाएँ भी पाठ्य सामग्री में समाविष्ट हो ताकि बच्चे देश की सामाजिक – सांस्कृतिक व भाषिक विरासत का आनंद ले सकें।

अन्य विषयों के साथ भाषा शिक्षण का समन्वय

मूल्य और जीवन कौशल

- हिंदी शिक्षण में वे तत्व अवश्य निहित होने चाहिए जो आवश्यक मूल्यों का पूर्ण रुप से संचार करें। मूल्यों की शिक्षा किसी विषय के रूप में पढ़ाकर या उपदेश देकर नहीं दी जा सकती। बल्कि पठन सामग्री और कक्षा के क्रियाकलाप इस प्रकार नियोजित होने चाहिए कि सच्चाई, ईमानदारी, संवेदनशीलता, सहायता, सहयोग, कल्याण भावना, सेवा, कार्य ही पूजा है जैसे मूल्य निष्पादित हो सकें। उपयुक्त विषयों, कथानकों और जीवनियों पर आधारित सांस्कृतिक कार्यक्रम और नाटकों का आयोजन किया जाए। मानव जाति के साथ-साथ अन्य प्राणियों और प्रकृति की सेवा का दृष्टिकोण विकसित हो जिसके लिए सभी शिक्षकों को अपने व्यवहार से ही आदर्श प्रस्तुत करना होगा।
- शिक्षा का वास्तविक उद्देश्य बच्चों को जीवन की चुनौतियों का सामना करने के लिए तैयार करना है। इसके लिए ज़रूरी है कि शिक्षा विभिन्न जीवन कौशलों से जुड़ी हो। जीवन कौशल जैसे– समस्या निवारण, आलोचनात्मक सोच, संप्रेषण, आत्म चेतना, तनाव से विचलित न होना, निर्णय लेना और सहानुभूति आदि सफल जीवन जीने तथा एक जिम्मेदार नागरिक बनने के लिए / बहुत ही महत्वपूर्ण हैं। भाषिक खेलों, गतिविधियों और क्रिया कलापों के द्वारा बच्चों को जीवन कौशलों को विकसित करने का अवसर मिलता है।

शिक्षण अधिगम प्रक्रिया

द्वितीय भाषा के रूप में पढ़ाई जा रही हिंदी भाषा का स्तर पढ़ने और पढ़ाने दोनों ही दृष्टियों से मातृ भाषा सीखने की तुलना में कुछ धीमी गति से चलेगा। यह गति धीरे-धीरे बढ़ सके, इसके लिए शिक्षकों को धैर्यपूर्वक शिक्षण अधिगम प्रक्रिया के कार्यक्रम को नियोजित करना होगा।

- किसी भी द्वितीय भाषा में निपुणता प्राप्त करने-कराने के लिए आवश्यक है कि बच्चों की सहजात भाषिक क्षमता तथा उनके अनुभवों का भरपूर उपयोग किया जाए। बच्चों को स्वतंत्र अभिव्यक्ति के अधिक-से-अधिक अवसर दिए जाएँ। मौखिक भाषिक अभ्यास के लिए परस्पर बातचीत, कहानी सुनना- सुनाना, घटना वर्णन, चित्र वर्णन, संवाद, वाद-विवाद, अभिनय, भाषण, आशुभाषण, कविता पाठ और अंत्याक्षरी जैसी गतिविधियों का सहारा लिया जाए।
- निवेश समृद्ध संप्रेषण का वातावरण भाषा अधिगम की आवश्यक शर्त है। निवेश के अंतर्गत आते हैं – पाठ्य पुस्तकें, बच्चों द्वारा चुने गए पाठ और कक्षा पुस्तकालय जिसमें अनेक विधाओं के लिए जगह हो, मुद्रित सामग्री, मीडिया सामग्री (पत्र-पत्रिकाएँ, समाचार पत्रों के स्तंभ, रेडियो, ऑडियो कैसेट और प्रामाणिक सामग्री)।
- वृत्तचित्रों और फ़ीचर फ़िल्मों को भाषा सीखने की सामग्री के तौर पर प्रयोग करने की आवश्यकता है। इनके माध्यम से भाषा के प्रयोग की विशिष्टता की पहचान कराई जा सकती है और अलग-अलग हिंदी की छटा दिखाई जा सकती है।
- भाषा व्यवहार से सीखी जाती है। शिक्षक स्वयं शब्दकोश, साहित्यकोश और संदर्भ ग्रंथों के प्रयोग का प्रदर्शन करें। इससे बच्चे भी प्रेरित होंगे और अनुमान के आधार पर निकटतम अर्थ तक पहुँचकर ही संतुष्ट नहीं होंगे बल्कि अधिक अर्थ खोजने का प्रयास करेंगे। वे शब्दों के अर्थ में बारीक अंतरों को समझेंगे और उसी के अनुरूप अपनी भाषा में प्रयोग करेंगे।
- चुनौती पूर्ण और विशेष आवश्यकता वाले बच्चों की भाषा-शिक्षण संबंधी आवश्यकताओं को समझकर पाठ्यचर्या अनुकूलन किया जाए। सीखने-सिखाने की प्रक्रियाओं में उनकी सहभागिता को समान रूप से प्रोत्साहित किया जाए।
- कक्षा में हर प्रकार की विभिन्नताओं के प्रति सकारात्मक और संवेदनशील वातावरण निर्मित किया जाए।
- कक्षा में बच्चों द्वारा किए गए प्रयासों को सराहा जाए और उनके रचनात्मक / सृजनात्मक कार्यों को प्रदर्शित किया जाए।

थीम 1: सुनना और बोलना

छठी कक्षा तक आते-आते बच्चे भाषा के मौखिक रूप को सुनकर भली प्रकार समझने लगते हैं। अभिव्यक्ति की क्षमता भी मुखरित होने लगती है। आवश्यकता पड़ने पर **स्पष्टीकरण माँगते** हैं और विचार व्यक्त करते हैं। चुनौती दिए जाने पर आत्मविश्वास, उचित हाव-भाव एवं **तर्कपूर्ण ढंग से अपनी बात कहते हैं** ।अपनी जानकारी बोलकर साझा करते हैं। अवसरानुकूल औपचारिक व अनौपचारिक भाषा का प्रयोग करते हैं तथा बोलने के शिष्टाचार का पालन करते हैं।

अधिगम उपलब्धियाँ (Learning outcomes):

- कक्षा, प्रातः सभा आदि में की गई उद्घोषणा टीवी पर प्रसारित चर्चा, संगोष्ठी आदि तथा सोशल मीडिया और इंटरनेट की दृश्य-श्रव्य सामग्री को सुनकर उसका अर्थ ग्रहण कर सकेंगे और आवश्यकता अनुरूप अपनी प्रतिक्रिया प्रकट कर सकेंगे। अपने विचारों को विस्तार दे सकेंगे।
- कथन में निहित **व्यंग्य, हास्य-विनोद आदि भावों** को समझ सकेंगे।
- पढ़ी, सुनी या देखी बातों जैसे – सामाजिक घटनाओं, कार्यक्रमों, मुद्दों, सामाजिक सरोकारों आदि पर **बेझिझक चर्चा कर सकेंगे और प्रश्न कर सकेंगे।**
- प्रश्नों को समझ कर उनके अनुरूप उत्तर दे सकेंगे।
- विविध कलाओं, जैसे – हस्तकला, वास्तुकला, नृत्य कला आदि में प्रयुक्त भाषा समझ सकेंगे।
- कहानी, घटना, प्रसंग, कविता, संस्मरण आदि हाव-भाव के साथ सुना सकेंगे।
- अपनी आयु अनुरूप शब्दों का प्रयोग करते हुए कहानी को अपनी कल्पना से आगे बढ़ा सकेंगे।
- अपनी आयु के अनुरूप कुछ विषयों जैसे – जब मैंने साइकिल चलाना सीखा, पहली बार शरबत बनाया, मंच पर गया आदि पर **आशुभाषण प्रस्तुत कर सकेंगे।**
- लिंग / वचन को ध्यान में रखकर अपनी बात उचित उच्चारण, बल एवं अनुतान के साथ कह सकेंगे।
- अवसर के अनुकूल औपचारिक एवं उपयुक्त भाषा का प्रयोग कर सकेंगे।
- अपने विचारों को आत्मविश्वास, सहजता एवं प्रवाह के साथ बोलकर प्रकट कर सकेंगे।
- विभिन्न स्रोतों से नए शब्दों को जानने का प्रयास करेंगे।
- मल्टी-मीडिया (ग्राफ़िक्स, तस्वीरें, संगीत, ध्वनि आदि) का प्रयोग करते समय दृश्य-सामग्री प्रस्तुत कर सकेंगे।
- भाषा-खेलों में रुचिपूर्वक भाग लेंगे, जैसे – वर्ग पहेली, शब्द-सीढ़ी आदि।

सुनना और बोलना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
▸ उद्घोषणा, अतिथियों के वक्तव्य, टीवी पर संगोष्ठी / चर्चाएँ, सोशल	▸ ऑडियो सुनवाएँ और प्रश्न पूछें। विविध विधाओं की भाषा सुनवाने के लिए विविध	▸ आमंत्रित अतिथियों के वक्तव्य ▸ विविध प्रकार की ऑडियो / वीडियो सामग्री

सुनना और बोलना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
मीडिया या इंटरनेट की दृश्य-श्रव्य सामग्री ▸ सामूहिक चर्चा में भागीदारी ▸ **विषय** ☛ जल संरक्षण ☛ *वन महोत्सव* ☛ *यातायात के नियम* ☛ *स्वास्थ्य* ☛ *जंक फ़ूड* ▸ पी.पी.टी. या वीडियो द्वारा दृश्य सामग्री की अपनी भाषा क्षमता के अनुरूप प्रस्तुति ▸ सूचनाओं और जानकारी की विभिन्न दृष्टिकोणों से प्रस्तुति ▸ किसी अन्य के विचार की परख, समझ और मूल्यांकन ▸ विभिन्न संदर्भों (सामाजिक, सांस्कृतिक, ऐतिहासिक आदि) में भाषा की समझ और विश्लेषण ▸ समाचार-पत्र, टीवी, विज्ञापन आदि की भाषा ▸ विभिन्न प्रसंगों, भाषण, वाद-विवाद और सामूहिक चर्चा में भाषा प्रयोग ▸ मल्टी-मीडिया का प्रयोग करते समय विभिन्न अंगों, जैसे – ग्राफ़िक्स, तस्वीरें, संगीत, ध्वनि आदि की दृश्य सामग्री में प्रस्तुति। विषय - प्राकृतिक आपदाएँ, मौसम, त्योहार, खेल आदि	कार्यक्रम करवाएँ। (कहानी, भाषण, कविता, नाटक आदि)। ▸ अतिथियों द्वारा वक्तव्य के अवसर दें, मल्टीमीडिया सामग्री सुनाकर – दिखाकर विद्यार्थियों को अपनी प्रतिक्रिया देने के अवसर दें। आशु भाषण की प्रस्तुति, वाक् प्रस्तुति के अवसर दें। ▸ अपनी भाषा में बातचीत और चर्चा करने के अवसर दें। ▸ सक्रिय और जागरूक बनाने वाली रचनाएँ, अखबार के लेख, फ़िल्म, ऑडियो – वीडियो सामग्री को देखने, सुनने और समझने के अवसर दें। ▸ अपने परिवेश, समय और समाज से जुड़े विषयों पर रचनाएँ उपलब्ध करवाएँ। ▸ कक्षा में भाषा खेल करवाएँ। ▸ कल्पनाशीलता और सृजनशीलता को विकसित करने वाली गतिविधियों जैसे – अभिनय, कविता – पाठ, वाक् प्रस्तुति के आयोजन करें। ▸ साहित्य और साहित्यिक तत्वों की समझ बढ़ाने के अवसर दें। ▸ ऐसे परियोजना कार्य करने के लिए दें जिसमें बच्चे मल्टी-मीडिया का प्रयोग कर सकें, जैसे संगीत, प्राकृतिक आपदा, खेल, प्राकृतिक स्थल।	▸ साहित्यिक लेख (अख़बार, पत्रिकाओं से) ▸ पुस्तकालय में प्रासंगिक और तात्कालिक / समसामयिक पुस्तकें ▸ नेट सुविधा / मल्टीमीडिया ▸ भाषा- खेल ▸ श्रुतभाव- ग्रहण संबंधी प्रपत्र

थीम 2: पढ़ना एवं लिखना (पठन एवं लेखन कौशल)

बच्चे अपने स्तर के अनुकूल पाठ्य-सामग्री को समझते हुए पढ़ते हैं। मुद्रित और डिजिटल मीडिया की सामग्री को पढ़-देखकर ग्रहण करते हैं। सटीक शब्दों, मुहावरों, पदबंधों आदि का प्रयोग करते हुए विभिन्न अवसरों के लिए अलग-अलग विधाओं में लिखित अभिव्यक्ति करते हैं।

अधिगम उपलब्धियाँ (Learning outcomes):

- मुखर वाचन की कुशलताओं – सही उच्चारण, बलाघात, अनुतान, स्वरगति में उत्तरोत्तर कुशलता में वृद्धि कर सकेंगे।
- **अर्थ बोध एवं गति के साथ मौन पठन कर सकेंगे।**
- पाठ्य-सामग्री को पढ़कर अर्थ-ग्रहण, भाव ग्रहण कर सकेंगे। समसामयिक संदर्भों में अर्थ समझ सकेंगे। अखबार, पुस्तकें, पत्रिकाओं आदि में सामाजिक घटनाओं, मुद्दों, सरोकारों को पढ़ और समझ सकेंगे और उन पर अपनी **बेझिझक राय प्रस्तुत कर सकेंगे।**
- कक्षा में विभिन्न प्रश्नों को पढ़कर समझ सकेंगे और उत्तर लिख सकेंगे।
- काव्य – रचना के विभिन्न अर्थों को पहचान सकेंगे और उसमें अपनी समझ के अनुसार अपनी राय भी जोड़ सकेंगे।
- अपने विचारों से अलग पाठ्य – सामग्री के **मूलभूत तथ्यों को पहचान सकेंगे।**
- विभिन्न शब्दों, पदबंधों आदि को सामाजिक संदर्भों के अनुसार समझ सकेंगे और अपने लेखन में उसका प्रयोग कर सकेंगे।
- प्रभावशाली, तार्किक और उपयुक्त भाषा-शैली में अपनी बात / विचार लिख सकेंगे।
- विभिन्न प्रिंट और डिजिटल माध्यमों से जानकारी प्राप्त करके उसका उपयोग कर सकेंगे।
- सटीक शब्दों का चयन करके विद्यालय की पत्रिका के लिए कहानी / कविता लिख सकेंगे।
- कहानी को नाटक रूप में लिखकर प्रस्तुत कर सकेंगे।
- पाठ्य सामग्री को पढ़कर समझ सकेंगे और प्रश्नों के उत्तर लिख सकेंगे।

पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
▸ पाठ्य सामग्री के केंद्रीय भाव का अनुमान ▸ काव्य रचना की समझ और भाव ग्रहण	▸ विभिन्न विधाओं जैसे – कविता, कहानी, एकांकी आदि को भावपूर्ण ढंग से पढ़वाएँ। आदर्श वाचन प्रस्तुत करें और विद्यार्थियों को ऐसे अवसर प्रदान करें जिसमें वे विभिन्न विधाओं को उपयुक्त शैली में पढ़ सकें और लिख सकें।	▸ साहित्यक-सामग्री के लिए पुस्तकें और पत्रिकाएँ ▸ प्रासंगिक, तात्कालिक / समसामयिक पुस्तकें ▸ नेटसुविधा/ मल्टीमीडिया ▸ भाषा खेल

पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
▸ अपनी व्यक्तिगत राय से भिन्न पाठ्य-सामग्री के मूलभूत तथ्यों की पहचान ▸ साहित्य और संस्कृति के अनुरूप शब्दों के अर्थ की पकड़ और समझ ▸ अपनी बात का तर्कपूर्ण, सकारण और उपयुक्त प्रमाण सहित कथन ▸ सत्य, काल्पनिक अनुभवों का विस्तार, क्रमबद्धता और प्रभावशाली ढंग से लेखन ▸ विभिन्न प्रिंट एवं डिजिटल माध्यमों से उपयुक्त जानकारी का संकलन एवं लेखन ▸ विभिन्न भाषा शैलियों की समझ और अपनी शैली का विकास ▸ साहित्य की विभिन्न विधाओं, कहानी, एकांकी, कविता, निबंध आदि का पठन एवं लेखन	▸ कहानी को एकांकी में प्रस्तुत करवाएँ, चित्र लेखन करवाएँ। प्रात: सभा के लिए अनुच्छेद लेखन करवाएँ। ▸ वाक् प्रस्तुति करवाने के अवसर प्रदान करें। ▸ सक्रिय और जागरूक बनाने के लिए समसामयिक लेख पढ़वाएँ और उनपर अपनी प्रतिक्रिया लिखवाएँ। ▸ कल्पनाशीलता और सृजनशीलता को विकसित करने के लिए अतिरिक्त अध्ययन के लिए प्रेरित करें। ▸ अपने परिवेश, समय और समाज से जुड़े विषयों पर रचनाएँ उपलब्ध करवाएँ और लेखन के अवसर भी दें। ▸ पुस्तकें उपलब्ध करवाएँ तथा ऐसी गतिविधियों का आयोजन करें जिससे पढ़ने और लिखने की क्षमता का विकास हो। ▸ भाषा-खेलों का आयोजन करें जैसे शब्द-सीढ़ी, वर्ग-पहेली आदि। ▸ सांस्कृतिक कार्यक्रमों का आयोजन करें जिसमें संयोजक (एंकर) द्वारा प्रस्तुति, धन्यवाद ज्ञापन, अतिथि-परिचय आदि के लेखन का अवसर दें।	▸ लेखन प्रतियोगिताएँ

थीम 3: व्याकरण और भाषा

छठी कक्षा के बच्चे भाषा के मूल रूप को समझते हैं और भाषिक संरचना से परिचित हैं। वे व्यवहार में व्याकरण सम्मत भाषा का प्रयोग करते हैं। संदर्भ में व्यावहारिक व्याकरण का उपयुक्त प्रयोग करते हैं।

अधिगम उपलब्धियाँ (Learning outcomes):

- हिंदी भाषा के शब्दों **(तत्सम और तद्भव)** रूपों को समझ सकेंगे।
- **संज्ञा** के तीन भेद – **व्यक्तिवाचक संज्ञा, जातिवाचक संज्ञा और भाववाचक संज्ञा** को पहचान सकेंगे और भाववाचक संज्ञा का निर्माण कर सकेंगे।
- **सर्वनाम** के भेदों की पहचान और उसका सही प्रयोग कर सकेंगे। भेद – **पुरुषवाचक सर्वनाम, निश्चयवाचक, अनिश्चयवाचक, प्रश्नवाचक, संबंधवाचक, निजवाचक।**
- **विशेषण** - विशेषण के चार भेद - **गुणवाचक विशेषण, परिमाणवाचक विशेषण, संख्यावाचक विशेषण, सार्वनामिक विशेषण समझ सकेंगे**। अन्य पदों से विशेषण बना सकेंगे।
- **क्रिया** - कर्म के आधार पर दो भेद - **अकर्मक क्रिया और सकर्मक क्रिया की पहचान** कर सकेंगे।
- व्यावहारिक भाषा में उचित लिंग और वचन का प्रयोग कर सकेंगे।
- **काल** - काल के तीन भेद– भूतकाल, वर्तमान काल और भविष्यत् काल का समुचित प्रयोग कर सकेंगे।
- कारक -चिह्नों का सही प्रयोग कर सकेंगे।
  - (क) विराम -चिह्नों की पहचान और उनका सही प्रयोग कर सकेंगे।
  - (ख) 'की' और 'कि' तथा 'रि' और 'ऋ' के अंतर आदि की पहचान कर सकेंगे। अनुस्वार, अनुनासिक और 'र' के विभिन्न रूपों को ठीक से पहचान कर सही प्रयोग कर सकेंगे।
- **शब्द भंडार** - शब्दों के विभिन्न रूपों को समझ सकेंगे, विलोम, पर्यायवाची, अनेक के लिए एक शब्द, समरूपी भिन्नार्थक शब्द, अनेकार्थी शब्दों की समझ बना सकेंगे तथा प्रयोग कर सकेंगे।
- मुहावरों को वाक्यों / भाषा में समझ कर प्रयुक्त कर सकेंगे।
- **अपठित गद्यांश व काव्यांश पढ़कर समझ सकेंगे और अपनी भाषा में संक्षिप्त उत्तर लिख सकेंगे।**
- पत्र-लेखन का प्रारूप समझ कर पत्र लिख सकेंगे।
- निबंध-लेखन द्वारा अपने विचारों को अभिव्यक्त कर सकेंगे।
- चित्र देखकर अपनी कल्पनाशीलता और भाषा का प्रदर्शन करते हुए विभिन्न विषयों पर अभिव्यक्ति कर सकेंगे।

पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
▸ संज्ञा, सर्वनाम, लिंग-वचन आदि का शुद्ध प्रयोग ।	▸ स्वरों और व्यंजनों के अंतर को स्पष्ट करें। अब 'ऑ' हिंदी का मान्य स्वर है। डॉक्टर, कॉलेज, बॉल आदि	▸ रोचक कार्यपत्र ▸ शब्द-भंडार की सूची

पढ़ना एवं लिखना

सुझावित विषय / क्षेत्र	सुझावित शिक्षण-अधिगम प्रक्रिया	सुझावित अधिगम स्रोत
सर्वनाम के विभिन्न रूपों की समझ और उनके प्रयोग का प्रदर्शन ▸ शुद्ध उच्चारण, उपयुक्त अर्थ, पद-परिचय की समझ बनाने के लिए संदर्भ-सामग्री (प्रिंट और डिजिटल दोनों) ▸ वर्ण विचार – भाषा की सबसे छोटी इकाई ▸ भाषा विचार – भाषा का मौखिक और लिखित रूप ▸ शब्द विचार – सार्थक वर्णों का समूह ▸ संज्ञा और संज्ञा-भेद ▸ सर्वनाम, सर्वनाम के भेद और विभिन्न रूप ▸ विशेषण और सामान्य भेद ▸ क्रिया की पहचान एवं प्रयोग – कर्म के आधार पर क्रिया भेद ▸ लिंग और वचन – लिंग, वचन परिवर्तन का अभ्यास ▸ काल – सामान्य भेदों की पहचान ▸ कारक – कारक चिह्नों (परसर्ग) का सामान्य ज्ञान एवं प्रयोग ▸ (a) विराम-चिह्न – विराम-चिह्नों की पहचान और प्रयोग	उदाहरणों से स्पष्ट करें। स्वरों की मात्राओं का ज्ञान कराएँ। संयुक्त व्यंजन (क्ष, त्र, ज्ञ, श्र) के रूपों को स्पष्ट करें। ▸ मौखिक रूप पहले आया, क्यों? आदि पर चर्चा करें। दोनों रूपों को स्पष्ट करें। ▸ शब्दों के तत्सम – तद्भव रूप को स्पष्ट करें। नवीन सोच की ओर भी संकेत किया जा सकता है कि 'तत्सम' शब्द वे हैं जो किसी अन्य भाषा से ज्यों के त्यों ले लिए गए हैं, जैसे – आश्रय, अस्थि, बॉल, हॉल, कॉलेज, इडली, ज़रूरत आदि। 'तद्भव' वे हैं जिन्हें हिंदी भाषा के अनुरूप ढाल लिया गया है, जैसे – दही, हड्डी, त्रासदी, अकादमी आदि। ▸ पाठ के शब्दों का चयन कर संज्ञा भेदों को बताएँ। उदहारण – मिठाई – जातिवाचक संज्ञा, आगरा – व्यक्तिवाचक संज्ञा, मिठास – भाववाचक संज्ञा। भाववाचक संज्ञा निर्माण – मीठी से मिठास आदि। ▸ पाठ्य– सामग्री से सर्वनाम छाँटकर उनके भेदों को समझाएँ। ▸ सर्वनाम के भेदों की पहचान और उसका सही प्रयोग करवाएँ। भेद – पुरुषवाचक, निश्चयवाचक, अनिश्चयवाचक, प्रश्नवाचक, निजवाचक, संबंधवाचक की पहचान करवाएँ। ☛ *जब संदर्भ के साथ यह, वह, इन्हें, उन्हें, उसे आदि का प्रयोग हो तब तो निश्चयवाचक सर्वनाम मान सकते हैं। जब संदर्भ न हों तब सर्वनाम पुरुषवाचक भी हो सकता है और निश्चयवाचक भी। इसका निर्णय कैसे लें ? इसका स्पष्टीकरण इस प्रकार किया जा सकता है कि यदि व्यक्ति के लिए यहवह का , प्रयोग हुआ है तब तो वह पुरुषवाचक सर्वनाम होगा और वस्तुघटना , आदि के लिए आया है तो*	▸ डाकखाना भ्रमण, बैंक भ्रमण, पोस्टकार्ड, अंतर्देशीय पत्र, लिफ़ाफ़ा ▸ निबंध ▸ सुन्दर चित्र ▸ भाषा खेल – वर्ग पहेली आदि o अनौपचारिक पत्र अपना पता तिथि जिसके लिए है उसका पद पता विषय संबोधन विषय वस्तु _____ _____ भवदीय अपना नाम

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▸ (b) वर्तनी सुधार के लिए 'की' और 'कि', 'रि' और 'ऋ' का अंतर ▸ शब्द भंडार – विलोम, पर्यायवाची, अनेक के लिए एक शब्द, समरूपी भिन्नार्थक शब्द, अनेकार्थी शब्द ▸ सामान्य मुहावरे ▸ रोचक अपठित गद्यांश / पद्यांश (स्तारानुकूल) ▸ पत्र लेखन – औपचारिक और अनौपचारिक पत्र लेखन ▸ निबंध लेखन – (150 से 180 शब्दों में) ▸ चित्र-लेखन	*निश्चयवाचक सर्वनाम होगा। इससे समस्या का काफ़ी हद तक समाधान हो जाएगा। जैसे –* ☛ *उसे बुला लाओ / वह बाहर खड़ी है/ यह तो यहाँ ही बैठा है। इन वाक्यों में उसे, वह, यह व्यक्तियोंके लिए आया है यह विभिन्न क्रियाओं से स्पष्ट है। इन्हें पुरुषवाचक माना जाए।* ☛ *यह यहाँ रख दो। वह वहीं पड़ा रहने दो। उसे उठा लाओ। इन वाक्यों में यह, वह, उसे वस्तुओं के लिए ही प्रयुक्तहुआ है अतः इन्हें निश्चयवाचक मानना चाहिए।* ☛ *कुछ अन्य वाक्य देखिए–* ☛ *उन्हें भी बुला लो /उन्हें रखा रहने दो/ उन्हें रहने दो- पहले वाक्य में 'उन्हें ' व्यक्तियोंके लिए ही प्रयुक्तहुआ है जबकि दूसरे वाक्य में वस्तुओं के लिए और तीसरे में व्यक्तिभी हो सकते हैं और वस्तु भी। ऐसी स्थिति में दोनों संभव है। संदर्भ ज्ञात हो तो उसी के अनुरूप भेद किया जा सकता है अन्यथा दोनों भेद माने जा सकते हैं।* ☛ *पाठ्य सामग्री से विशेषण छाँटकर अभ्यास करवाएँ। भेदों की पहचान करवाएँ। चार भेद ही अपेक्षित हैं।* ▸ सार्वनामिक विशेषण को समझना आवश्यक है। जैसे - ☛ ***यह** आम पका है और **वह** कच्चा। इस वाक्य में आम की 'यह 'विशेषता बता रहा है इसलिए सार्वनामिक विशेषण है और 'वह' आम के लिए आया है इसीलिए सर्वनाम है।* ☛ *सर्वनाम और सार्वनामिक विशेषण दोनों रूप रचना के स्तर पर समान होते हैं केवल वाक्य प्रयोग के स्तर पर दोनों में अंतर होता है। जो*	

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	*शब्द संज्ञा के स्थान पर प्रयुक्त होते हैं वे सर्वनाम होते हैं लेकिन जब कोई सर्वनाम किसी संज्ञा (विशेष्य) के साथ लगकर संज्ञा की विशेषता बताता है तो सार्वनामिक विशेषण होता है। जैसे – **कुछ** छात्र खेल रहे हैं। **हमारा** विद्यालय बड़ा है। इन वाक्यों में 'कुछ' और 'हमारा' सार्वनामिक विशेषण हैं।* ▷ विशेषण बनवाएँ, जैसे – सुरभि-सुरभित, ठंड-ठंडा आदि। ▷ क्रिया – कर्म के आधार पर दो भेद- अकर्मक और सकर्मक की पहचान करवाएँ। प्रायः कर्म के साथ सकर्मक क्रिया आती है। उदाहरणों द्वारा स्पष्टीकरण करना चाहिए। (इस स्तर पर मिश्रित ,संयुक्त और प्रेरणार्थक उदाहरणों से बचा जाए तो बेहतर है)। ▷ लिंग और वचन का अभ्यास करवाएँ। हिंदी में निर्जीव वस्तुओं के लिए भी स्त्रीलिंग या पुल्लिंग निर्धारित होता है और कभी कभी मातृ-भाषा से प्रभावित होकर लिंग भेद देखा जा सकता है, जैसे – पंजाब में ट्रक **आती** है जबकि हिंदी क्षेत्र में ट्रक **आता** है। इसका संकेत करें और प्रयोग विद्यार्थी पर छोड़ दें। परीक्षा में ऐसे अपवादों को पूछने से बचा जा सकता है। प्रयोग के आधार पर अभ्यास करवाएँ। वचन के प्रयोग को भी स्पष्ट करें। कभीकभी शब्द - के रूप में एकवचन और बहुवचन समान होते हैं लेकिन प्रयोग या क्रिया आदि से एकवचन या बहुवचन का निर्धारण होता है,जैसे पेड़ लगा है । पेड़ लगे हैं। इन वाक्यों में 'पेड़' का रूप दोनों वाक्यों में समान है जबकि पहले वाक्य में एकवचन है और दूसरे वाक्य में बहुवचन। इसका पता क्रिया से लगा। इस प्रकार के उदाहरण देकर स्पष्ट करें। कार्य पत्रों के माध्यम से अभ्यास करवाएँ। (नित्य पुल्लिंग /	

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	स्त्रीलिंग या नित्य एकवचन / बहुवचन विद्यार्थी की जिज्ञासा को स्पष्ट करने के लिए बताना बेहतर होगा)। ▸ काल के तीन भेद – भूतकाल, वर्तमान काल, भविष्यत् काल का अभ्यास करवाएँ। परस्पर परिवर्तन का अभ्यास करवाएँ। मैं पढ़ता था। मैं पढ़ता हूँ। मैं पढ़ूँगा। रोचक कार्य पत्रों द्वारा पहचान करवाएँ। ▸ कारकों के भेद प्रयोग द्वारा स्पष्ट करें। सामान्य कारक चिह्नों के प्रयोग का अभ्यास करवाएँ और उनकी पहचान करवाएँ। परसर्ग के सही प्रयोग से भाषा की पकड़ मजबूत बनाएँ। ▸ विराम चिह्नों का प्रयोग करवाएँ और स्पष्टीकरण करें। पूर्ण विराम, प्रश्न चिह्न, अल्पविराम, उद्धरण चिह्न, कोष्ठक, विस्मयादिबोधक, योजक चिह्न का प्रयोग बताएँ और अभ्यास करवाएँ। ▸ विद्यार्थियों की भाषा में 'की' और 'कि' के अंतर, 'रि' और 'ऋ' के अंतर की अशुद्धियों की ओर ध्यान दिलाएँ और उचित प्रयोग करवाएँ। ▸ शब्द भंडार, विलोम, पर्यायवाची, अनेक शब्दों के लिए एक शब्द, समरूपी भिन्नार्थक और अनेकार्थी शब्दों का प्रयोग बताएँ। पाठ्य सामग्री से ऐसे शब्दों को चुनने का अभ्यास करवाएँ। *(स्तर को ध्यान में रखते हुए 15-20 शब्द प्रति सत्र शब्दों की सूची देकर भी अभ्यास करवाया जा सकता है। सूची की सीमा के कारण विद्यार्थी तैयारी अच्छी कर पाते हैं। छठी की सूची सातवीं में जोड़ कर पूछें और आठवीं में छठी सातवीं की सूची जोड़कर)।* ▸ पाठ्य-सामग्री में आए मुहावरों का प्रयोग समझाएँ और अपने वाक्यों में पुनः प्रयोग करवाएँ। रचनात्मक लेखन में उनका प्रयोग करने के लिए प्रेरित करें।	

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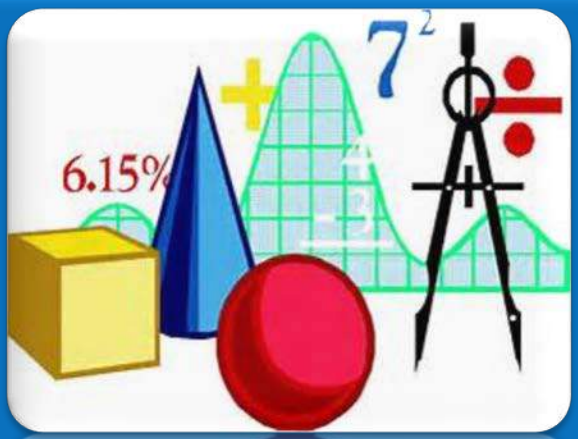
	▸ रोचक अपठित गद्यांश और काव्यांश देकर प्रश्न अभ्यास करवाएँ। ▸ पत्र लेखन – औपचारिक और अनौपचारिक पत्रों के प्रारूप को स्पष्ट करें। यह भी स्पष्ट करें कि पता, तिथि, विषय, संबोधन और समाप्ति की आवश्यकता क्यों है? भाषा शैली पर विशेष ध्यान दें। अति संक्षेप या अनावश्यक विस्तार से बचने की प्रेरणा दें। ▸ निबंध लेखन के लिए विद्यार्थियों को उनके स्तर के अनुकूल समसामयिक, उनसे संबद्ध और रोचक विषय देकर अभ्यास करवाएँ। निबंध का प्रारंभ / मुख्य विषय-वस्तु और उपसंहार को स्पष्ट करें। यह निबंध वर्णनात्मक, कल्पनात्मक आदि हो सकते हैं। ▸ चित्र देखकर उस पर लेखन करवाएँ। चित्र पर कविता, कहानी, लेख या निबंध कुछ भी लिखवाया जा सकता है। कल्पनाशीलता और रचनात्मकता को बढ़ावा दें।	

MATHEMATICS

Mathematics



Mathematics is one of the most important subjects which is used in daily life and other branches of knowledge. George Polya, a Hungarian Mathematician, describes two kinds of aims for school mathematics: '*A narrow aim, that of turning out employable adults who (eventually) contribute to social and economic development; and A higher aim, that of developing the inner resources of the growing child with regard to school mathematics*'.

The narrow aim specifically relates to numeracy and is taken care at beginning of learning mathematics i.e. elementary schools. The Primary school curriculum focuses on teaching of numbers and operations on them, measurement of quantities, fractions, percentages and ratios: all these are important for numeracy.

The higher aim focuses on developing a child's inner resources, in which the role that mathematics plays is mostly about thinking. Development of inner resources also means equipping children to evolve their own ways of solving problems and generating better algorithms. Clarity of thought and pursuing assumptions to logical conclusions is central to the mathematical enterprise. There are many ways of thinking, and the kind of thinking one learns in mathematics is an ability to handle abstractions.

More importantly, what mathematics offers is a way of doing things: to be able to solve mathematical problems, and more generally, to have the right attitude towards problem solving and to be able to deal with all kinds of problems in a systematic manner.

Problems in teaching and learning of mathematics

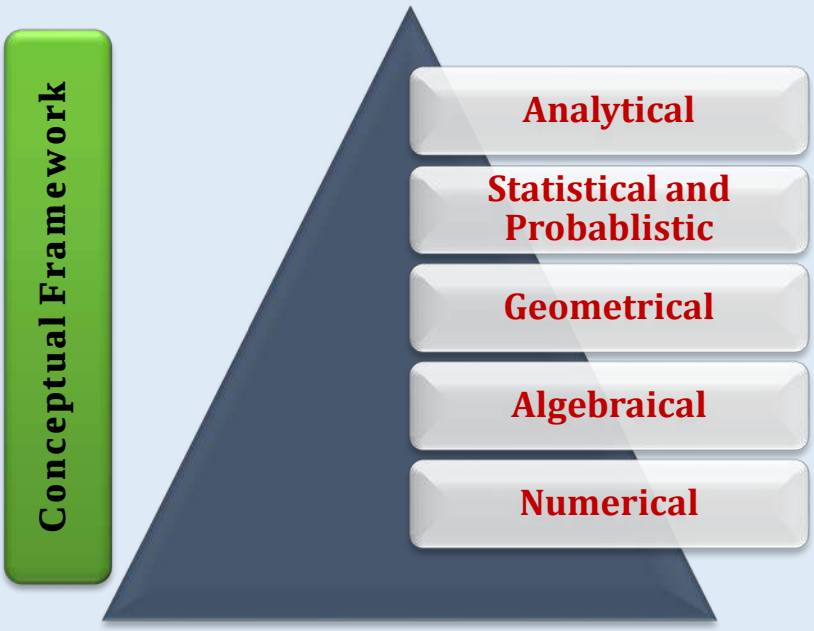
Various researches have highlighted upon some problems that hamper learning of mathematics in schools. The following four problems have been identified to be in the fore front and are the core areas of concern for teachers and practitioners:

1. Most of the children do not find mathematics learning joyful therefore fear mathematics.
2. Curriculum is disappointing for talented minority as well as the non-participating majority in the class i.e not catering to learning needs.
3. Assessment encourages perception of mathematics as mechanical computation and reproduction of learnt facts and algorithms, and
4. Pre service and in- service teacher education and support in the teaching of mathematics is totally inadequate.

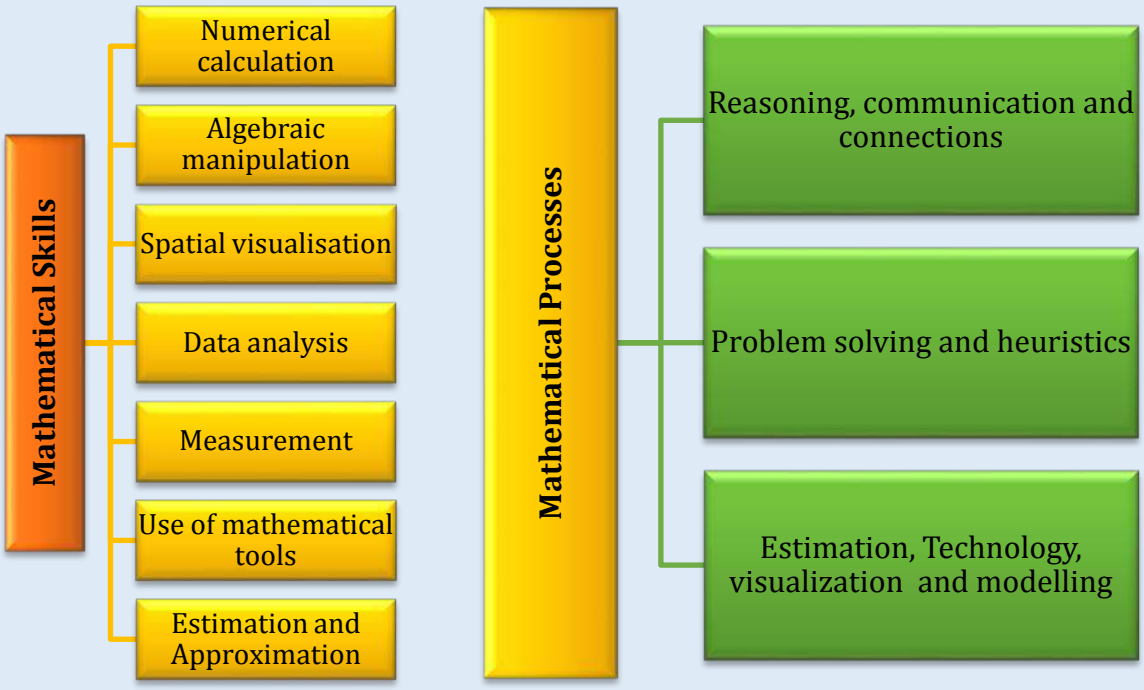
These issues are required to be addressed through the curriculum as and wherever possible. These also need to be expanded on, since they concern the curriculum in essential ways. Concerted efforts therefore, are required to improve learning of mathematics in schools. Major reforms are suggested right from the early to terminal school classes.

Keeping in view the present dismal picture of mathematics learning in schools, it is envisioned that the school mathematics should be such that children:

- enjoy learning of mathematics.
- learn importance of mathematics that is much more than a few formulas and mechanical procedures of solving problems. Understanding when and how a mathematical technique is to be used is always more important than recalling the technique from memory (which may easily be done using a book), and the school needs to create such understanding.
- see mathematics as something to talk about, to communicate, to discuss among themselves, to work together on. Making mathematics a part of children's life experience is the best mathematics education possible.
- pose and solve meaningful problems.
- use abstractions to perceive relationships, to see structure, to reason about things, to argue the truth or falsity of statements.
- understand the basic structure of mathematics: Arithmetic, algebra, geometry and trigonometry, the basic content areas of school mathematics, all offer a methodology for abstraction, structuration and generalization.
- are expected to be engaged by teacher in class.



The present Mathematics curriculum at the upper primary level aims to develop a number of mathematical skills and processes among children in Classes VI-VIII as presented in the diagram below:



Mathematics at Upper Primary Stage

Mathematics is amazingly compressible: one may struggle a lot, work out something, perhaps by trying many methods, but once it is understood, and seen as a whole, it can be filed away, and used to move forward when needed. The insight that goes into this compression is one of the great joys of mathematics. A major goal of the upper primary stage is to introduce the child to this particular pleasure.

The compressed form lends itself to application and use in a variety of contexts. Thus, mathematics at this stage can address many problems from everyday life and offer tools for addressing them and using it for solving problems. Indeed, the transition from mostly the concrete presentation of mathematics to its exact abstract form and arithmetic to algebra, at once is both challenging and rewarding and is best if seen in this light.

Major Themes

The major themes that will be covered at the Upper Primary stage are highlighted below:

Arithmetic and Algebra

A consolidation of basic concepts and skills learnt in arithmetic in classes at the primary level is necessary from several points of view. Firstly, for ensuring numeracy in all children which is an important aspect of Universalization of Elementary Education(UEE). Secondly, moving from number sense to number patterns, seeing relationships between numbers and looking for patterns in the relationships develops useful life skills in children. Ideas of prime numbers, odd and even numbers and tests of divisibility etc. offer scope for such exploration.

Algebraic notation, introduced at the upper primary stage, is best seen as a compact language, a means of succinct expression. Use of variables, setting up and solving linear equations, identities and factoring are means by which students gain fluency in using the new language. The set theory and its notations need to be introduced here as an important tool to represent most of the mathematics.

The use of arithmetic and algebra in solving daily life problems can be emphasized. However, engaging children's interest and offering a sense of success in solving such problems is essential.

Shape, space and Measures

A variety of regular shapes are introduced to children at this stage: triangles, circles, quadrilaterals, etc. They offer a rich new mathematical experience in at least four ways. Children start looking for such shapes in nature, all around them, and thereby discover many symmetries and acquire a sense of aesthetics. Secondly, they understand how many seemingly irregular shapes can be approximated by regular ones, which becomes an important technique in science. Thirdly, they start comprehending the idea of space: for instance, that a circle is a path or boundary which separates the space inside the circle from that outside it. Fourthly, they start associating numbers with shapes, like area, perimeter etc., and this technique of quantization, or arithmetization, is of great importance. This also suggests that mensuration is best when integrated with geometry. An informal introduction to geometry is possible using a range of activities like paper folding and dissection, and exploring ideas of symmetry and transformation. Observing geometrical properties and inferring geometrical truth is the main objective here. Formal proofs will be dealt with at a later stage.

Visual learning

Data handling, representation and visualization are important mathematical skills which are taught at this stage. They are of immense use as "life skills". Students can learn to appreciate how railway time tables, directories and calendars organize information compactly. Data handling should be suitably introduced as tools to understand process, represent and interpret day-to-day data. Use of graphical representations of data should be encouraged. Formal techniques for drawing linear graphs can be taught. Visual Learning fosters understanding, organization, and imagination. Instead of emphasizing on two-column proofs, students should also be given opportunities to justify their own conclusions with less formal, but nonetheless convincing, arguments. Students' spatial reasoning and visualization skills should be enhanced. The study of geometry should make full use of all available technology. A child when given visual scope to learning remembers pictures, diagrams, flowcharts, formulas, and procedures.

Mathematics and Mathematicians

At all stages of the curriculum, an element of humanizing the curriculum is essential. The development of mathematics has many interesting stories to be told, and every student's daily life includes many experiences relevant to mathematics. Bringing these stories and accounts into the curriculum is essential for children to see mathematics in perspective. Lives of mathematicians and stories of mathematical insights are not only endearing; they can also be inspiring.

Mathematics has been an important part of Indian history and culture, and students can be greatly inspired by understanding the seminal contributions made by Indian mathematicians in early periods of history. Similarly, contributions by women mathematicians from all over the world are worth highlighting. This is important, mainly to break the prevalent myth that mathematics has been an essentially male domain, and also to invite more girls to the mathematical enterprise.

Thus specific emphasis should be given on highlighting the contribution of Indian mathematicians. An appreciation of such contributions will help students see the place of mathematics in our culture.

The discussion on the above aspects and having a clear understanding is essential for every teacher. The curriculum should focus on discussion that will lead to enhancement in pedagogical content knowledge and teaching strategies that conform to the constructivist approach of teaching as emphasised in the National Curriculum Framework- 2005.

Curricular Expectations

- Moves from number sense to number patterns.
- See relationships between numbers and look for patterns in relationships.
- Gain proficiency in using newer language of mathematics like, variables, expressions, equations, identities, etc.
- Use arithmetic and algebra to solve real life problems and pose meaningful problems.
- Discover symmetries and acquire sense of aesthetics by looking around regular shapes like triangles, circles, quadrilaterals, etc.
- Comprehend the idea of space as region enclosed with in boundaries of a shape.
- Relate numbers with shapes in terms of perimeter, area and volume and uses them to solve everyday life problems.
- Provide reasoning and convincing arguments to justify their own conclusions particularly in mathematics.
- Collect, represent (graphically and in tables) and interprets data/information from her/his life experiences.
- Handle abstraction in mathematics.

Theme 1: Number System

The idea about numbers that children built-up up to class V is of representing the number of items/objects in a collection. But in class VI children have to initiate the learning of numbers that are abstract which starts with negative numbers and extension of whole numbers to integers. This is the stage where the collection of integers is seen as a system that satisfy certain properties and have correlated structure.

A preparation of the extension of fractions and integers to rational numbers also takes place in this class. A gradual move helps children in developing these concepts. Let children observe various patterns while applying operations on integers and fractions (common and decimals). Generalization of these patterns will lead to many properties of integers and decimal fractions.

The multiples and factors of numbers can be obtained by just playing with numbers. Therefore, it is expected that children will learn about these concepts through a play way method. Children will be enabled to explore and develop their own rules for finding HCF and LCM of two or more numbers.

Sets are important way of expressing groups of numbers and other objects. In this class a preliminary idea of language and terminology related to sets is to be introduced. This will also help children in looking into various collection of numbers as sets satisfying certain properties. The knowledge about sets will be further strengthened in higher classes too.

Learning Outcomes:

Children will be able to:

- describe place and face values of a digit in a large number;
- create situations around them in which they find negative numbers;
  - through situations like money transactions, measuring of height, budget, etc. child uses larger numbers and thus appreciates their use;
  - reduces fractions involving larger numbers to simplest (lowest) forms;
- identify a situation for a given fraction (like proper, improper, equivalent, etc.);
- construct examples through which they demonstrate the addition and subtraction of integers;
- create daily life situations where opposites are involved and represent such quantities by positive and negative numbers;
- make their own strategies of ordering, adding and subtracting integers;
- use divisibility rules to find factors of a number;
- demonstrate ways of finding HCF and LCM of two numbers;
- devise strategies to identify appropriate situations to use the concepts of HCF and LCM.

Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
Numbers ▸ Consolidating the *sense* of numberness up to 5 digits, size, estimation of numbers, identifying smaller, larger, etc. ▸ Place value (recapitulation and extension., ▸ Operations on large numbers. ▸ Word problems on number operations involving large numbers This would include conversions of units of length & mass (from the larger to the smaller units). ▸ Estimation of outcome of number operations. ▸ Introduction to a sense of the largeness of, and initial familiarity with, large numbers up to 8 digits and approximation of large numbers). ▸ Numbers in Indian and International Systems and their comparison.	▸ Revising previous concepts learnt by children. ▸ Building on children's previous learning. ▸ Making children compare numbers up to 5 digits through various situations like cost of two houses, number of spectators present in two cricket matches etc. ▸ Extending number up to 8 digits through patterns that exist in numbers up to five digits and then citing/observing daily life situations e.g. cost of property, ▸ Involving children in the activities that include classification of numbers on the basis of their properties like even, odd, multiples and factors. These properties can be used to classify numbers in to various categories. ▸ Providing opportunities to children to observe divisibility rules through patterns in multiplication facts. This could be followed by taking different division problems and discussing their use. For example, let children form multiplication tables of different numbers like 2, 3, 4, etc. and then from the multiplication facts ask them to identify the pattern like multiple of 3 has sum its digits divisible by 3, multiple of 5 has either 5 or zero in its one's place, etc.	▸ Number cards to create large numbers. ▸ Number cards to demonstrate operations on numbers. ▸ Maths Kit. ▸ Multiplication table chart.
Natural numbers and Whole numbers. ▸ Natural numbers. ▸ Whole numbers. ▸ Properties of numbers (commutative, associative, distributive, additive identity, multiplicative identity). ▸ Number line. ▸ Seeing patterns, identifying and	▸ Provide opportunities to children to understand that whole numbers are extension of natural numbers with the number zero included in it. ▸ Provide children opportunities to perform operations of natural numbers with zero and to form rules like when zero is added to any number or subtracted from any	▸ Maths Kit. ▸ Geoboard with rubber band. ▸ Videos/Life history of Mathematicians and their contributions.

Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
formulating rules for operations on numbers.	number the result is the same number. ▸ Conducting the activity to conclude that $a \div 0$ is not defined. For example, $a/0$ is a number whose product with zero is a, which never exist if a is non-zero.	
Negative Numbers and Integers ▸ Need for negative numbers. ▸ Connection of negative numbers in daily life. ▸ Representation of negative numbers on number line. ▸ Ordering of negative numbers, Integers. ▸ Identification of integers on the number line, ▸ Operation of addition and subtraction of integers, ▸ Addition and subtraction of integers on the number line ▸ Comparison of integers, ▸ ordering of integers.	▸ Conducting activities in the classes in groups of 4-5 children to represent opposite situations by numbers like moving up and down from a reference point, paying and getting some amount etc. ▸ Asking children to extend the number line to represent negative numbers and zero along with natural numbers and let them realise that corresponding to every positive numbers there is a negative number and vice-versa.	▸ Maths Kit. ▸ Geoboard with rubber band.
Sets ▸ Idea of sets. ▸ Representation of sets. ▸ Types of sets: Finite/infinite and empty. ▸ Cardinality of a set.	▸ Taking examples from children's context for introducing the idea of set. ▸ Letting children work out their own definitions and rules to work with sets as specific collections like classifying sets as finite/infinite and empty.	▸ Maths Kit.
Fractions ▸ Revision of what a fraction *is*. ▸ Fraction as a part of whole. ▸ Representation of fractions (pictorially and on number line). ▸ Fraction as a division. ▸ Proper, improper & mixed fractions. ▸ Equivalent fractions.	▸ Conducting activities with paper folding to show the product of two fractions as 'of' e.g. $\frac{2}{3} \times \frac{4}{5}$ as two-third of four-fifths ▸ Encouraging children to demonstrate similar such products by paper folding and to generalise that product of two fractions can be obtained by multiplying the numerators to get numerator and denominator can be	▸ Maths Kit

Number System

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▸ Comparison of fractions, ▸ Operations on fractions (Avoid large and complicated unnecessary tasks). (Moving towards abstraction in fractions). ▸ Review of the idea of a decimal *fraction*. ▸ Place value in the context of decimal *fraction*. ▸ Inter conversion of fractions and decimal fractions (avoid recurring decimals at this stage). ▸ Word problems involving addition and subtraction of decimals (two operations together on money, mass, length and temperature).	obtained by multiplying denominators.	
Playing with Numbers ▸ Simplification of brackets. ▸ Multiples and factors, ▸ divisibility rule of 2, 3, 4, 5, 6, 8, 9, 10, 11. (All these through observing patterns. Children would be helped in deducing some and then asked to derive some that are a combination of the basic patterns of divisibility) ▸ Even/odd and prime/composite numbers, Co-prime numbers, prime factorisation, every number can be written as products of prime factors. ▸ HCF and LCM, prime factorization and division method for HCF and LCM, the property LCM × HCF = product of two numbers.	▸ Encouraging children to create number patterns through which HCF and LCM can be discussed. ▸ Conducting activities for number operations to be performed by children which through discussions could help them to know the different properties like closure, commutativity, associativity etc. ▸ Creating situations in which numbers are required to be represented for opposite situations, like directions, give and take situations etc. And discuss with children about the ways to represent such situations by numbers. ▸ Presenting daily life situations and pictures to introduce fractions and decimals like representing part of a whole as number, a dot mark placed to separate rupees and paisa, meter and centimetre, kilometre and meter, litter and millilitre etc.	▸ Maths Kit.

Number System		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
All the above concepts are to be embedded in children's contexts so that it brings out the significance and provide motivation to the child for learning these ideas.	➢ Encouraging children to look at the pictures showing sum and difference of like fractions and to generalize. ➢ Letting children work on their own to evolve and understand that to add or subtract two unlike fractions it is required to convert them into equivalent fractions of same denominators (like fractions).	

Life Skills: Solving daily life problems

Theme 2: Ratio and Proportion

There are many situations when two quantities are compared by using properties of division of numbers, like heights of two objects as one is half of other or double of other. Using such contexts the terminologies related to ratios need to be brought in home for children. The theme in this class mainly focuses on the basic idea of ratios and proportions which ultimately lead to the major applications of arithmetic in our daily life called commercial 'mathematics'. Percentage, unitary method, simple and compound interests, time and speed, work and time and profit and loss will be focused on in classes VII and VIII. Hence building a strong foundation in Class VI about ratio and proportion is very important.

Learning Outcomes:

Children will be able to:

- understand how the comparison of two quantities through ratio is different from comparisons done earlier;
- explain the meaning of proportion;
- know how ratio and proportion are related to unitary method;
- solve problems related to daily life using unitary method;
- try to construct examples that require the concept of ratio
- solve problems related to speed, distance and time.

Ratio and Proportion

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▸ Difference between fraction and ratio. ▸ Concept of Ratio. ▸ Proportion as equality of two ratios. ▸ Unitary method (with only direct variation implied). ▸ Word problems on ratio and proportions. ▸ Idea of percent as fraction with 100 as denominator ▸ Idea of speed and simple daily life problems related to speed, time and distance.	▸ Revising previous concepts learnt by children. ▸ Building on children's previous learning. ▸ Presenting situations before the children that would prompt them to form patterns and feel the need for a symbol in place of number. ▸ Organising discussions in the class to show different methods of comparison of quantities are helpful in different situation(s). ▸ Encouraging children to create examples to show the difference between comparison of quantities done through operation of subtraction and that through division (ratio) ▸ Encouraging children to frame and solve problems on unitary method to understand unit of which quantity is to be found. ▸ Providing situations to children to find out the rate and the total	▸ Maths Kit.

Ratio and Proportion		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
	amount in related context using unitary method. ➢ Discussing examples to show the difference between ratio and proportion and to relate them. ➢ Solving daily life problems related to unitary method that exist in children's daily life like while shopping finding out the rate etc.	

Life skill: solving daily life problems

Theme 3: Algebra

Children have idea of using symbols/letter for numbers from very early classes. Even in class I children use to solve problem like 5+ ☐ = 7, ☐+ ☐ = 9 etc. and in class V they learnt that perimeter of a square is 4 x where x is it's side. Thus the introduction of this topic should be made through these examples which children are already acquainted with and avoid directly bring the abstract idea of variable, unknowns and constants. The aim of this theme in this class is that children will be enabled to understand algebra as generalization patterns on numbers in term of using a letter of any number. Ultimately children learn that algebra is generalization of arithmetic and hence we use all rules as we have in number operations.

Learning Outcomes:

Children will be able to:

- describe variable and unknown through patterns and through appropriate word problems and generalise (example $5 \times 1 = 5$, etc.);
- generate patterns with more examples;
- understand unknowns through examples with simple contexts (single operations);
- define terminology associated with algebra like literal numbers, terms, expressions, factor, coefficient, polynomials, degree, like and unlike terms;
- frame algebraic expressions;
- evaluate value of algebraic expressions by substituting a number for the variable.

Algebra

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▸ Introduction to constants, variable and unknown through patterns and through appropriate word problems and generalisations (For example $1+3=2^2$, $1+3+5=3^2$, $1+3+5+7=4^2$, sum of first n odd numbers = n^2.). ▸ Generate such patterns with more examples and generalisation. ▸ Introduction to unknowns through examples with simple contexts (single operations) ▸ Terminology associated with algebra- like literal numbers, terms, expressions, factor, coefficient, polynomials, degree, like and unlike terms. ▸ Framing algebraic expressions.	▸ Revising previous concepts learnt by children. ▸ Building on children's previous learning. ▸ Providing situations in which a pattern or phenomenon is to be generalised like area of a rectangle can be obtained by multiplying the measure of its' two adjacent sides. ▸ Encouraging children to find ways to represent this in shorter and more compact way by considering the two adjacent sides as *l* and *b* or S_1 and S_2. ▸ Providing situations which can be mathematically expressed by using numbers and letters in place of numbers like any even number is double of a natural number can be expressed as: Even number= $2n$, where n is a natural number.	▸ Maths Kit

Algebra		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
➢ Evaluation of algebraic expressions by substituting a value for the variable. ➢ Introduction to linear equation in one variable.		

Skills: Developing efficient strategies for numerical calculation, describing relationships and applying algebraic techniques

Theme 4: Geometry

Children in this class should be now in Van Heile's level 2 of geometry learning i.e. Properties are perceived at Level 2, but they are isolated and unrelated. At Level 2 children would say "I know it's a rectangle because it is closed; it has 4 sides and 4 right angles; opposite sides are parallel; opposite sides are congruent; diagonals bisect each other; adjacent sides are perpendicular; etc...." All the properties known are listed since the student doesn't perceive any relationship between the properties, e.g., one implies the other. There is no knowledge of necessary and sufficient conditions. Like wise children develop their understanding about properties of other shapes and figure in this class.

Learning Outcomes:

Children will be able to:

- differentiate between different geometrical figures on the basis of their observable properties;
- classify angle into different types on the basis of their measurement;
- understand the difference between different types of triangles and the basis on which they are classified;
- classify quadrilaterals as trapezium, parallelogram, rectangle, square, rhombus;
- classify angles in different groups/types;
- draw different types of triangles and quadrilaterals;
- attempt to prepare solids using their nets;
- observe the objects and tries to make strategies to decide about the symmetry of the object;
- observe the reflection of objects in mirror and then tries to formulate rules about the symmetry of the object;
- try to see the logic behind drawing an angle of certain measure using geometrical properties;
- device ways to draw related angles after learning to draw an angle of certain measure;
- identify 3-d shapes and their parts;
- identify 2-d symmetrical objects;
- understand reflection symmetry;
- construct angles of different measures using compasses;
- draw perpendicular line segments.

Geometry

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
Basic geometrical ideas (2 -D): Introduction to geometry. Its linkage with and reflection in everyday experiences. ☛ Line, line segment, ray. ☛ Open and closed figures. ☛ Interior and exterior of closed figures. ☛ Curvilinear and linear boundaries ☛ Angle — Vertex, arm, interior and exterior.	➢ Revising previous concepts learnt by children. ➢ Building on children's previous learning. ➢ Performing activities in which students can be shown concrete models and pictures of different geometrical shapes. ➢ Involving children in activities to identify, angles, triangles & quadrilaterals and their nets.	➢ Maths Kit. ➢ Cardboard, Hardboard, cutter, pencil, adhesive, scale. ➢ Geometry Boxes. ➢ Geoboard with rubber band.

Geometry

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
☛ Triangle — vertices, sides, angles, interior and exterior, altitude and median. ☛ Quadrilateral — Sides, vertices, angles, diagonals, adjacent sides and opposite sides (only convex quadrilateral are to be discussed), interior and exterior of a ☛ quadrilateral. ☛ Circle — Centre, radius, diameter, arc, sector, chord, segment, semicircle, circumference, interior and exterior. **Understanding Elementary Shapes (2-D and 3-D):** ☛ Measure of Line segment. ☛ Measure of angles. ☛ Pair of lines – Intersecting and perpendicular lines, Parallel lines. ☛ Types of angles- acute, obtuse, right, straight, reflex, complete and zero angle. ☛ Classification of triangles (on the basis of sides, and of angles). ☛ Types of quadrilaterals – Trapezium, parallelogram, rectangle, square, rhombus. ☛ Simple polygons (introduction) (Upto octagons regulars as well as non-regular). ☛ Identification of 3-D shapes: Cubes, Cuboids, cylinder, sphere, cone, prism (triangular and square), pyramid (triangular and square), Identification and locating in the surroundings. ☛ Elements of 3-D figures. (Faces, Edges and vertices). ☛ Nets for cube, cuboids, cylinders, cones and tetrahedrons. **Symmetry: (reflection)** ☛ Observation and identification of 2-D symmetrical objects for reflection symmetry. ☛ Operation of reflection (taking mirror images) of simple 2-D objects.	Asking children to make models and Nets of 3-D shapes to get an idea of their number of edges, faces and corners (vertices) etc. Conduct discussion on number and type of corners, edges and faces after showing solid objects to the children like models of cube, cuboid, cylinder, cone, pyramid, prism etc. Performing activities with mirrors in which children are asked to observe the reflections of one part of a shape with its image and image with the other part. This will be followed by discussion. Using the activity of folding of a paper cut out of a shape along specific lines to show the reflection symmetry in case the two halves exactly cover each other. Providing children opportunities to draw an angle measuring 60° using compasses. On the basis of this construction let them construct other angles that measure 30°, 120°, 90^0, etc. Giving children a feel of dividing a circle into equal segments that correspond to an angle. For example, a circle can be divided into six equal parts by the chords of length equal to radius of the circle and this actually forms $1/6^{th}$ of complete angle i.e. 60^0 at the centre. Providing opportunities to children to draw different geometrical figures that involve angles of various measures, line segments etc. Demonstrating the construction of bisector of an angle and a line segment.	

Geometry		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
☛ Recognising reflection symmetry (identifying axes). **Constructions (using Straight edge Scale, protractor, compasses)** ☛ Drawing of a line segment. ☛ Perpendicular bisector. ☛ Construction of angles (using protractor). ☛ Angle 60°, 120° (Using Compasses) ☛ Angle bisector- making angles of 30°, 45°, 90° etc. (using compasses). ☛ Angle equal to a given angle (using compass.) ☛ Drawing a line perpendicular to a given line from a point a) on the line b) outside the line. ☛ Construction of circle.	Encouraging children to construct perpendicular bisector of line segment and angles of measure 30^0, 15^0, 45^0, etc. Appreciating children efforts in making angles to let them evolve methods of constructing angles like $75^{0.}$	

Integration: Arts Education
Skills: to identify, visualise and quantify measures, relating abstract information to real life situations

Theme 5: Mensuration

In the previous three classes children were learning the measurement of various quantities like length, mass, temperature and time. Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision are area, surface area, volume, decomposing, edges, dimensions, net, vertices, face, base, height, trapezoid, isosceles, right triangle, quadrilateral, rectangles, squares, parallelograms, trapezoids, rhombi, kites, right rectangular prism, and diagonal. Children continue to strengthen their understanding that area is the number of squares needed to cover a plane figure. Thy will also know the formulas for rectangles and triangles. "Knowing the formula" does not mean memorization of the formula but to have an understanding of why the formula works and how the formula relates to the measure (area) and the figure. All children should be enabled to develop this understanding.

Learning Outcomes:

Children will be able to:

- describe the concept of perimeter of various shapes;
- demonstrate the idea of area and volume of shapes;
- calculate the perimeter of different shapes given, she tries to formulate the perimeter of shapes like rectangle, square;
- calculate the areas of rectangle ad square by dividing them into appropriate smaller units. she tries to think of such small units;
- use conversion of units of mass, money, time, and capacity in different daily life situations.

Mensuration

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▸ Concept of perimeter and introduction to area ▸ Introduction and general understanding *of perimeter* using many shapes. ▸ Shapes of different kinds with the same perimeter. ▸ Concept of area, Area of a rectangle and a square ▸ Conversion of units (Mass, time, money, and capacity) from to smaller to larger and vice-versa ▸ Counter examples to different misconceptions related to perimeter and area.	▸ Revising previous concepts learnt by children. ▸ Building on children's previous learning. ▸ Showing different shapes and through the notion of boundary, the concept of perimeter can be discussed ▸ Organising discussion in the classroom on the measurement of boundary of a closed shape (2-D) and naming this measure as perimeter. ▸ Encouraging children to find perimeter of different rectangles and evolving the rule to find perimeter of ant rectangle like ▸ Perimeter of a rectangle = 2(sum of the measure of its two adjacent sides)= $2(l+b)$ ▸ Forming small groups of 3-4 children to evolve ways to find the measure of	▸ Maths Kit. ▸ Use of visuals available in classroom and in surroundings.

Mensuration		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
▸ Perimeter of a rectangle – and its special case – a square. ▸ Deducing the formula of the perimeter for a rectangle and then a square through pattern and generalisation.	a region enclosed by a closed shape on a plane surface. This discussion will lead to understanding the concept of area. ▸ Encouraging children through small hints to drive the rule/formula to find the area of a rectangle when the two adjacent sides are known. ▸ Providing opportunities to frame and solve simple daily life problems involving perimeter and area of rectangular regions.	

Skills: solving daily life problems

Theme 6: Data Handling

This theme focusses on building on and reinforcing children's understanding of numbers, they begin to develop their ability to think statistically. Children recognize that a data distribution may not have a definite centre and that different ways to measure centre yield different values. The median measures centre in the sense that it is roughly the middle value. The mean measures centre in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point.

Learning Outcomes:

Children will be able to:

- understand the use of organizing data;
- represent data through pictograph, bar graph;
- identify patterns in numbers and shapes;
- identify daily life situations in which the information is required to be properly arranged;
- explore different ways to organise and represent data;
- appreciate the need for finding a representative value for given data;
- find mean and median of data having not more than ten observations.

Data Handling

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▸ Collection of data to examine a hypothesis ▸ Collection and organisation of data - examples of organising it in tally bars and a table. ▸ Pictograph- Need for scaling in pictographs interpretation & construction of pictograph ▸ Construction of bar graphs for given data interpreting bar graphs. ▸ Mean and median of data not having more than ten observations	▸ Revising previous concepts learnt by children. ▸ Building on children's previous learning. ▸ Discussing daily life situations involving quantitative information and its presentation. ▸ Encouraging children through discussion (whole class/in small groups) to reason out why data should be organised. Children can be motivated to use their own ways in organizing data. ▸ Asking children to explore their own ways of representing the data in the form of diagrams/ pictures (Bar Graph) and in tables of numbers. ▸ Providing children various situations for interpreting data given in tabular or pictorial form like newspaper cuttings, TV programmes etc.	▸ Maths Kit ▸ Newspapers. ▸ TV Programmes.

Integration: Arts Education

Life Skills: Understanding and interpreting data, drawing inferences

HISTORY, CIVICS
&
GEOGRAPHY

History, Civics and Geography (HCG)

The curriculum of History, Civics and Geography has been developed with an objective to make children understand the working of the world around them. This particular area of study equips the children with the knowledge and understanding of the past, which is necessary for coping with the present and planning for the future. The curricular area of Civics makes them aware of the socio-political life, whereas Geography connects them directly to their environment. The area of History will help them understand how their present has evolved from centuries of development.

The focus of this area of the curriculum is to help children acquire and develop the ability to make interconnections between processes and events; between developments in the past and the present; and between one curricular area to another. Learning opportunities have been provided to help children understand how geographical conditions of a place have affected the socio-political life of the people.

Objectives of teaching History, Civics and Geography

To enable children to:

- learn about the past by creating a sense of historical diversity;
- understand time lines and historical maps;
- compare the developments of one region in relation to other parts of the world;
- become aware of national perspectives with that of global ones in the process of development;
- creating a strong a sense of human values, namely freedom, trust, mutual respect and respect of diversity;
- make connections between political, social and economic issues and recognize the ways in which politics affects their daily lives.
- imbibe the values of the Indian Constitution and their significance in everyday life.
- understand about the earth as the habitat of humans and other forms of life.
- become familiar with one's own region and realise the interdependence of various regions (local to global).
- understand the normative dimensions like issues of equality, justice and dignity in society and polity.

Skills	Learning Outcomes
Observing and reporting: Observing, exploring, comparing, analysing, discussing and reporting, expressing, drawing conclusions and reflecting in behaviour.	
Discussion and debate: Brainstorming expressing, discussing good and bad effects, listening and appreciating varied opinions, synthesising ideas and information.	
Analysing and critical thinking: Defining situations/events, identifying and predicting possible causes, analysing results and consequences, comparing and drawing results.	
Questioning and reasoning*:* Demonstrating curiosity, logical understanding of facts, raising critical questions.	
Communication*:* Listening, expressing, articulating thoughts and ideas, writing.	
Classification: Identifying similarities and dissimilarities, sorting/grouping with reasoning and understanding.	
Interpersonal and Intrapersonal skills*:* Motivation from the great personalities and their lives, helping, cooperating and working as a team.	
Appreciation*:* Showing respect towards other people's opinions, ideas, beliefs and ways of life.	
Understanding: The responsibility towards institution, society and environment, adaptation by humans to changing circumstances, the role of invention and discoveries of past in the present-day world, value and importance of national festivals.	
Concern for justice and equality*:* Sensitivity towards the marginalised, less privileged, people with disability, gender sensitivity and care and concern for environment.	
Map and globe skills*:* Understanding concept of direction, using signs, symbols and keys, interpreting maps of various types.	
Charts and graphs skills: Collecting systematically and recording data, presenting it in the form of bar graphs, pie charts, diagrams, analysing and interpreting it.	
Time skills: Sequencing events, observing a calendar and marking important dates on it, constructing timelines and marking important dates on it, marking and understanding AD and BC on it, understanding time zones.	
Citizenship skills: Identifying rights and duties of citizens, appreciating the cultural aspects of various religions, languages, regional and ethnic groups, recognising and accepting equality of all human beings, irrespective of gender, caste and creed.	
Critical thinking and problem solving: Sound reasoning, making complex choices and decisions, understanding interconnections among systems, framing, analysing and synthesizing information.	
Collaboration: Demonstrating ability to work effectively with diverse teams, exercising flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal, assuming shared responsibility for collaborative work.	
Information literacy: Accessing information efficiently and effectively, evaluating information accurately and creatively. Processing a fundamental understanding of the ethical and legal issues regarding access and use of information.	
Media and ICT literacy: Understanding the construction of media messages, interpretation of messages, influence of media on views beliefs and behaviour, fundamental understanding of ethical and legal issues related to access and use of information.	
Flexibility and adaptability: Adopting varied roles and responsibilities, working effectively in a climate of ambiguity and changing priorities.	
Initiative and self-direction: Utilizing time effectively, updating skills, defining and prioritizing tasks, demonstrating initiatives, demonstrating commitment towards work.	
Social and Cross-Cultural Skills: Working appropriately and productively with others, leveraging the collective intelligence of groups, bridging cultural differences.	
Leadership and Responsibility*:* Using interpersonal and problem skills, leveraging strengths of others to accomplish a common goal, demonstrating integrity and ethical behaviour, acting responsibly with the interests of the larger community in mind.	

History and Civics

The present curriculum in History and Civics should be comprehended critically so that children understand and participate effectively in their world and use critical moral and mental energy against social forces that threaten democratic values and respect for diversity in their country. The curriculum areas in History provide an understanding of those aspects of past which are crucial to understand present day global world. Interesting pedagogies will help children grow as responsible civic citizens in a secular democracy.

Core concepts of History and Civics for Classes VI-VIII are as under:

Class VI

The Ancient World

The River Valley Civilizations

The Vedic Civilization

Mahavira & Buddha – Great Preachers

Rise of Kingdoms & Republicans

The Mauryan Empire

The Golden Age – Gupta Empire

Civics

The Rural Local Self Government

Urban Local Self Government

Class VII

The Medieval World

Medieval Europe – Rise and Spread of Christianity

Rise and Spread of Islam

The Delhi Sultanate

The Vijayanagar and Bahamani Kingdoms

The Mughal Empire

Making of Composite Culture

Civics

The Constitution of India

Directive Principles of State Policy

Class VIII

The Modern World

A Period of Transition

The Growth of Nationalism

India in the 18th Century

Traders to Rulers

British Policies and Impacts

The Great Uprising of 1857

Socio-Religious Reforms

India's Struggle for Freedom

Civics

The Three main organs of the Indian Government: Legislature, Executive, Judiciary

United Nations

Ancient World

Theme 1: The River Valley Civilizations

'River Valley Civilizations' aims at enabling children to understand how our present-day society has evolved. It will help them understand the reasons for development of the earliest societies near rivers. Children will be aware of and appreciate the rich and flourishing civilization on the basis of historical evidences. It will further help to develop in them a world historical perspective of the contribution made by various cultures to the heritage of mankind.

Learning outcomes:

Children will be able to:

- identify and locate the sites of major river valley civilizations on an outline map of the world;
- discuss and understand with reason the development of early civilizations near river beds;
- question, discuss and appreciate the sources to know these civilizations;
- compare the society then (in the past) and now;
- discuss, debate and appreciate the development in early civilizations;
- draw a comparative analysis between Indus valley civilization and Mesopotamian, Egyptian and Chinese civilization;
- appreciate the contribution of these civilizations in today's world.

The River Valley Civilizations

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
▸ **'Civilization'- meaning** ▸ **Reasons for settlement near rivers.** ▸ **Major Civilizations:** ☛ *Indus Valley* ☛ *Mesopotamian* ☛ *Egyptian* ☛ *Chinese* ▸ **Main Characteristics:** ☛ *Origin* ☛ *Location (*Map)* ☛ *Rivers* ☛ *Society* ☛ *Social life – Family, Community* ☛ *Town Planning* ☛ *Occupations* ☛ *Trade* ☛ *Art and (Craft), Architecture* ☛ *Religious Beliefs*	▸ **Organising** discussions (whole class/group) on the different civilizations, important features and the decline. ▸ **Organising** Audio Visual shows on: ☛ Map of Ancient civilizations ☛ Bharat Ek Khoj ☛ Sources – excavated sites, remains etc. followed by a discussion with the children. ▸ **Providing** opportunities to: ☛ analyse cause, effects and relationship between different river valley civilizations. ☛ identify and define world's earliest civilizations. ▸ **Providing** opportunities to discuss: ☛ Reasons for river settlements. ☛ Geographical significance to location of ancient civilizations. ☛ Sources to know these civilizations.	▸ Documentaries on different civilizations. ▸ PPT on the sources to know these civilizations. ▸ The documentary "The Masters of Rivers". ▸ Guest lectures by local historians ▸ Outline map of the world. ▸ Maps showing River Valley Civilizations. ▸ Clay ▸ Audio-Visual materials. ▸ Charts and pictures on different civilisations. ▸ Museum.

The River Valley Civilizations		
Key Concepts / Concerns	**Suggested Transactional Processes**	**Suggested Learning Resources**
▸ **Decline**	▸ **Assigning** a Project work as a group activity on undertaking a comparative study between river valley civilizations in different parts of the world. ▸ **Making** models by children based on the Seal, Great bath (*using only environmental friendly materials*) - Clay models. ▸ **Preparing** a Scrap Book by each child – on pictures related to the civilization. ▸ **Enacting/ role plays**, for example: children can imagine themselves as traders from Harappa on a business trip and give an account of the trading systems. ▸ **Making** projects (group/individual) on the Planning in Indus Valley Civilization /tracing the rise and decline of any ONE of the four civilizations in the theme. ▸ **Showing** the extent of related civilizations and rivers through Map Work.	

Integration: Geography
Life Skills: Appreciation for Heritage

Theme 2: The Vedic Civilization

The aim of the theme 'Vedic Civilization' is to acquaint and inform children of India's glorious past dating back to 3500 years ago. They will understand and appreciate how ancient literatures like Vedas and Epics provide an insight into our past and the genesis of our present-day society.

Learning outcomes:

Children will be able to:

- define the term 'Vedic' and list the various literature related to it;
- summarize the life style of the Vedic period by relating it to the epics;
- discuss and identify the differences and similarities between the early and later Vedic period;
- trace the changing position of woman in early and later Vedic society;
- analyze and appreciate the rich cultural heritage of India in terms of values, beliefs and traditions.

The Vedic Civilization

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
Aryans in the Sapta Sindhu & Gangetic valley **'Vedas' and 'Vedic' - meaning** **The four Vedas, Upanishads, Puranas** **Epics Ramayana & Mahabharata** **Brahmavarta (Early Vedic age)** ☛ *Political Organization* ☛ *Social life* ☛ *Economic life* **Aryavarta (Later Vedic age)** ☛ *Political Org.* ☛ *Social Life* ☛ *Four Ashramas* ***Gurukul System*** ***Economic life***	**Providing opportunities** for: Sharing their personal experiences on Epic stories of *Ramayana* and *Mahabharata*, *Hawan* and chanting of *Shlokas*. Explaining the terms "Vedas' and 'Vedic'. Comparing the society, lifestyles and position of women and discuss their ideas and views. Highlighting the differences between early and later Vedic period. (Economic, Social and Cultural). Underlining the difference in the evolution of religion: open air – temple, Gods and Goddesses. Discussing with each other and their parents briefly the teachings of *Shrimad Bhagwadgita*. **Preparing** a slide show on the oldest city (Vedic city) of India, Varanasi. **Organising Audio Visual shows on:** – The Ramayana and Mahabharata through animated videos. – "Bharat Ek Khoj." The early and later Vedic period – Comparing the society, lifestyles and position of women.	Narratives Maps of ancient times – Indus, Sapt Sindhu and Gangetic valley. Videos on the story of Ramayana and Mahabharata Slide shows /Videos on Varanasi. Animated version of Ramayana – "The Vedic Way". Bharat Ek Khoj. Documentary on 'Manual Scavengers'. – attend in later Vedic period. PPTs on Vedic society. Mapping skills Visit to a museum Role Play Guest Lecture Copy of the *Bhagwadgita* Amar Chitrakatha Series on: ☛ Ramayana. ☛ Mahabhartha, ☛ Krishna and ☛ Bhagwadgita. Experts

The Vedic Civilization		
Key Concepts / Concerns	**Suggested Transactional Processes**	**Suggested Learning Resources**
	▹ **Preparing** a Scrap Book (by each child) on – Musical Instruments during the Vedic period. ▹ **Using** maps to show the spread of the civilization along Saptsindhu and Gangetic valley through Map Work. ▹ **Organising** a visit to a museum and interacting with a guide. Discuss what all children saw and their views on the same after the visit is over. ▹ **Inviting** Experts/ special guests to class to discuss the ideas in the Vedic literature, the epics and the Bhagwad Gita. ▹ **Enacting/ role plays** by children on the main characters from the Ramayana & Mahabharata. ▹ **Organising** a Skit – on the basic Gurukul System.	

Integration: Arts Education and Mathematics

Theme 3: Mahavira & Buddha - Great Preachers

The theme on 'Mahavira and Buddha" will enable children to understand and appreciate the teachings of Gautam Buddha and Mahavira. Use of interesting pedagogy can help them compare and find the similarities and dissimilarities between the two ideologies. It will also develop their understanding on the importance of Ahimsa and tolerance which will in turn help them become responsible citizens.

Learning outcomes:

Children will be able to:

- discuss the social conditions that led to the rise of new religions ideology – Buddhism and Jainism;
- explain the teachings and ideologies of the two great preachers;
- compose and analyze the reasons that led to the spread and decline of Jainism and Buddhism;
- critically analyze the importance of Ahimsa and tolerance in today's society.

Mahavira & Buddha - Great Preachers

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
▸ Social conditions for rise of Jainism and Buddhism. ▸ Vardhamana Mahavira ☛ *Jainism* ☛ *Early life* ☛ *Teachings (Ahimsa, Caste system, Karma, Rebirth, Search for truth)* ☛ *Sub Sections of Jainism* ▸ Gautama Buddha ☛ *Buddhism* ☛ *Early life* ☛ *Teachings (Four Noble Truths, Eight-Fold Path, Ahimsa, Karma, Nirvana, Caste System)* ☛ *Sub Sections of Buddhism* ▸ A comparative study between Jainism and Buddhism ☛ Spread and Decline.	▸ **Organising discussions** on: ☛ Explaining the social conditions during the later Vedic period. ☛ Comparing the teachings of Mahavira and Buddha. ☛ Explaining the ideas of Ahimsa, the Four Noble Truths, Nirvana and the Eight-fold path. ▸ **Narrating stories** on: ☛ The period of these times through Amar Chitra Katha. ☛ The lives of Gautama Buddha and Mahavira. ▸ **Organising** a field trip to visit and explore caves like Ajanta, Ellora, Karla caves, and many more. (Buddhist era). ▸ **Preparing** charts (by children) on: ☛ The Four Noble Truths ☛ The Eight-Fold Path ▸ **Conducting** a Seminar and inviting resource person/s to enable children to understand the significance of 'Ahimsa' in today's world. ▸ **Organising**: ☛ a debate on Ahimsa ☛ a quiz competition/games on Buddha and Mahavira. ▸ **Enacting/ Role Plays** by children: ☛ of stories from the Jataka tales. ☛ as Gautam Buddha and Mahavira on the stories based on their lives.	▸ Videos and Films– films and life story of Gautam Buddha. ▸ Experts. ▸ Charts, pictures on Buddha and Mahavira. ▸ Quizzes. ▸ Guest lectures ▸ Role Play ▸ Creative expression - preparing Charts on: ☛ Four Noble Truths ☛ Eight-Fold Path ▸ Comics – Amar Chitra Katha & Jataka Tales. ▸ Books on stories from the life of Gautama Buddha and Mahavira.

Theme 4: Rise of Kingdoms & Republicans

'Rise of Kingdoms and Republicans' will enable children to understand the way men became rulers in the past and their ambition for expansion of their empires resulted in wars and invasions. This will help them understand how our present day social and political life has evolved through the kingdoms of the past.

Learning outcomes:

Children will be able to:

- identify and locate Janapadas and Mahajanapadas on an outline map of India;
- explain the terms "Janapadas" and "Mahajanapadas" and list the major powerful kingdoms;
- draw a time line, mark the rise of Magadha and list the rulers who ruled it;
- question and give reasons for the Mahajanapada being so powerful;
- reflect critically on the invasion of Alexandra.

Rise of Kingdoms & Republicans

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
▸ Introduction to terms – Janapadas & Mahajanapadas. ▸ Powerful Kingdoms: ☛ *Vatsa* ☛ *Avanti* ☛ *Kosala* ☛ *Magadha* ▸ Mighty Kingdom of Magadha: ☛ *Rulers (Bimbisara, Ajatashatru* ☛ *Rule of Nandas* ☛ *Alexander's Invasion* ☛ *Chandragupta Maurya (Brief Mention of his life before he became the ruler)*	▸ **Organising discussions** on: ☛ Constructing a timeline to plot the rise of Kingdoms, republicans using an ancient map of India. ☛ Identifying and naming the powerful Kingdoms of Vatsa, Avanti, Kosala and Magadha. ☛ Describing the keywords and Janapadas and Mahajanapadas. ☛ Outlining the different rulers of Magadha and describing Alexander's invasion. ☛ The discovery and use of Iron ore and development of new kingdoms. ☛ The reasons for foreign invasions. ☛ Analysing critically the reason for some Republican Janapadas. ▸ **Organising audio visual shows** to show the extent of the powerful Magadha Empire and the invasions of Alexander the Great. ▸ **Narrating stories**: ☛ Of Alexander and King Porus. ☛ Folk tales ▸ **Using** Maps to show the extent of the powerful kingdoms of India during this period. ▸ **Enacting/ Role plays/Skits** by children on: ☛ The War between Alexander and King Porus and the famous dialogues between them. ☛ 'Ashwamedha yagna' and becoming 'Chakravarty Samrat'. ▸ **Inviting** Resource personnel/ Guest lecturers /Local historian to talk on the reasons for Magadha being the most powerful Mahajanapada during those times.	▸ Audio/Visuals ▸ Books – The story of Alexander and Porus. ▸ Outline map of India. ▸ Materials necessary for roleplay. ▸ Related PPT's/Videos.

Theme 5: The Mauryan Empire

The 'Mauryan Empire' with special mention of Emperor Ashoka who gave up war provides an insight into the glorious traditions of non-violence and a welfare state. The children will get to know about 'Chanakya' a famous Indian thinker and appreciate his ideas in 'Arthashashtra'. It will enable children to understand the relationship between the concept of Ashoka's welfare state and present-day society.

Learning outcomes:

Children will be able to:

- infer and illustrate the features of the Mauryan empire through the sources of Indica and Arthashastra and list the notable rulers;
- discuss and analyze the features of Mauryan administration;
- trace the ascent and extent of the Ashoka empire and outline the causes and effects of the Kalinga war;
- analyze the effects of Ashoka's 'Dhamma' and reflect on the relevance of the teachings of Dhamma in present day society;
- appreciate the public welfare activities of Ashoka.

The Mauryan Empire

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
▸ Sources: Indica & Arthashastra ▸ Chandragupta Maurya ☛ *Role of Chanakya* ▸ Bindusara ▸ Ashoka *(Ascend to throne, extent of kingdom, Kalinga War, Welfare state)* ▸ Ashoka's Dhamma & Edicts. ▸ Mauryan Administration ☛ *With reference to Pataliputra* ▸ Mauryan Art and Economy ▸ Decline.	▸ **Organising** Presentations / discussions on: ☛ The different sources from the Mauryan period and asking children to describe them. ☛ Analysing the role and influence of Chanakya in the administration of Magadha. ☛ Outlining the rule of Ashoka and the extent of his empire. ☛ Critically analysing the reasons for Ashoka being called a great emperor. ☛ Describing the influence of Ashoka's Dhamma and edicts. ☛ The public welfare activities of Ashoka. ☛ Exploring and analysing the reasons for the decline of the Mauryan Empire. ▸ **Conducting** Audio visual shows on: Bharat – Ek Khoj, Episodes on The Mauryan Empire, Ashoka the Great, Chanakya, followed by discussion. ▸ **Tracing** the extent of Ashoka's Empire on an outline map of India.	▸ Audio Visuals ▸ Debate – Who was a greater King? Chandragupta or Ashoka

The Mauryan Empire		
Key Concepts / Concerns	**Suggested Transactional Processes**	**Suggested Learning Resources**
	▷ **Enacting/ Role Plays** by children on: ☛ The Kalinga War; ☛ Chanakya and Chandragupta Maurya. ▷ **Narrating**: ☛ stories on the Kalinga war. ☛ short moral based stories. ▷ **Encouraging** children to write a brief report on the influences of Buddhism on Emperor Ashoka. ▷ **Organising** a visit / field trip to any of Ashoka's rock edicts / local museum and then asking them to prepare individual or group reports.	

Theme 6: The Golden Age – Gupta Empire

'The Golden Age - Gupta Empire' will provide children an insight into the glorious past of India owing to advancements in trade, economy, literature, astronomy, Ayurveda, and mathematics. Interesting pedagogies will help children understand the reasons for this period of study to be known as the Golden Age in the History of India and they will learn to appreciate India's rich heritage.

Learning outcomes:

Children will be able to:

- draw the extent of Gupta empire on an outline map of India;
- discuss and analyze the sources to know about Gupta rulers;
- identify and describe the important achievements of the Gupta rulers -Chandragupta I & II and Samudragupta;
- evaluate and appreciate the achievements during the Gupta period to summarize the golden age of India.

The Golden Age – Gupta Empire

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
▸ Sources: The history of the Gupta Empire ▸ Rulers of the Gupta Empire: ☛ Chandragupta I ☛ Samudragupta ☛ Chandragupta II ▸ The Golden Age: ☛ Features / Characteristics ☛ Administration ☛ Economy ☛ Religious Life ☛ Scientific Progress ☛ Art, Architecture and Literature ☛ Education	▸ **Organising** discussions on: ☛ Exploring and understanding the term "Golden Age". ☛ Listing the names of the rulers during the Gupta reign. ☛ Comparing the periods of the Mauryan dynasty vs Gupta dynasty. ▸ **Showing** audio visuals on: ☛ Kalidasa, Aryabhatta ☛ Samudragupta – A Great Warrior ▸ **Drawing** the extent of the Gupta Empire on an outline map of India. ▸ **Guiding** children individually or in groups to make a Collage/Scrap Book of Mauryan age Coins, value of coins, metals used, figures, etc. ▸ **Helping** children to make coin models of the Gupta Age, using clay. ▸ **Making** a chart to highlight the scientific progress during the Gupta Age with reference to contributions of Aryabhatta. ▸ **Discussing and writing reports**: ☛ explaining the accounts of Chinese traveller 'Fa Hein". ☛ on evidences of Gupta Age as seen in a Museum. ▸ **Organising** a visit to a Museum followed by writing either individual or group reports on the Visit.	▸ Audio/Visuals ▸ Mapping Skills ▸ Research ▸ Report writing ▸ Visit to a museum ▸ Bulletin Board-collate achievements of Golden age ▸ Travellers account on India's Past & Present ▸ Children's history of India

Theme 1: Rural Local Self Government

The theme 'Rural Local Self Government' aims at children developing an understanding of the main features and functions of the Panchayati Raj System and other local bodies in India. Children will be able to understand the functioning of the three tiers of the Panchayati Raj System.

Learning outcomes:

Children will be able to:

- describe the rural local self -government (Panchayati Raj system);
- explain the features and functions of local government at the village, block and district levels;
- appreciate the role played by the local bodies;
- initiate responsibilities to help local bodies.

Rural Local Self Government

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
Local-Self Government- meaning Panchayati Raj System: *Panchayats (Features and Functions)* Gram Sabha: *Gram Panchayat* *Nyaya Panchayat* Block Samiti: *Composition* *Functions* Zila Parishads: *Composition* *Functions*	**Working** with children to create a web chart of the Panchayati Raj System. **Discussing** the composition and functions of each unit of the Panchayati Raj system. **Assigning** groups, the activity of listing and discussing the composition and functions of each unit of the system. **Conducting** a mock panchayat (role play) to – solve a money lending issue between two members of a village. **Encouraging** children to write an essay on – 'A day in your area without supervision'. **Asking** children to prepare a PowerPoint presentation on the role and responsibilities of a Zila Parishad (after accessing information on the related topic). **Assigning** project to groups of children to show the working of all the tiers of the Panchayati Raj system. **Organising** a field trip to a nearby village to see the working of the Panchayat. Assigning groups of children, the task of conducting an interview with a member of Panchayat and the Sarpanch to discuss the common problems faced by them at the village level and the role of the Panchayat in solving them. **Conducting** a survey in the locality to find the existing problems of the area and ways to solve them.	Learner's daily life experiences Web chart Writing essay, report, application Mock Panchayat An interview with a member of panchayat Media and ICT on the Panchayat elections, and self-government. Tracking the municipal elections

Theme 2: Urban Local Self Government

The theme 'Urban Local Self Government' aims at providing information and developing children's understanding of the composition and functions of Municipal Corporations. Transactional processes will help children in taking up responsibilities and solving common problems in their surroundings. These will also enable them to be proactive citizens who will give back to society through an understanding of their duties.

Learning outcomes:

Children will be able to:

- explain the term 'Metropolitan' and state the names of four major cities;
- locate and identify metropolitan cities on an outline map of India;
- describe the functioning of Municipal Corporations;
- demonstrate the ability to take initiatives and responsibility in solving community problems such as sewage, traffic jam, pollution, cleanliness;
- create simple awareness programmes in the vicinity on public welfare issues.

Urban Local Self Government

Key Concepts / Concerns	Suggested Transactional Processes	Suggested Learning Resources
▸ Define the term – 'Metropolitan' ▸ Names of major cities– Kolkata, Delhi, Mumbai, Chennai ▸ Municipal Corporations ▸ Composition ▸ Functions (Water Supply, Public health Sanitation, Education, Lighting, Public Security, Public Works, Maternity and Child Welfare) ▸ Municipalities **Brief Mention.*	▸ **Sharing** of prior knowledge and experiences children have of small and big cities, and the city they live in. ▸ **Building** on children's previous learning. ▸ **Providing opportunities** to children for participating in activities such as: ☛ Describing the term 'Metropolitan' and listing the major cities of India. ☛ Showing and locating the major cities on an outline map of India. ☛ Listing and explaining the composition and functions of the Municipal corporations. ☛ Principles and practices of local governance among officials and elected members. ▸ **Assigning** children, the task of conducting an interview with the local municipal corporation on common problems of the area. E.g. garbage collection, unsafe water, poor street lighting, etc. ▸ **Writing** a report (individually or in groups) on problems faced by people in metropolitan cities, such as the water logging during monsoons. ▸ **Organizing** a cleanliness drive in the school - under the Swachh Bharat Initiative.	▸ Collate data to compare population in towns and in cities (any four) ▸ Newspaper, ICT. ▸ Mapping skills. ▸ Hands on experience. ▸ Map of India. ▸ Local Municipality Office and people working there. ▸ Questions to conduct an interview. ▸ Tracking the municipal elections

Geography

The Geography Curriculum deals with the development of children's understanding and appreciation of the world through a continuous interaction and exploration of the natural and human environment. It aims at encouraging children to appreciate the interdependence of individuals, groups and communities and promotes a healthy respect for different types of cultures and ways of life of people around the world. The curriculum brings about a focus on developing geographical skills that enables children to make informed judgements at local, national and international levels. It brings to the fore the influence of Geographical phenomenon in terms of changes in temperature, climate and weather, availability of resources and material etc. and their impact on our daily lives.

Core concepts of Geography for Classes VI-VIII are as under:

Class VI

Representation of Geographical Features

Landforms

Water Bodies

Agriculture

Minerals

Study of Continents: North America and South America

Class VII

Representation of Geographical Features

Atmosphere

Weather and Climate

Weathering and Soil Formation

Industries

Energy and Power Resources

Study of Continents: Europe, Africa, Australia, Antarctica

Class VIII

Representation of Geographical Features

Population Dynamics

Migration

Urbanisation

Natural and Man-made disasters

Asia: The Largest Continent

India: Geographical Features

India - Human Resources

Theme 1: Representation of Geographical Features

Maps are the basic tools of Geography. In this theme children will learn to identify the different types of maps based on scale and also learn about representation of scale, the use of symbols and directions on a map through various methods. The theme would also enable children to understand the significance of diagrammatic representation of geographical features.

Learning outcomes:

Children will be able to:

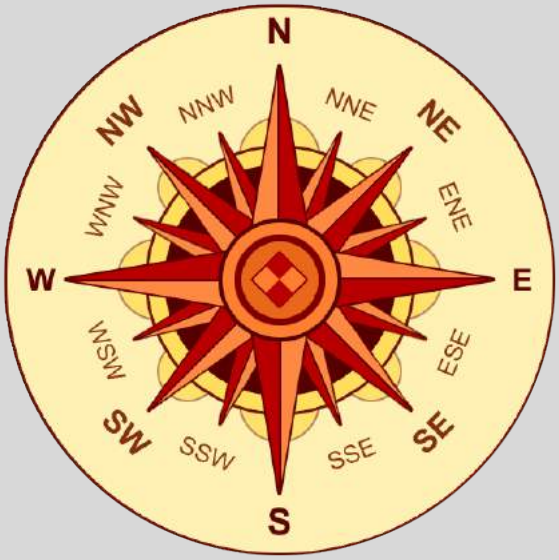
- identify the difference between a map, sketch, plan and globe;
- interpret maps on the basis of scale i.e. large scale, small scale;
- list the elements of a map;
- identify directions and the eight cardinal points;
- know uses of scales and symbols for measurement on a map;
- represent geographical features through diagrams.

Representation of Geographical Features

Key Concepts	Suggested transactional processes	Suggested Learning resources
▸ Maps: introduction, difference between map, sketch, plan and globe. ▸ Importance of maps. ▸ Types of maps based on scale. ▸ Scale: meaning and uses. ▸ Direction: eight cardinal points. ▸ Symbols. ▸ Diagrams (with brief explanation): rivers, meander, anticline, syncline, tributaries, distributaries, delta, block mountain.	▸ Providing opportunities to children for: ☛ observing a map and a globe and listing differences between the two. ☛ using practically and discussing the benefits of a map over a globe. ☛ creating a sketch and a plan of their locality and comparing it with a map. ☛ using a scale, symbols and directions on the sketch of their locality or school. ☛ sharing previous knowledge of the four directions and relating it to the cardinal directions using digital media or black board. ▸ Demonstrating the use of a scale by measuring actual classroom size and its representation on paper. ▸ Making a clay model of the globe with major latitudes and longitudes (Blue, Green and Brown). ▸ Creating a layout or plan of the following on a A3 size paper: building	▸ Mapping skills ▸ Wall map of the world – (political, physical), Topographical Maps. ▸ Clay models. ▸ Layout plans. ▸ Models and diagrams of Geographical features. ▸ Audio-visual materials, smart class modules, etc. ▸ Charts and diagrams.

Representation of Geographical Features		
Key Concepts	**Suggested transactional processes**	**Suggested Learning resources**
	complex, club house, locality or area with garden. - Using the world map and the district map to discuss difference between large scale and small scale. - Identification of different patterns of drainage by children through diagrams on interactive boards. - Explaining diagrammatic representation of physical features through audio visual aids.	

Integration: Mathematics and Arts Education



Theme 2: Landforms

Landforms are natural features of the earth surface. In this theme children will be introduced to and develop an understanding about the forces responsible for the formation of mountains and valleys, plateaus and plains on the earth. Description and spatial distribution of landforms will enable children to locate the same on the world map. Activities such as map based quizzes or group work in the classroom will enhance cooperative learning.

Learning outcomes:

Children will be able to:

- identify different types of landforms in their immediate surroundings and on visuals;
- locate important mountain ranges on the world map;
- differentiate between processes of formation of Fold mountains and Block mountains;
- discuss the process of formation of Volcanic mountains and locate important mountains on the world map;
- appreciate the importance of mountains in our life;
- compare and describe the formation and characteristics of Valleys and Plateaus;
- discuss the effects of geography on the history of our country;
- understand how landforms affect the lives of people.

Landforms

Key Concepts	Suggested transactional processes	Suggested Learning resources
• Types of landforms; • Mountains and Valleys: processes of formation of mountains and valleys – endogenous and exogenous processes • **Mountains:** ☛ Formation of Mountains, folding, meaning and characteristics of Young Fold Mountains, distribution of Young Fold Mountains in the world – Rockies, Andes, Alps, Great Dividing Range, Himalayas and Atlas Mountains; meaning and characteristics of Old Fold Mountains, distribution of old fold mountains in the world (Urals, Appalachians, Aravalis). Location on world map.	• Initiating a discussion about what children already know about different landforms and building on their previous knowledge and learning. • Providing opportunities to children to draw and colour maps and make models and diagrams. • Discussing the meaning, formation and characteristics of fold and block mountains. • Comparing the fold, block and volcanic mountains. • Conducting group /individual activity of children listing things obtained from mountains. • Making a model of an active volcano. • Discussing the formation and characteristics of rift valleys and relating them to the river valley civilizations in past.	• Documentaries. • Models of landforms, World maps and Atlas. • Diagrams • Satellite imageries of different landforms. • Other online resources and videos. • Quizzes. • Children's experiences.

Landforms

Key Concepts	Suggested transactional processes	Suggested Learning resources
☛ Faulting - meaning of faulting, formation and characteristics of Block mountains, distribution of Block mountains in the world (Black Forest, Vosges, Vindhyas) ☛ Importance of mountains ☛ Volcanic mountains: formation and characteristics (Mount. Kilimanjaro in Africa and Mt. Fujiyama in Japan) ➢ **Valleys:** Formation and characteristics of rift Valley, distribution of rift valleys in the world - Rhine, Narmada, Nile ➢ **Plateaus:** formation and characteristics, types of plateaus, distribution in the world (The Deccan plateau in India, Tibet Plateau, The east African Plateaus in Kenya, Tanzania and Uganda), rich in mineral deposits. Location on world map. ➢ **Plains:** formation and characteristics, types of plains, distribution of plains in the world (plains of North America, Gangetic plains of India). Location on world map. ➢ **Landforms and people:** Landforms – impact on the life of people. (comparison between life in the mountains and life in the plains)	➢ Showing documentaries on the life of people living in mountains and plateaus. ➢ Conducting a research on the minerals found in Deccan Plateau in India using technology backed skills. ➢ Conducting a discussion on comparing life in mountains and in the plains. ➢ Conducting a class discussion on how geographical features of India have shaped its history. ➢ Drawing and colouring the map of India showing different physical features and displaying it on class wall magazine. ➢ Discussing the processes of formation of landforms with the help of audio-visual materials. ➢ Encouraging children to locate different landforms on an outline map of India and speak about the same. ➢ Organising quiz competitions in the classroom for locating important landforms on the world map. ➢ Encouraging children to develop clay models of landforms in groups.	

Integration: History, Languages
Life Skills: Conservation of environment, sensitive towards society

Theme 3: Water Bodies

About three fourths of the earth's surface is covered by water. The purpose of this theme is to introduce and make children aware about the various types of water bodies such as seas, rivers, lakes and their spatial distribution in the world. Activities related to location of water bodies on the world map will enhance mapping skills among children. Discussion related to water pollution will enable children to appreciate and understand the linkages between local and global issues.

Learning outcomes:

Children will be able to:

- locate oceans, important seas, rivers and lakes, on the world map and in the atlas;
- describe importance of seas, rivers, lakes for development of any area;
- understand different water bodies and how they relate to river valley civilizations and sea voyages in history;
- discuss problems related to water pollution.

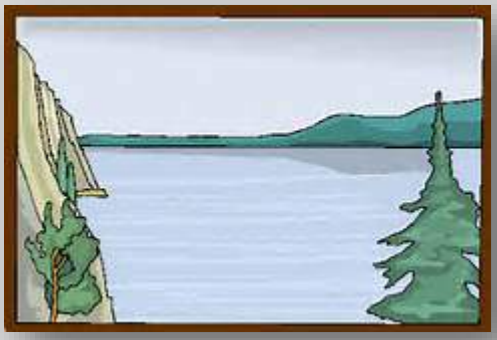
Water Bodies

Key Concepts	Suggested transactional processes	Suggested Learning resources
Oceans, Seas, Lakes and Rivers ***Oceans*** - Pacific Ocean, Atlantic Ocean, Indian Ocean, Arctic Ocean and Southern Ocean; their characteristics and importance ***Sea*** – distribution of marginal and inland seas (Bering sea, Caribbean Sea, North Sea, Black sea, Caspian Sea, Aral Sea, Arabian sea, Red sea and dead sea). ***Lakes*** – distribution of major lakes in the world, their characteristics and importance (Baikal, Five Great lakes of the U.S.A, Lake Omega, Lake Titicaca, Lake Victoria and Chilka lake). ***Rivers*** - distribution of major rivers in the world, their characteristics and importance, (Mackenzie, St Lawrence, Mississippi,	Initiating discussions on children's experiences about different water bodies. Encouraging children to locate various water bodies on the world map with the help of the interactive board and atlas. Promoting discussion among children about water pollution using newspapers clippings and articles. Engaging children (groups/whole class) to discuss causes of water pollution in their own area and what action could be taken to improve the situation) Brainstorming on harmful impacts of water pollution on aquatic life and on human beings. Organizing whole class/group wise quiz competitions in class for locating important rivers, seas, lakes etc. on the world map. Giving project work to children in groups to prepare a report on a dying/ disappearing lake /water body in a nearby area. (Findings can be based on information gathered from the internet; the report could include pictures, reasons, current status,	Discussion Brainstorming Mind mapping World map, interactive board. Newspaper clippings and articles. Quizzes. Project work. Field Visits.

Water Bodies		
Key Concepts	**Suggested transactional processes**	**Suggested Learning resources**
Amazon, Nile, Rhine, Danube, Indus, Ganga, Yangtze, Huang Ho, Ob, Murray). ▸ Causes of pollution of water bodies (in general). ▸ Locating the above on the world map.	involvement of local bodies/ awareness programs organised, etc.) ▸ Organising a class trip to a nearby water body-sea, river or a lake under supervision, followed by discussions on children's observations. ▸ Showing videos on famous voyages and relating them to the voyages of Columbus and Vasco da Gama. ▸ Showing videos and PPTs on oceans, seas, lakes and rivers in the world.	

Life Skills: Conservation of environment.

Integration: Biology, History, Languages



Theme 4: Agriculture

Agriculture is one of the major economic activities in the world. The aim of this theme is to make children aware and understand about various farming practices in the world and relate them to the development of the region. They will also be able to identify various crops, the geographical factors responsible for their growth and distribution of major crops in the world.

Learning outcomes:

Children will be able to:

- recognise different types of agricultural practices in the world;
- locate major crop regions of the world.
- differentiate between food and cash crops;
- compare modern methods of farming with the traditional ones;
- relate agricultural development to the economy of a country;
- discuss agriculture in light of their own country – a land of farmers;
- discuss how the green revolution has helped in agricultural development.

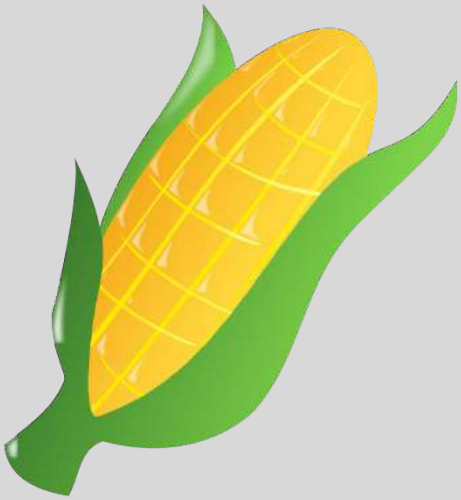
Agriculture

Key Concepts	Suggested transactional processes	Suggested Learning resources
▸ Introduction to different types of agricultural practices in the world. ▸ Subsistence Farming ☛ Intensive Farming ☛ Extensive Farming ☛ Shifting Cultivation ▸ Food crops and cash crops: meaning with examples –wheat, rice, cotton, jute, sugarcane ▸ Commercial farming: meaning with examples ☛ Plantation Farming: meaning with examples (tea, coffee, rubber) ▸ Locate major crop producing regions on the world map. ▸ Green Revolution: A brief idea of how green revolution helped in agricultural development.	▸ Organising a visit to a field followed by either individual or group work on: ☛ Observing crops, soil, farming tools and machines, etc. ☛ Interacting with the farmer about the different types of crops grown in their area, agricultural output, marketing, help if any, provided by the government, using fertilizers and pesticides, different methods of farming and difficulties involved. ☛ Preparing a report on the visit and presenting it in class. ▸ Providing opportunities for: ☛ Discussing traditional and modern methods of farming practices with children. ☛ Asking children to locate areas of subsistence farming and commercial farming on the world map. ☛ Analysing the differences between cash crops and food crops.	▸ Discussions ▸ Wall maps of the world map, Atlas. ▸ Satellite imageries of plantation ▸ Internet resources ▸ Smart class modules. ▸ Visuals and Articles from Newspapers, journals, magazines, etc. ▸ Reports. ▸ Project work. ▸ Experts/Agricultural Scientists.

Agriculture		
Key Concepts	**Suggested transactional processes**	**Suggested Learning resources**
	➢ Audio-visual materials may be used to discuss different types of agriculture and their relationship with the development of any area. ➢ Preparing a project report in groups /individually on the 'Green Revolution and its Impact' on different regions of the country. ➢ Inviting an agricultural scientist to the class and organising a discussion on the related topic.	

Life Skills: Conservation of environment, sensitive towards society

Integration: Biology, History, Languages



Theme 5: Minerals

The theme aims at providing children the knowledge and developing their understanding about minerals and ores and their distribution in the world. The theme will also create awareness in children about the need to conserve minerals.

Learning outcomes:

Children will be able to:

- differentiate between metallic and non-metallic minerals;
- describe the importance of minerals in daily life;
- locate important minerals on the world map.
- discuss the different types of mining;
- appreciate the need to conserve mineral resources.

Minerals

Key Concepts	Suggested transactional processes	Suggested Learning resources
▸ Minerals and Ores (meaning and examples). ▸ Types of minerals - metallic and non-metallic ☛ Metallic: Iron ore, uranium, bauxite, manganese, gold, silver, copper ☛ Non-Metallic: Lime stone, mica and mineral fuels (coal and petroleum) natural gas ▸ Distribution of these minerals in India and the world, leading producers in the world; uses of these minerals. ▸ Types of mining. ▸ Conservation of minerals. ▸ Location of above minerals on the world map.	▸ Initiating a discussion about what children already know about minerals and their uses on our daily life and building on this. ▸ Asking children to list different items made of metallic minerals, that they see in daily life. ▸ Explaining the meaning of minerals and ores followed by examples. ▸ Providing children opportunities to collect locally available minerals and explain the concept of metallic and non-metallic minerals. ▸ Using the Atlas and wall maps of the world and asking children to locate important mining areas of the world. ▸ Facilitating children in observing and interpreting satellite imageries by NASA and understanding the colour bands for finding reserves of minerals. ▸ Engaging children in discussion about the importance of minerals and their conservation. ▸ Using articles, newspaper clippings, videos, etc. for generating discussion amongst children towards conversation of non-renewable minerals and encouraging them to search for alternatives to these minerals.	▸ Wall maps of the world map, Atlas. ▸ Internet resources. ▸ Samples of different types of minerals. ▸ Visuals and articles from Newspapers, journals, magazines, etc.

Minerals		
Key Concepts	**Suggested transactional processes**	**Suggested Learning resources**
	➢ Asking children (individually /groups) to prepare posters on pollution due to mining activity and conservation of minerals. ➢ Creative expressions while preparing posters.	

Integration: Chemistry, Languages
Life Skills: Conservation of environment

Theme 6: Study of Continents: North America and South America

This theme is an introduction to the study of the Continents of the world which begins with the study of North America and South America. Children will be provided a broad overview of the two continents. They will also get an opportunity to do a case study from each continent.

Learning outcomes:

Children will be able to:

- locate North America and South America on the world map and in the Atlas;
- identify and mark the different countries in North America and South America on their respective maps;
- locate and identify the physical features of North America and South America on the map;
- compare the life in lumbering (Canada) with the life in the Amazon basin;
- understand how the geography of a place affects the life of people (through case studies).

Study of Continents: North America and South America

Key Concepts	Suggested transactional processes	Suggested Learning resources
▸ A brief idea of the formation of continents. **North America** ▸ Introduction ▸ Location ▸ Boundaries ▸ Political divisions (countries and capitals) ▸ Major Physical features ▸ Locating the above on the map. ▸ Case Study: Lumbering in Canada **South America** ▸ Introduction ▸ Location ▸ Boundaries ▸ Political divisions (countries and capitals) ▸ Major Physical features ▸ Locating the above on the map. ▸ Case Study: Life in the Amazon river basin	▸ Showing videos on the location and geography of North and South America. ▸ Sharing children's knowledge about countries in these two continents and building on the same. ▸ locating countries and their capitals in the two continents using audio visuals, maps, atlas or globe, by the teacher followed by children being asked to locate the same. ▸ Showing videos on Lumbering in Canada and life in the Amazon river basin and conducting a discussion afterwards. ▸ Encouraging children in groups, to prepare a comparative study on the two Continents. ▸ Asking children to prepare a chart to show the significance of the Amazon rainforest and the mighty river Amazon on the locals and the flora and fauna of the surrounding countries. ▸ Facilitating Mind mapping on political divisions in the two continents by children. ▸ Analysing and discussing the impacts of physical features of a place on life and occupations with children. ▸ Discussing the impact of geographical features on the history of the continents.	▸ Audio-visuals. ▸ Maps, atlas, globe. ▸ Videos.

Life Skills: Conservation of environment, sensitivity towards society
Integration: Biology, History, Languages, Arts Education

SCIENCE

Science

Science is an organised body of knowledge about physical and biological environment around us. It has developed out of our attempt to understand things and events in nature, through systematic observation. Science is dynamic in nature, with many old concepts being modified or discarded with the advent of new findings. Science is also multidimensional.

For a long time, the emphasis of teaching-learning of Science has been on only one dimension, that is, the content of Science. However, over the years, researches in Science education have improved our understanding of Science and Science education. According to Prof. Robert E. Yager, Emeritus Professor of Science Education, University of Iowa, USA, Science consists of six domains: Concepts, Processes, Applications, Attitudes, Creativity and Worldview (Nature of Science).

(i) *Concept Domain:* It includes facts, concepts, laws or principles, hypotheses and theories. Understanding of these concepts is important for successful teaching and learning. These concepts are further classified and organised into different topics. For example, matter, energy, plant development, animal behaviour. As Science develops, our understanding about things and events in nature grows, new concepts are added; old ones are sometimes redefined or rejected. In fact, this domain presents our current understanding of a particular subject or topic.

(ii) *Process Domain:* "Experiment is the sole source of truth", wrote Henry Poincare in his famous book, *Science and Hypothesis* (1905). Scientists use processes to investigate. Some processes are: Observing and describing, classifying and organising, measuring and charting, communicating, predicting and inferring, hypothesizing, hypothesis testing, identifying and controlling variables, interpreting data, constructing instruments, simple devices and physical models. Development of process skills among children is a primary aim of Science education. This helps them to understand Science or investigate a problem scientifically. Hands-on/minds-on activities have been integrated in the Science curriculum so that children master these process skills.

(iii) *Creativity Domain*: Scientific activities related to this domain include: visualizing - producing mental images, combining objects and ideas in new ways, producing alternative and unusual uses for objects, solving problems and puzzles, designing devices and machines, and producing unusual ideas. Creativity is required when we attempt to answer, "what, how and why"

about things or events around us. Special efforts should be made to provide opportunities to children which bring out creativity in them.

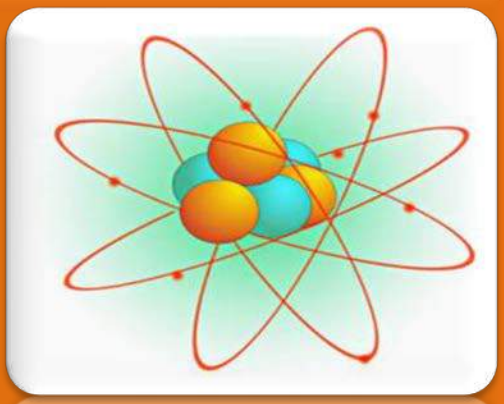
(iv) ***Attitude Domain:*** This domain includes developing positive attitudes towards Science in general; development of positive attitude towards oneself (as "I can do it" attitude), exploration of human emotions, develop sensitivity to, and encourage respect for the feeling of other people, expression of personal feelings in a constructive way, decision- making about personal values and decision- making about social and environmental issues. A positive attitude towards Science not only helps children in learning Science but also encourages them to seek answers for their own problems. 'Attitude towards Science' is not the same as 'Scientific attitude'. The latter refers to 'open-minded', 'honesty' or 'scepticism'.

(v) ***Application Domain*:** Children should be able to apply learning of Science in new situations. This includes recognising instances of scientific concepts in everyday life experiences; application of science concepts and skills learnt to everyday technological problems; understanding scientific and technological principles involved in common technological devices; using scientific processes in solving problems that occur in everyday life; understanding and evaluating mass media reports of scientific developments; making decision related to personal health, nutrition and life-style based on knowledge of scientific concepts rather than on hearsay and emotions; integrating science with other subjects (interdisciplinary). Science knowledge must be associated with the social and living experiences of children.

(vi) ***Worldview Domain*:** Teaching-learning of Science should present the nature of Science, as a whole. The development of Science is through the process of validating old concepts, discarding/modifying old concepts based on new experimental evidences and evolving theories to explain different phenomena. This domain should help children develop understanding of the ways in which the scientific knowledge is created; the nature of research processes; the meaning of basic concepts of scientific research (e.g., hypothesis, assumptions, controls, replication); the history of development of scientific ideas; the ways scientists work, organise and work as a team; the interaction among science, economics, politics, history, sociology, philosophy.

The present science curriculum follows a disciplinary approach. Science has been presented as Physics, Chemistry and Biology. Instructional material and teaching-learning processes in each subject, should pay due attention to all six domains of Science, as described above.

Physics



Physics is the study of matter, energy and its interactions. It attempts to explain how nature works using the language of mathematics. Physics generates fundamental knowledge which is needed for the future technological advancements. Study of Physics is essential for inspiring young children and expanding their knowledge of other disciplines.

The Core concepts of Physics for Classes VI – VIII are as follows:

Class VI

- Matter
- Physical Quantities and Measurement
- Force
- Energy
- Light
- Magnetism

Class VII

- Physical Quantities and Measurement
- Force and Pressure: Motion
- Energy
- Light Energy
- Heat
- Sound
- Electricity and Magnetism

Class VIII

- Matter
- Physical Quantities and Measurement
- Force and Pressure
- Energy
- Light Energy
- Heat Transfer
- Sound
- Electricity

Theme 1: Matter

Objects that take shape and have mass are called matter. A block of wood, milk and air are all made of matter. Matter is made up of tiny particles called atoms and molecules that cannot be seen by the human eye as they are very small. Matters exists in form of solid, liquid or gas. A solid has a certain size and shape, like a block of wood. A liquid, like water, has a size but does not have a definite shape. It takes the shape of the container it is put in. A gas, like air, is a form of matter that has no definite shape or size.

Learning Outcomes:

Children will be able to:

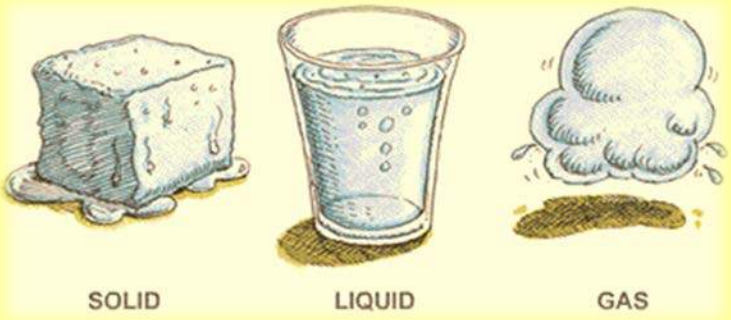
- define matter;
- describe what matter is made of;
- list the distinguishing properties of solid, liquid and gas;
- classify different objects in terms of solid, liquid and gas.

Matter

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
Matter- its meaning and composition. **States of Matter** Solids, Liquids and Gases. Characteristics of Solids, Liquids and Gases (Shape, texture and Volume). Distinguishing properties of Solids, Liquids and Gases.	Revising previously learnt concepts. Building on children's previous learning. Demonstrating different types of matter. Children will be provided learning opportunities to: ☛ recognize different states of matter, using qualitative observation ☛ distinguish between objects in terms of solid, liquid and gas, using qualitative observation.	Objects in the immediate environment. Objects in the form of solid, liquid and gas. Video on matter and its forms. Charts and pictures.

Life Skills: Decision making, cooperation and working together

Integration: Chemistry, Technology in daily life



Theme 2: Physical Quantities and Measurement

Whenever we make a measurement, we require a number which answers the 'how' part of it and a unit which tells us that we are talking about. The unit that is used for a physical quantity is universally accepted and used so that science is communicated and understood all over the world, without any ambiguities. Length, mass, time and temperature are some of the physical quantities that are discussed in detail. They have their own units and symbols for representation. Different devices are required to make measurements of these quantities. How to use a device properly for measurement is an important aspect of learning physics. Area is an example of a physical quantity that can be expressed in terms of a product of two measurements in length. Children learn to develop skills of converting the magnitude of a physical quantity from one unit to its other related unit.

Learning outcomes:

Children will be able to:

- define length, mass and time;
- express length, mass, time, temperature and area in proper units with proper symbols;
- measure length of objects using a ruler and a measuring tape;
- measure mass of an object using a beam balance and an electronic balance;
- measure time using a clock, a watch and a stop-watch;
- relate temperature of an object with its hotness or coldness;
- measure temperature of a person using a clinical thermometer;
- measure temperature of an object using a laboratory thermometer;
- measure area of a regular object using a graph paper;
- convert a physical quantity from one unit into other related units.

Physical Quantities and Measurement

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
▸ Measurement of Length: ☛ Concept of length as distance between two points. ☛ Measurement of length (ruler, measuring tape). ☛ Units (with symbol and full name). Name of unit / Symbol centimetre – cm meter – m Kilometre – km inch – inch foot – ft ▸ Measurement of Mass: ☛ Concept of Mass as matter contained in an object. ☛ Measurement of Mass (Beam Balance, Electronic Balance). ☛ Units (with symbol and full name).	▸ Explaining the concept of length as a distance between two points using objects in classroom like books, table, blackboard or length of classroom, etc. ▸ Demonstrating with the help of a ruler and a measuring tape and explaining the marking on each. ▸ Explaining the correct method of measurement using a ruler and a measuring tape ▸ Measuring the length of an object using a ruler / measuring tape. ▸ Explaining different units of length like cm, m, km, inch, ft and the relation between them. ▸ Practice converting one unit into others. ▸ Explaining the concept of mass as matter contained in an object using objects around us. ▸ Demonstrating a Beam balance and Electronic balance and explaining the marking on each.	▸ Objects around us. ▸ Ruler and measuring tape. ▸ Video on measurement of length using a ruler and a measuring tape. ▸ Objects in classroom. ▸ Beam balance and Electronic balance. ▸ Video on measurement of mass using beam balance and electronic balance. ▸ Clock, watch, stop watch. ▸ Video on measurement of time using a clock, watch and stopwatch.

Physical Quantities and Measurement

Key Concepts	Suggested Transactional Processes	Suggested Learning resources

Name of unit	Symbol
milligram	mg
gram	g
kilogram	kg

- Measurement of Time:
  - Concept of time and explanation in terms of hours, minutes and seconds.
  - Measurement of Time (Clock, watch, stop watch).
  - Units (with symbol and full name).

Name of unit	Symbol
Second	s
Minutes	min
Hour	h

(No distinction of SI, metric, MKS, CGS).

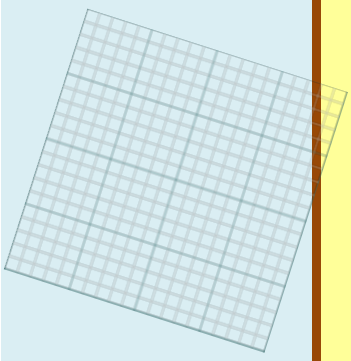
- Measurement of Temperature:
  - Temperature as a measure of degree of hotness or coldness of body.
  - Measurement of temperature (clinical thermometer, laboratory thermometer).
  - Normal temperature of a human body.
  - Units (with symbol and full name).

Name of unit	Symbol
Celsius	°C

- Measurement of Area:
  - Concept of area.
  - Area of Regular shapes (using graph paper).

- Explaining the correct method of measurement using a beam balance and an electronic balance.
- Measuring mass using a beam balance.
- Measuring mass using an electronic balance.
- Explaining different units of mass like mg, g, kg and the relation between them.
- Exercise for developing the skill of conversion of one unit into others.
- Explaining time in terms of hours, minutes and seconds.
- Demonstrating a clock, watch and stopwatch.
- Explaining the correct use of a clock, watch and stopwatch
- Measurement of time using a clock, watch and a stop watch by children in groups and individually.
- Explaining different units of time like seconds, minutes and hours and the relation between them.
- Exercise for developing the skill of conversion of one unit into others.
- Explanation of temperature as a measure of hotness of an object.
- Demonstrating the working of a clinical and a laboratory thermometer and explaining the correct use of a thermometer.
- Measurement of body temperature using a clinical thermometer on one another by children in pairs.
- Measurement of temperature of hot water using a laboratory thermometer and children recording the same.
- Explanation of unit and symbol of temperature.
- Explanation about scales on a graph paper.
- Measurement of area of objects of regular shapes using a graph paper.

- Use of mobile to measure time interval.
- Hot and cold objects.
- Clinical and Laboratory thermometers.
- Video showing measurement of temperature using a thermometer.
- A set of objects of regular shapes.
- Graph papers.
- Pencils.



Life Skills: Health, Communication skills, problem solving, Cooperation and working together.

Integration: Mathematics, Chemistry, Biology, Technology in daily life.

Theme 3: Force

This theme will enable children to understand the terms 'Force' and 'Friction'. The push or pull of an object is called Force. A force can cause a stationary object to move and can change the direction of a moving object. When an inflated football is pressed from all sides its shape changes. When a ball is rolled on a floor, it stops after some time. Children will understand why this happens because the force acting between the surface of the ball and the floor slows down the ball. This force is called Friction. Friction can be static, sliding or rolling. There are situations where friction is advantageous and situations where it is disadvantageous.

Learning outcomes:

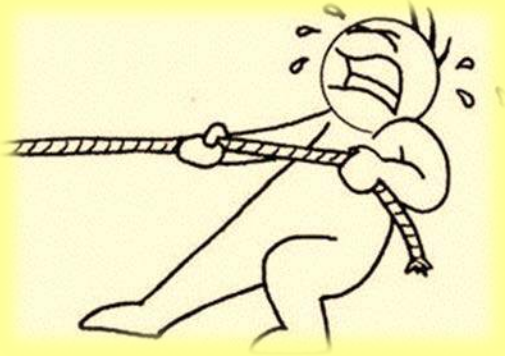
Children will be able to:

- define force;
- explain that a force can change the state of motion;
- explain that a force can change the shape of an object;
- describe force of friction with examples from daily life;
- describe situations where static/ sliding / rolling frictions are in play;
- explain advantage and disadvantage of force of friction in daily life situations.

Force

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
▸ Force as a push or pull. ▸ Effects of force on ☛ Mass (No effect) ☛ Speed ☛ Direction (rest and motion) ☛ Change in shape and size ☛ Using real world examples only. ▸ Force of Friction: ☛ Types – Rolling, Sliding and Static. ☛ Advantages and Disadvantages.	▸ Demonstrating to and discussing with children: ☛ force as push or pull. ☛ that a force can change a state of motion. ☛ that a force can change shape of an object. ☛ the play of force of friction in an object in motion.	▸ A couple of tennis balls. ▸ An inflated football, ▸ A toy cart. ▸ Surface of a table. ▸ Video showing force, different types of frictional forces and effect of force.

Integration: Geography, Technology in daily life.
Life Skills: Communication, problem-solving.



Theme 4: Energy

The ability to do work is called Energy. Machines help us to do work. For example, a bottle opener is a machine. A needle, a doorknob are also machines. Some machines are more complex than others. A simple machine changes the direction or the magnitude of force applied. The six simple machines are the lever, the pulley, the wheel-and-axle, the inclined plane, the wedge and the screw. The factor by which a machine multiplies the force applied is called 'mechanical advantage'. On the basis of location of fulcrum (the pivot point), the load and the effort, levers may be classified into three types or orders. The aim of this theme is to enable children know and understand about different types of machines and levers.

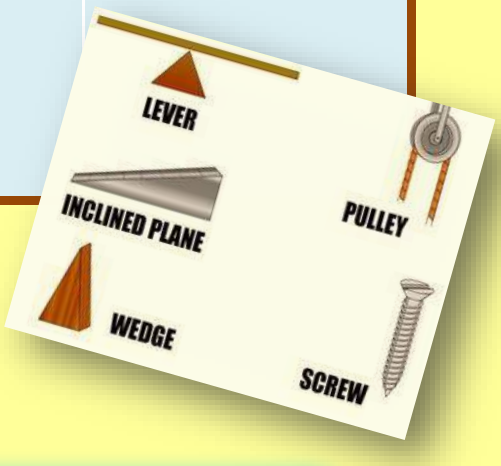
Learning outcomes:

Children will be able to:

- define what a machine is;
- describe six simple machines with examples from daily life;
- describe different types of levers;
- define mechanical advantage of a lever;
- solve problems based on formula for mechanical advantage of a lever.

Energy

Key Concepts	Suggested Transactional Processes	Suggested Learning resources
▸ Simple Machines: ☛ Basic Concept ☛ Mechanical Advantage ▸ Types of Simple Machines: ☛ Lever ☛ Wheel and axle ☛ Pulley ☛ Inclined plane ☛ Wedge ☛ Screw ▸ Different Orders of Levers ▸ Numericals based on mechanical advantage or leverage Load × Load arm = Effort × Effort arm.	▸ Demonstrating and explaining the use of simple machines. ▸ Identifying simple machines in devices used in daily life. ▸ Explaining the level and location of fulcrum, load and effort with help of diagram. ▸ Explaining the three types of levers. ▸ Explaining the term, 'mechanical advantage' of a machine. ▸ Helping children solve simple numerical problems based on MA.	▸ Charts of simple machine. ▸ Six simple machines. ▸ Models of three types of levers. ▸ Interactive videos on simple machines.



Integration: Mathematics, Technology in daily life.
Life Skills: Cooperation and working together, Problem-solving.

Theme 5: Light

Light is an important element that helps in making objects visible. It travels in a straight line. When light falls on an object it casts a shadow. The earth and the moon and, in fact, planets cast their shadows in space. Sometimes, on a full-moon day, the moon passes through the shadow of the earth. The Earth casts two shadows that fall on the moon during a lunar eclipse. The umbra is a full dark shadow. The penumbra is a partial outer shadow.

Learning outcomes:

Children will be able to:

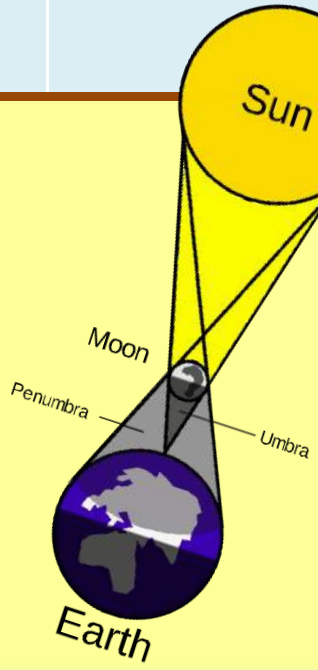
- give examples of evidence that light travels in straight lines;
- describe principle, construction and working of a pinhole camera;
- explain the factors on which the size of the image in a pinhole camera depends;
- explain the formation of shadows;
- explain the occurrence of lunar eclipse;
- explain the term umbra and penumbra.

Light

Key Concepts	Suggested Transactional Processes	Suggested Learning resources

▸ Rectilinear Propagation of Light.
▸ Applications of rectilinear propagation of light.
▸ Pinhole camera:
  ☛ Principle and Working
  ☛ Factors on which the size of the image produced depends
▸ Shadows:
  ☛ Umbra
  ☛ Penumbra
  ☛ Natural Shadows – Eclipses
	▸ Demonstration of activities to show that light travels in straight line.
	▸ Demonstration of construction of a pinhole camera.
	▸ Explanation of working of a pinhole camera.
	▸ Engaging children in construction of a pinhole camera.
	▸ Engaging children in use of a pinhole camera.
	▸ Demonstration of shadow and eclipse formation.
		▸ Candle, a rubber tube, three identical cardboards, moulding clay (Rectilinear propagation of Light).
		▸ Pinhole camera: Two boxes so that one can slide into another with no gap in between, Tracing paper (for screen).
		▸ Video on Pinhole camera.
		▸ Video on lunar eclipse.

Integration: Geography, Art
Life Skills: Cooperation and working together, problem solving.



Theme 6: Magnetism

Substances that have property of attracting iron are called magnets. The materials that get attracted towards a magnet are known as magnetic materials. For example, iron, nickel and cobalt. Materials that are not attracted towards a magnet are non-magnetic- for example, glass, plastic, wood. When a magnet is suspended freely, it always rests in the same direction. The end of the magnet that points toward North is called North pole. The end that points towards south is called South pole. This property of magnets helps us to find directions. Opposite poles of two magnets attract each other and similar poles repel one another. Each magnet is surrounded by a magnetic field. Permanent magnets retain their magnetism for a long time. Temporary magnets behave like a magnet only till they are under influence of a magnetic field. When an electric current flows through a coil of wire, the coil behaves like a magnet. This type of magnet is called electromagnet. Electromagnets are useful because their strength can be varied and they can be turned off and on, as desired.

Learning outcomes:

Children will be able to:

- state characteristics of a magnet;
- distinguish between magnetic and non-magnetic substances;
- state the properties of magnets;
- recognise the magnetic field around a magnet;
- recognize the Earth's magnetic field;
- describe different ways to make a magnet;
- distinguish between permanent and temporary magnets;
- make a simple electromagnet;
- list precautions for care and storage of magnets;
- discuss loss of magnetic property due to heating, hammering and electricity.

Magnetism		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning resources**
Magnetic and non-magnetic substances. Characteristics of a magnet. properties of magnets Magnetic field around a magnet. Earth's magnetic field. Making of Magnets Permanent & temporary magnets and their uses Electromagnets and choice of material for the core of an electromagnet Care & storage of magnets Demagnetization by heating, hammering and electricity.	Demonstrating magnetic and non-magnetic substances. Demonstrating properties of a magnet through activities. Engaging children in recognizing magnetic fields around a magnet. Demonstrating different ways of making a magnet. Explaining difference between permanent and temporary magnets and their uses. Demonstration of an electromagnet. Explaining demagnetization by heating, hammering and electricity.	Bar magnets. Iron nails and filings. Stand and thread to suspend a magnet. Compass. A coil of wire. A battery. A key. A long nail. Videos about magnets and electromagnets. Video about Earth as a magnet

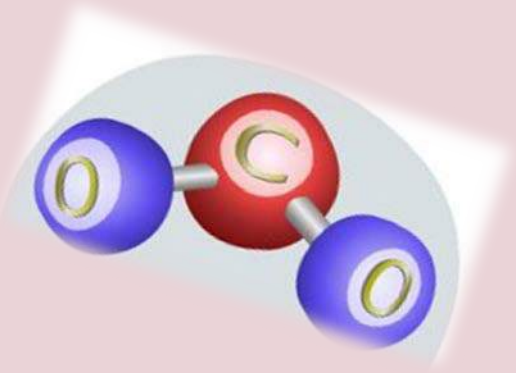
Integration: Geography, Technology in daily life.
Life Skills: Cooperation and working together, critical thinking.

Chemistry

Chemistry is an important branch of Science which is related to the study of composition, structure, properties, reactions, synthesis and uses of different materials. Chemistry forms an integral part of general science at the primary level. However, due to a vast number of terms, facts, concepts, laws, theories, principles, processes and applications, it has been taken up as an independent subject from the upper primary level. Children at the primary level can recognise and recall tangible objects. However, at the upper primary level they start to establish cause-effect relationships, which forms an essential component of the study of the subject.

While teaching the subject at the upper primary level, the historical perspective of the development of Chemistry and the scope of career options should be highlighted to generate interest amongst children. Important applications of Chemistry in the area of health and hygiene, food, building materials and environment should be discussed to help children understand how Chemistry applies to various aspects of day to day life. Some activities to show different chemical changes or phenomena could be performed by children so that they can develop scientific skills such as, observation, measurement, analysis, interpretation, drawing conclusions, etc.

In the present scenario of the world, where technology has boosted our performance and our understanding of the world affairs, many are focussing their thoughts to the environmental issues. Chemists all around the world are looking into solutions for proper waste disposal, biodegradable products, fuel efficiency. Children too must be sensitised towards environmental concerns. Use of chemicals in the form of pesticides, insecticides, fertilisers and their effect on the environment must be highlighted in class.



The Core concepts of Chemistry for Classes VI – VIII are as follows:

Class VI

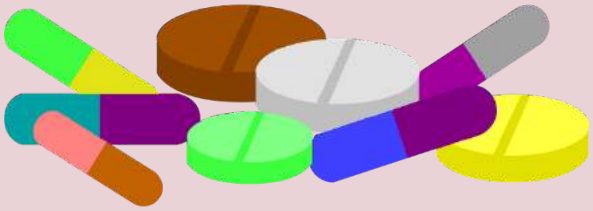
- Introduction to Chemistry
- Elements, Compounds and Mixtures
- Matter
- Water
- Air and Atmosphere

Class VII

- Matter and its Composition
- Physical and Chemical Changes
- Elements, Compounds and Mixtures (experimental-techniques)
- Atomic Structure
- Language of Chemistry
- Metals and Non-Metals
- Air and Atmosphere

Class VIII

- Matter
- Physical and Chemical Changes
- Elements, Compounds and Mixtures
- Atomic Structure
- Language of Chemistry
- Chemical Reactions
- Hydrogen
- Water
- Carbon and its Compounds



Theme 1: Introduction to Chemistry

Chemistry finds applications in day-to-day life as well as in industries. Chemicals from simple to complex, are used in food, medicines, cosmetics, textile industry, agriculture, cleansing agents, etc. This theme will help children understand applications of Chemistry in their lives.

Learning Outcomes:

Children will be able to:

- discuss the importance of Chemistry in daily life and its role in different industries and life processes;
- list important applications of Chemistry in day to day life;
- list some industrial applications of Chemistry;
- discuss the bio-sketches of some great scientists and their works;
- appreciate the patience, perseverance, sacrifices and ethical conduct of scientists.

Introduction to Chemistry

Key Concepts / Concerns	Pedagogy/ transactional strategies*	Suggested Learning Resources
Chemistry – meaning and importance.	Discussing with children and explaining the meaning and importance of Chemistry in day to day life. Asking children to make a list of products used daily– pencil, rubber, paper, ink, shampoo, deodorants, perfumes, toothpaste, cosmetics. Discussing how Chemistry plays a role.	Children's own experiences. Products used in daily life since the morning. Visit to Qutab Minar Visit to a Chemical plant/ industry under supervision. Photographs of scientists. Videos/PPTs.
Development of Chemistry- A historical perspective.	Discussing the development of Chemistry from the historical perspective with facts -when alchemists attempted to convert cheap metals to gold using philosopher stone, find a chemical that would enable people live longer etc. However, they could not succeed in their efforts to find such miraculous techniques. But they were successful to some extent in developing processes to extract metals and prepare alloys which proved of great use. Refer to the iron pillar near Qutab Minar.	
Notable chemists/	Asking children to get photographs	

Introduction to Chemistry		
Key Concepts / Concerns	**Pedagogy/ transactional strategies***	**Suggested Learning Resources**
scientists and their contributions to Chemistry (at least 3 scientists).	of great chemists such as Mendeleev, Lavoisier, Dalton and discussing their works in class.	
Food and Chemistry.	Providing common examples of food preservatives, food processing. Common food products like salt, sugar, tea, milk, jams etc.	
Cosmetics and Chemistry.	Discussing some common examples like the constituents of talcum powder (names only).	
Clothing and Chemistry.	Discussing the journey from cotton to synthetic fabric such as terylene.	
Chemicals as Medicines.	Giving examples of simple chemicals such as aspirin, paracetamol in medicines.	
Chemicals in Industries.	Giving examples of: cleansing agents (soaps and detergents), stain removals, etc. Organizing a visit to chemical industry (dye, plastic, fertilizer, detergents and drugs.). Advising children to note the number of starting materials used to create products and the final products that are formed.	

Integration: Languages, Biology, Geography,

Theme 2: Elements, Compounds and Mixtures

All materials / objects found around us are either in solid, liquid or gaseous form and occupy space and have mass. In science, the term matter is used for all these materials. Chemically, matter can be classified as element, compound and mixture. In nature, matter occurs mostly in the form of mixture. Importantly, substances are required in their pure form that is done by the separation of the components of a mixture by different techniques. The use of any particular separation technique depends upon the properties of the components of the mixture.

Learning Outcomes:

Children will be able to:

- define elements as made up of identical atoms;
- classify elements as metals and non-metals on the basis of their properties;
- define compound and mixture and discuss the points of difference between the two;
- use symbols of elements and molecular formulae of the compounds to represent their names as short hand notations;
- separate different components of samples of some mixtures;
- discuss the reasons for opting for a particular technique for separation of components of the mixture.

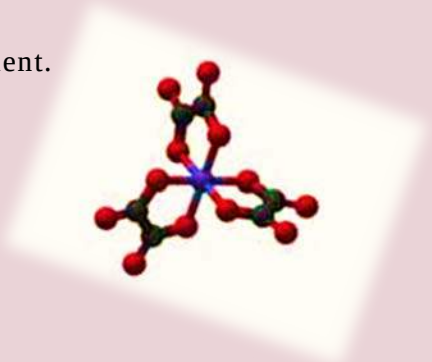
Elements, Compounds and Mixtures

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
▸ Element (a substance made up of identical atoms). ☛ Use of symbols as short hand notations of writing names of elements. ☛ Origin of symbols of elements. ☛ Names and symbols of first 20 elements. ☛ Molecules of elements contain atoms of the same element (O_2, N_2, H_2). ▸ Compound (two or more than two elements combine in fixed definite proportions to form a compound. Original properties of the constituent elements are	▸ Showing samples of iron powder, sulphur powder and zinc granules. ▸ Taking examples of certain elements e.g. iron and discussing with children that it is made up of only one type of atoms i.e. iron atoms. Likewise, discussing other examples of elements also. ▸ Introducing symbols and emphasising that every element has a symbol. Showing the periodic table and drawing children's attention towards the symbols of elements. ▸ Explaining the basis on which symbols of the elements have been given and qualitative meaning of symbols which represent the name, with examples. ▸ Using the molecular model kit to show the models of some atoms and molecules (O_2, N_2, H_2). ▸ Discussing that the molecules of compounds are made up of atoms of different elements in a fixed proportion. Examples of H_2O, CO_2, NO_2, CaO, $ZnCl_2$, etc.	▸ Different samples of some metal and non-metals. ▸ Literature related to language of Chemistry. ▸ Periodic table of elements with names and symbols of elements. ▸ Molecular model kit If molecular kit is not available, balls and sticks models can be used. Models of some compounds using the kit.

Elements, Compounds and Mixtures

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
lost and a substance with new properties is formed). ☛ Molecules of compounds contain atoms of different elements. (H_2O, CO_2, NO_2, CaO, $ZnCl_2$). ➢ Mixture (components of more than one substance combine in any proportion, original properties of the components are retained). ➢ Difference between mixtures and compounds (on the basis of proportion of combination of components and their properties). ➢ Separation techniques of mixtures into their components: ☛ Sieving ☛ Sedimentation ☛ Decantation ☛ Filtration ☛ Evaporation ☛ Magnetic Separation ☛ Sublimation	➢ Taking examples of some mixtures such as solution of sugar, honey, milk and pointing out that the concentration of the components of the mixture can be different. ➢ Differentiating between mixtures and compounds by taking examples to emphasise that in compounds, elements are combined in fixed proportion and properties of the compounds are quite different from those of the elements formed. Example of $C+O_2 \rightarrow CO_2$ ➢ Discussing details of the activity of the formation of FeS by heating Fe and S. ➢ Providing opportunities to children to perform simple activities: ☛ Filtration – (sand and water) ☛ Sedimentation (link to purification of water) ☛ Decantation (Tea brewing) ☛ Sublimation (Iodine crystals/ ammonium chloride, Naphthalene balls, Camphor). ☛ Evaporation (Salt water) ☛ Sieving (Rice powder/stones) ☛ Magnetic separation (Iron and sulphur) ➢ Discussing reasons for preferring a particular technique over another.	➢ Some samples of mixtures and compounds. ➢ Iron powder, sulphur and iron sulphide to show different properties of iron sulphide. Iron gets attracted towards magnet, sulphur is yellow in colour and floats over water. But iron sulphide has altogether different properties. ➢ Separation: filter paper, sieve, bar magnet, iodine, ammonium chloride, salt, tea leaves.

Integration: Geography
Skills: Critical thinking, observation, systematic procedural development.



Theme 3: Matter

This theme focuses on enabling children to understand that matter around exists in different physical forms.ie. solids, liquids and gases. One form can be converted into another. Matter expands on heating and on cooling, it contracts. Besides the physical changes, matter can also undergo chemical changes on heating.

Learning Outcomes:

Children will be able to:

- discuss the properties of solids, liquids and gases;
- classify the matter into solid, liquid and gas;
- discuss the inter-conversion of one state of matter into another;
- explain the effect of heat on matter showing change of state, expansion and chemical change.

Matter

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
States of Matter • Classification of matter into solid, liquid and gas on the basis of properties (shape, volume). Factors responsible for the existence of matter in different states. • Arrangement of atoms/ molecules in solids, liquids and gases: - intermolecular space, cohesive forces). • There is space between the particles of matter.	• Collecting samples of some solids, liquids and gases and asking children to group them on the basis of their properties. Listing the properties on the basis of which children have done classification. From children's responses, concluding that volume and shape of the samples are the basic properties for their classification. • Discussing these properties with reference to solids, liquids and gases in detail. (Egg in a bottle – Egg can be kicked out by blowing air inside the bottle) • Demonstrating and then carrying out activities with children of inter conversion of solid (ice), liquid (water) and gas (vapour): children should arrive at the conclusion that solids have definite volume and shape, liquids have definite volume but no definite shape while gases have neither definite volume nor definite shape; use of a knife to cut a solid and a liquid (Apple, Milk). • Discussing and explaining reasons for the difference in properties of the three states of matter is intermolecular forces, cohesive forces and Brownian movement among particles constituting matter. • Smaller particles occupy spaces	• Different samples of solid, liquid, gases. • Solid – wood, common salt, pen, pencil. • Liquid – water, milk. • Gas – balloons. • Water and burner. • Sugar, pebbles, beaker, burner. • Ball and ring apparatus. • Test tube, cork, capillary tube, burner. • Apple, milk in a container.

Matter		
Key Concepts / Concerns	**Pedagogy/ Transactional Strategies***	**Suggested Learning Resources**
▸ Effect of heat on matter (expansion, change of state and chemical change)	between the bigger particles. ▸ Carrying out activities such as: - ☛ Adding sugar to pebbles taken in a plastic beaker. ☛ Adding sand to glass balls. Sugar and sand go into the space between the pebbles and glass balls respectively. (Intermolecular spaces are occupied). ▸ Carrying out activities relating to: expansion of matter on heating, evaporation and condensation, freezing and sublimation. ▸ For solid- activity using ball and ring apparatus. ▸ For liquid- heating water filled in a test tube up to its brim. Mouth of the test tube is fitted with a cork with a capillary at the centre of the cork. On heating, water rises into the capillary. ▸ For gas- The mouth of an empty test tube is fitted with a cork having a capillary at its centre. Pouring some coloured water into the capillary. On heating the tube, water rises in the capillary. ▸ Change of state- changing of ice to water to steam and reverse can be shown/ recalled. ▸ Chemical change – Burning of candle.	

Integration: Physics, Languages

Life skills: Cooperation and working together, creative thinking, decision making, conclusion drawing.

Theme 4: Water

The theme focuses on enabling children to understand that water is essential for sustenance of life. It is considered as a universal solvent due to its capacity to dissolve a large number of compounds in it. They will also appreciate that water is becoming scarce day by day and therefore it is important to use it judiciously, conserve it and keep our water resources clean.

Learning Outcomes:

Children will be able to:

- define 'solute', 'solvent' and 'solution';
- infer that solution is a homogeneous mixture of solute and solvent;
- discuss different examples of solutions;
- state reasons for pollution of water resources and suggest ways to conserve water.

Water

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
Importance of water in everyday life (household purpose, industry, watering plants, etc.). Water resources (well, river, hand pump, lakes, pond, etc.).	Asking children to list out their activities since morning in which water has been used. Giving group work/activity to children to conduct a survey of the water resources in their neighbourhood/ town/ city.	Sodium chloride, sodium carbonate, sodium sulphate etc. Copper sulphate, water, beaker, glass rod. Survey. Audio-videos/Films. Projects. Visit to Eco park
Capacity to dissolve many salts in it.	Conducting an activity in front of the whole class/in groups to show the dissolution of salts like sodium chloride, sodium carbonate, sodium sulphate etc. e.g. sea water has many salts dissolved in it.	
Definition of Solute, Solvent and Solution.	Encouraging children to derive definitions from the following activities: ☛ Preparing a solution of copper sulphate in which copper sulphate is solute and water is solvent. ☛ Taking common examples from daily life to identify solute, solvent and solution. Explaining that the component present in larger quantity in the solution is the solvent.	
Importance of water for sustenance of life on earth. Reasons for water pollution; its prevention; conservation of water.	Initiating a class discussion/debate on the importance of water for sustenance of life, its scarcity, pollution, etc. Assigning every child Project work on conducting a water audit at their homes	

Water		
Key Concepts / Concerns	**Pedagogy/ Transactional Strategies***	**Suggested Learning Resources**
	by: Preparing a table of the amount of water used (approximate) for different purpose at home; drinking, bathing, washing, toilets, cleaning floors, car washing, etc. per day. After the audit is complete discussing in class and identifying ways to reduce water consumption at home. Showing films/audio-videos on aspects related to water pollution and initiating brainstorming to create awareness amongst children towards conservation of water, rain water harvesting, prevention of water pollution.	

Integration: Geography, Languages
Life skills: cooperation and working together, concern for others, environmental awareness, problem solving

Theme 5: Air and Atmosphere

This theme will enable children to know about the atmosphere around us and what air consists of and its importance. Air which is a mixture of different gases such as nitrogen, oxygen, helium, carbon dioxide, argon, moisture. Air is essential for sustenance of life on earth. They will also appreciate the need to keep air clean and that they should take the responsibility of making it free of pollutants.

Learning Outcomes:

Children will be able to:

- describe different components of air and their composition;
- state the importance of air for sustenance of life and for other physical and chemical processes;
- describe the uses of oxygen and nitrogen;
- discuss the causes of increase of carbon dioxide into the atmosphere.

Air and Atmosphere

Key Concepts / Concerns	Pedagogy/ Transactional Strategies*	Suggested Learning Resources
Air is present everywhere around us. Air - a mixture of gases namely, nitrogen, oxygen, carbon dioxide, water vapour; dust and smoke as pollutants. Percentage composition of air. Uses of the components present (importance of nitrogen to plants to be mentioned). Definition of atmosphere as layer of air around the earth.	Performing an activity in front of all the children: - Turn an empty glass bottle upside down in water and tilt it. Air bubbles come out of bottle and water goes inside it. Demonstrating an experiment to the children to show the presence of oxygen – lighting a candle in a shallow container. Filling some water in it. Putting an inverted glass over the lighted candle. The candle burns for some time and then extinguishes. When O2 gets consumed, the candle extinguishes. Followed by a discussion on the experiment. Nitrogen- a major part of air is still present above the water level which does not support combustion. N2 does not support burning of candle. Discussing that nitrogen is an essential element for the plants where it is found in form of Protein, enzymes etc. CO_2- turning of lime water milky by bubbling air in it shows the presence of CO2 in air. It is produced due to our day-to-day activities like burning of fuel. Smoke contains many harmful gases. Discussing how air is essential for life and other physical and chemical processes.	Bottle, a tub containing water. Literature related to composition of air and description of uses of the components of air. All equipment for doing simple experiments.

Integration: Biology, Geography
Life skills: Sensitivity towards environment

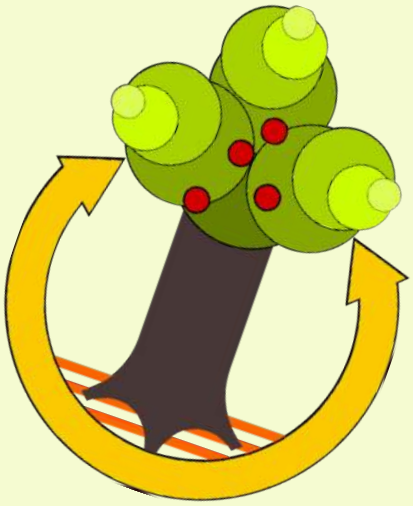
Biology

Biology is perhaps the most fascinating of all the sciences, as it is the science of life, and is aptly called life science. More than anything else, Biology is a quest, an ongoing inquiry about the nature of life.

Scientists all over the world are engaged in solving biological puzzles that once seemed unsolvable. We are moving closer to our understanding of many things such as how a single microscopic cell develops into a complex plant or animal; how plants convert solar energy into the chemical energy of food; how the human mind works; how various forms of life network in biological communities such as forests and coral reefs; how the great diversity of life on Earth evolved from the first microbes, etc.

The discovery of the double-helical structure of the DNA, deciphering of the genetic code, and three-dimensional structure of many macromolecules led to the phenomenal growth in the field of Molecular Biology. Recent breakthroughs in genetics and molecular cell biology are transforming medicine and agriculture. New models in ecology are helping scientists to evaluate environmental issues such as increasing atmospheric levels of carbon dioxide leading to global warming and the destruction of the ozone layer.

Biology also plays a valuable part in general education and its day to day relevance in the lives of children, in terms of nutrition, health and hygiene, medicines and a host of other useful products needs to be highlighted. At the same time, the curiosity of children towards environmental issues needs to be aroused and knowledge be imparted through the study of nature and the consequences of upsetting nature be addressed.



The core concepts of Biology for Classes VI – VIII are as follows:

Class VI	Class VII	Class VIII
Plant Life	Tissue	Transport of Food and Minerals in Plants
The Cell	Kingdom Classification	Reproduction in Plant and Animals
Human Body	Plant Life	Ecosystems
Health and Hygiene	Human Body	Human Body- Endocrine, Circulatory and Nervous Systems
Adaptation	Health and Hygiene	Health and Hygiene
		Food Production

Theme 1: Plant Life

Plants play an important role in our lives. As learnt in the previous classes, there exists a great variety of plant life on the planet Earth. Plants vary in size from minute microscopic forms to complex tall trees. Most of the tall trees belong to higher plants. Herbs and shrubs also constitute a large proportion of higher plants. In previous classes, children have already been familiarised with parts of a plant body (root, stem, leaf, flower, fruit and seed) and their functions. This topic aims at enabling children to know and learn more about the leaf, flower and fruit, including the arrangement, characteristics and functions of the parts of a leaf and flower. Modifications of leaves for performing special functions will also be covered in this topic.

Learning Outcomes:

Children will be able to:

- distinguish between leaves (reticulate vs parallel venation /simple vs compound leaves);
- recognize, identify and draw figures of leaf modifications for support, protection, reduction in water loss and vegetative propagation in leaf;
- recognize that flowers are of various shapes, sizes and colours and are an important part of the plant;
- collect and preserve various types of flowers;
- explain the structure and function of each whorl of flower (complete flower);
- list the agents of cross pollination;
- learn the process of seed germination and list the conditions required for germination;
- list common names of locally available plants;
- list the various types of modifications for special functions such as vegetative propagation and storage.

Plant Life

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
THE LEAF ▸ External structure (parts of a leaf in detail). ▸ Kinds of leaves (simple & compound). ▸ Types of venation (reticulate and parallel). ▸ Functions of leaf (main functions). ▸ Modifications (tendrils, spines, scale leaves). ▸ Insectivorous plants. Need for modification with an example. ▸ Vegetative propagation in leaf (example bryophyllum).	▸ Revisiting previous concepts and building on past learning. ▸ Promoting children's observation of plants in their surroundings, and drawing pictures with the common names of the plants written below the pictures. ▸ Providing opportunities for children to observe plants, leaves and flowers through organizing a visit to a nearby garden or forest area. ▸ Asking children to draw different types of leaves, their structure and kinds and types of venation and modifications. ▸ Observing a pea plant, noting the tendril which is a modified leaf.	▸ Visit to school or nearby garden or park/ forest with teachers/ parents. ▸ Specimens of different types of leaves, school garden /herbarium. ▸ Charts /specimens of leaf modifications. ▸ Demonstration

Plant Life

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
THE FLOWER • Parts (4 whorls), structure and function of each whorl. • Pollination (self and cross): An idea about agents of cross pollination (wind, water and insects – their examples). • Fertilization: process in simple terms. • Formation of fruit – fate of each part (whorl) of flower after fertilization. • Parts of fruits: dry and fleshy, examples of dry and fleshy parts; parts of the pericarp of fleshy fruits (epicarp, mesocarp, endocarp) and function of each part. • Seed- parts (cotyledon, embryo: Radicle, plumule) and types (monocot, dicot) • Germination – conditions required for germination (moisture, warmth), seed germination of different seeds.	• Discussing the function of a tendril. • Conducting activities to demonstrate photosynthesis and transpiration in leaves. • Observing spines in the Cactus plant and stating their function. • Drawing a diagram of the Cactus plant and labelling it. • Organising activities to observe vegetative propagation in leaf and discussing. • Asking children to observe a flower (such as petunia, china rose or mustard) and studying its different parts and whorls. • Encouraging children to draw pictures of different flowers and labelling the parts observed (only complete flowers showing all 4 whorls). • Discussing the process of fertilization in plants using models/ charts, etc. • Studying and drawing pictures of different fruits (like pea, bean, mango, tomato, coconut); and seeds of maize, wheat/paddy (rice). • Asking children to soak seeds in a petri dish containing a wet blotting paper to observe germination phenomenon. • Asking learners to classify fruits as dry and fleshy. • Developing a herbarium of flowers / leaves. • Conducting simple activities to identify: cotyledon, monocot seeds, dicot seeds. • Setting up experiments for seed germination in different seeds.	• Flowers – petunia, China rose and/or mustard; • Charts /specimens of inflorescence, flowers, fruits, dicot and monocot embryo, vs mango or any other fruit. • Fruits such as, pea, bean, mango, tomato, coconut. • Germinating seeds.

Integration: Geography, Languages
Life Skill: Sensitivity towards environment

Theme 2: The Cell

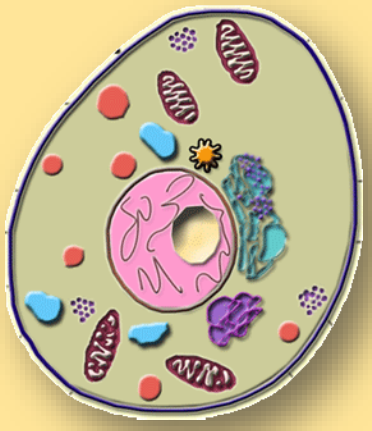
In this theme children will be introduced to the Cell. All living things consist of cells. A few organisms are single- celled (unicellular), while majority of the organisms are many-celled (multicellular). In structure, cells in plants and animals are quite similar, except for a few differences. Cells contain organelles which perform important functions for the sustenance of life. Plant cells are characterized by presence of a cell wall, plastids and a large vacuole whereas animal cells do not possess cell wall and plastids.

Learning Outcomes:

Children will be able to:

- identify difference in unicellular and multicellular organisms and cite examples;
- observe cell (plant and animal) under microscope and discuss in class;
- identify the different cell organelles (cell wall, cell membrane, nucleus, chloroplast, vacuole) and learn about their primary functions;
- distinguish and draw diagrams of a plant cell and an animal cell.

The Cell

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▸ Plant cell: Cell organelles and their functions. ▸ Animal cell: Cell organelles and their functions. ▸ Diagrams of plant and animal cell. ▸ Only the following to be included: Cell wall, Cell membrane, Plastids, Nucleus, Vacuole, Cytoplasm – their structure and functions ▸ Differences between plant and animal cells.	▸ Organising visits to the laboratory to show children slides on the theme. ▸ Asking children to observe and draw the structures seen in the permanent slides of: ☛ *cells from onion peel* ☛ *human cheek cells* ☛ *blood Cells* ☛ *Amoeba* ☛ *Chlamydomonas* ▸ Asking children to differentiate between plant and animal cells based on their observations of slides. ▸ Showing videos and PPTs on structure of the Cell. ▸ Assigning projects and preparation of models (individually or in groups) on plant and animal cell; ▸ Discussing the structure and functions of cell organelles; ▸ Appreciating the discovery and use of the microscope in human life.	▸ Permanent slides of onion peel, human cheek cells, blood cells, *Amoeba*, *Chlamydomonas using* a microscope. ▸ Microscope. ▸ Models and charts of the above -listed materials ▸ Videos, E.M. photographs and PPTs of plant and animal cell, listed cell organelles. 

Theme 3: Human Body

The human body consists of a number of organ systems. Some of the major organ systems are the digestive, respiratory, circulatory, excretory, nervous and skeletal system. Each of these systems consists of organs, which help them perform specific functions. The expectation of this theme is to develop an understanding in children of the functioning of the digestive, respiratory and circulatory systems in the human body.

Learning Outcomes:

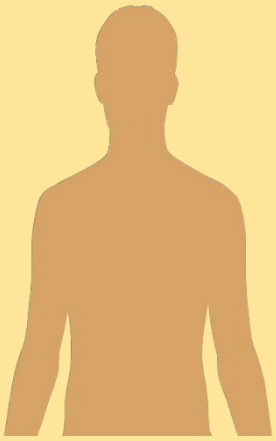
Children will be able to:

- list the main parts and functions of each part of the respiratory system;
- distinguish between respiration and breathing;
- outline the mechanism of breathing and the role of diaphragm in inhalation and exhalation;
- name some common respiratory diseases;
- explain the main parts of the circulatory system;
- list the components of blood and types of blood vessels;
- take their own/ others' pulse;
- demonstrate the significance of exercise and good food habits in keeping the heart healthy.

Human Body

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
Digestive System ▸ Revisit previous learning. ▸ Organs of the digestive system; function of each organ. ▸ Process of digestion particularly of Carbohydrates Proteins and Fats.	▸ Discussing with children about their own experiences. ▸ Providing opportunities to: ☛ *draw diagram of digestive system and label its parts.* ☛ *describe functions of each organ.* ☛ *make model / functional model of digestive system.* ▸ Discussing the process of digestion in terms of: ☛ *site of components of food;* ☛ *role of enzymes in digestion end products of the digestive process.* ▸ Discussing and finding out: ☛ *causes of indigestion.* ☛ *healthy and unhealthy food habits.* ☛ *ways to keep on oneself healthy.* ▸ Assigning Projects either in groups or individually to - interview three people and find out about their food habits. Sharing the same in class.	▸ Picture of Digestive system ▸ Working Model of the Digestive system. ▸ Children's drawings. ▸ ▸ Interview. ▸ Report on project work. ▸ Models and charts. ▸ PPTs and videos. ▸ Family doctor/Other Doctors.
Respiratory System ▸ Main parts (nose, pharynx, larynx, trachea, bronchi, lungs); functions of each part of the respiratory	▸ Asking children to: ☛ *observe through models and charts different parts of the human respiratory system;*	▸ Models and charts ▸ PPTs and videos

Human Body

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
system. ▸ Difference between respiration and breathing. ▸ Mechanism of breathing (physical process with respect to diaphragm and ribs-inhalation and exhalation). ▸ Mention of common respiratory diseases: asthma, bronchitis, pneumonia, tuberculosis (T.B.).	☛ *draw pictures of respiratory system and label its parts;* ☛ *discuss the process of respiration using working models;* ☛ *discuss the effects of increased physical activity on breathing;* ☛ *inviting a doctor to discuss health issues related to diseases.* ▸ Discussing various causes of diseases related to respiration; ▸ Identifying ways to prevent diseases related to respiration.	
Circulatory System ▸ Main parts of the circulatory system (heart, blood, blood vessels). ▸ Process of circulation in the body. ▸ Components of blood (plasma and blood cells - RBC, WBC, platelets with their functions only). ▸ Types of Blood groups (A, B, AB, O): mention only. ▸ Blood pressure (concept only); heartbeat, pulse ▸ Keeping the heart healthy through exercise and good food habits.	▸ Asking children to: ☛ *observe different parts of the human circulatory system through models and charts;* ☛ *draw the figure of a heart; circulatory system;* ☛ *identify the different types of blood vessels and components of blood through PPTs/ videos/ permanent slides.* ▸ Inviting a doctor and/or visiting a doctor to know about blood pressure and observing the instrument used to measure it and how it is done; ▸ Showing children how to measure their pulse. ▸ Demonstrating activities related to: process of deep breathing, brisk walking/ jogging. ▸ Discussing the need for a blood bank, blood donation.	▸ Models and charts ▸ PPTs and videos ▸ Permanent slides of blood cells. ▸ Instrument used to measure blood pressure.

Integration: Chemistry, Health and Physical Education

Theme 4: Health and Hygiene

Health is defined as a state of complete physical, mental and social well-being. When diseases occur, the normal functioning of the body is disturbed. Hygiene includes all factors that contribute to healthy living. Three factors that are important for maintaining good health are balanced diet, personal cleanliness and public sanitation. This theme focuses on enabling children to know and understand that diseases are broadly classified into communicable (or infectious) diseases, and non-communicable (non-infectious) diseases and also how diseases are transmitted and why it is essential to control them.

Learning Outcomes:

Children will be able to:

- explain the meaning of terms such as 'health', 'hygiene' and 'disease';
- relate the knowledge acquired to the personal experiences of diseases suffered, if any.
- relate the types of diseases on the basis of their transmission as infectious and non-infectious.
- spread awareness regarding diseases to friends and family.

Health and Hygiene

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▸ Types of diseases (communicable and non-communicable). ▸ Communicable diseases: bacterial, viral, protozoal, diseases caused by worms (common examples of each). ▸ Modes of transmission of diseases (air, water, food, insects). ▸ Ways to prevent communicable diseases. ▸ Non-communicable diseases: examples, ways to prevent them. ▸ Hygiene – ways to keep the surroundings clean, safe disposal of garbage, healthy practices for hygiene.	▸ Building on previous learning and concepts. ▸ Discussing with children: ☛ names of some diseases and their symptoms; ☛ some non-communicable diseases: their causes and ways to prevent them; ☛ prevention of diseases while sharing their experiences. ▸ Asking children to relate their experiences when they had a particular disease/ seen patient in the family. ▸ Organizing brainstorming sessions to discuss: ☛ disposal of garbage, its segregation ☛ healthy practices for hygiene ☛ ways to keep the surroundings clean	▸ Charts. ▸ PPTs. ▸ Videos. ▸ Physician. ▸ Discussion on disposal practices

Integration: Health and Physical Education

Life Skill: Health awareness, concern for environmental cleanliness

Theme 5: Adaptation

All living organisms, for their survival, need to be well-suited to the environment in which they live. To attain this, organisms develop some features which help them to survive and reproduce in their environment. Features so acquired help organisms to adapt to their particular environments. This theme enables children to understand how some plants and animals are adapted to live and survive in dry habitats, whereas others can live in water or on mountains, or fly in air.

Learning Outcomes:

Children will be able to:

- define adaptation and habitat;
- recall the names of plants and animals, and their adaptations studied in earlier classes;
- record the adaptations shown by plants and animals living in desert/ aquatic conditions;
- prepare a list of plants and animals occurring in different habitats with their common names and adaptations.

Adaptation

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▸ Habitat – definition. ▸ Adaptations of plants and animals to the following habitats along with characteristics and examples: ☛ *Aquatic habitat- floating, submerged and fixed plants; adaptations in fish.* ☛ *Desert - adaptations in cactus as desert plant and camel as desert animal.* ☛ *Mountain – adaptations in trees like Pine and Fir; mountain goat* ☛ *Air - adaptation for flight in birds, aerial plants.*	▸ Discussing the concept of habitat and adaptation in plants and animals though examples. ▸ Asking learners to study external features of: ☛ *Water lily and water hyacinth (with floating leaves)* ☛ *Hydrilla (root submerged)* ☛ *Cactus/Opuntia (desert habitat)* ☛ *Babul or Kikar (desert habitat)* ☛ *Pine/Fir (mountain region).* ▸ Drawing pictures of above-named plants and writing down the special features ▸ Asking children to - collect information and study the external features of fish, camel, bird (pigeon) and mountain goat. ▸ Drawing pictures of above mentioned animals and describing their special features.	▸ Preserved/ herbarium/ fresh specimens of plants and animals from different habitats (aquatic, desert, mountain, air). ▸ Field visit for observations in nature ▸ PPTs. ▸ Videos. ▸ Pictures and photographs.

Integration: Geography, Languages

COMPUTER STUDIES

Computer Studies

Introduction

With computers, mobiles and tablets present in most urban households, children today have far greater access to these devices than ever earlier. With their natural tendency to explore, they are often adept at learning by themselves or by observation. It is important to identify the content suitable for the children according to their age and introduce it to them at the opportune time. Keeping in mind their curiosity and knowledge, this curriculum provides children with opportunities to use modern technology to enhance their learning in all subjects. It also generates awareness among them about risks like long hours of usage to play or inappropriate access to the internet. This curriculum also ensures that children become digitally literate, i.e. able to use, and express themselves and develop their ideas through ICT at level suitable for the future workplace and as active participant in the digital world.

Aim

This curriculum helps the learner:

- to become competent, confident, responsible and critical user of technology.
- to develop the appropriate social skills that are essential for co-operative and collaborative learning.
- to take ownership of their own learning.
- acquire knowledge and skills in using Information and Communications Technology (ICT) to accomplish tasks, communicate, and facilitate activities.
- develop awareness regarding the developments and emerging issues concerning computing and society;
- develop critical and analytical thinking skills for practical solutions.
- develop creative skills for problem solving.

The Core Concepts of Computer Studies for Classes VI-VIII are as follows:

Topic 1: Categories of Computers and Computer Languages

This theme focuses on computers and computer languages. Computers are categorized based on the basis of (i) generation, (ii) type, (iii) purpose and (iv) size, speed, processing power and price. The aim of this theme is to enable children to communicate with the computer, by using specific languages that are broadly into three categories, i.e., machine language, assembly language and higher-level language. They will also become aware of all the different operations performed by a computer which are controlled by computer programs written in a computer programming language.

Learning Outcomes:

Children will be able to:

- classify computers into different categories;
- differentiate between computers on the basis of RAM size, Storage capacity, CPU speed, etc.;
- describe a Computer Language.
- explain the evolution of computer languages with their features;
- differentiate between different computer languages;
- explain the importance of 4GLs;
- explain the working of translators by differentiating between an interpreter and compiler.

Categories of Computer and Computer Languages

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▸ Categories of computers: basic features of microcomputers, mini computers mainframes, supercomputer, mobile, game consoles, embedded computer. ▸ Types of computer languages. ▸ Features of Low level language (Machine language. Example: binary language) ▸ Features of Assembly language. ▸ Features of High level languages. Example: C, C++, Java. ▸ Features of 4GLs. ▸ Translator and its types (Interpreter, Compiler); ▸ **Working of Translators (briefly).**	▸ Revisiting and reviewing children's previous learning and building on their experiences. ▸ Revising the basic features of a computer with children. ▸ Questioning children to identify various types of computers observed in their surroundings. ▸ Discussing with children different categories of computers (definition and basic features of microcomputers, mini computers mainframes, supercomputer, mobile, game consoles, embedded computer). ▸ Explaining computer languages - Low level language, Assembly language and High-level languages. ▸ Discussing and explaining the evolution of computer languages. ▸ Demonstrating the working of a Translator and its types.	▸ Presentations/ Videos/ Comparative charts. ▸ Computer/ IWB with presentation software. ▸ Hands on experience /activity ▸ Interactive class resources ▸ Projector, etc. ▸ Discussion on computer languages

Topic 2: File Management – Organisation of Data

Building on children's previous learning in primary classes this Topic covers additional and advanced features on file management which will enable them to organise data better. It is important to understand file format as it makes the task of file management easier. In file management the focus of this theme is that they develop the ability to undertake common operations on stored files such as editing, viewing, copying, playing, moving and deleting files enable better management, access and retrieval/ sorting of files by type, name, size, date (created or modified). File management will also help them to transfer data from one device to another and work with multiple applications at the same time. Understanding of a file format is important as it makes the task of file management easier.

Learning Outcomes:

Children will be able to:

- move/copy data from one drive to another drive;
- move/copy data between storage devices (pen drive, C.D. hard disc);
- use two or more applications at the same time;
- search files and folders;
- compare different file formats.

File Management – Organisation of Data		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
▸ Transfer of data from one device/drive to another device/ drive ▸ Work with multiple applications ▸ Search for files using wild card characters ('?', '*') ▸ Various file formats such as JPEG, MP3, MP4, doc. XLS	▸ Giving opportunities for hands on activities for transferring data from one drive/ device to another drive/ device/ ▸ Demonstrating with an example of listening to music while searching for information on Internet. ▸ Explaining the difference between wild card characters by using games such as puzzles ▸ Correlating the file extensions with the type of file	▸ Computer/ IWB with presentation software. ▸ Hands on activity. ▸ Internet. ▸ Videos. ▸ Projector. ▸ Group discussion / activities.

Life Skills: organisation skills

Topic 3: Word Processor - Tabular Presentation

One of the most common but an important formatting feature of the word processor is 'Tables'. Tables are a method of presenting data in a document, in rows and columns. Blank tables can be inserted or drawn. A table can be simple (based on a metrics) or complex (having different number of rows in columns or vice versa). Intersection of a row and column is a cell. After entering data in a table, it can be modified as per the requirement.

Learning outcomes:

Children will be able to:

- define table;
- create a table and enter data in the table;
- edit a table;
- format the row/ column/table;
- apply borders and shading in tables.

Word Processor – Tabular Presentation		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
▸ Define a table in terms of rows and columns. ▸ Create and edit tables. ▸ Insert and delete rows and columns in a table. ▸ Enter data. ▸ Change row height and column width. ▸ Split and merge cells. ▸ Apply borders and shading. ▸ Resize tables. ▸ Align text,	▸ Providing children opportunities to: Explain a table and work on how it can be created in a document. ▸ Providing every child hands- on experience and involving them in creating and formatting tables based on everyday requirements such as- creating a class time-table, study schedule for the month, marks obtained in the term examination, etc.	▸ Computers/ IWB with presentation software and Word Processor. ▸ Hands on activity ▸ Projector.

Topic 4: Word Processor – Mail Merge

The topic Mail merge is an important feature of the word processor. The aim is to develop the ability in children so as to enable them to create personalised letters for bulk mailing in a short period of time and address/ mailing labels by using this facility.

Learning outcomes:

Children will be able to:

- describe Mail merge;
- apply the concept of mail merge to multiple addresses;
- handle various components of mail merge;
- use mail merge to create multiple personalised documents from a single one.

Word Processor – Mail Merge		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
▸ Mail merge and its advantages. ▸ Apply Mail merge feature of a Word processor to generate document with varying addresses. ▸ Components of mail merge (main document, data source, merged document). ▸ Steps to be followed during mail merge. ▸ Printing merged letters.	▸ Initiating a discussion with children on the need of mail merge by giving real life examples like birthday party invitations, etc. ▸ Providing opportunities for hands on activities to create and print mail merged letter/ documents for everyday situations.	▸ Computers/ IWB with Word Processor. ▸ Hands on activity ▸ Projector, etc. ▸ Use of mail for document development related to daily life activities

Life Skills: General Awareness, Collaborative learning

Topic 5: Presentation – Visual Effects

Presentation software is an application software that aims at enabling children to access their ideas easily while making a presentation through slide shows. It also provides the audience with visual information. They will understand appreciate how presentations can be made more attractive and interactive by using animations, sound, video, etc.

Learning outcomes:

Children will be able to:

- demonstrate different ways of viewing a presentation;
- present a Topic in an attractive manner by using different objects;
- enhance the presentation by applying transitions and custom animations;
- navigate between slides during a slide show;
- import data from other applications.

Presentation – Visual Effects		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
▸ Need for different views in a presentation. ▸ Working with different views (normal, slide sorter, slide master, slide show) to view a presentation. ▸ Apply animation effects through custom animation ▸ Add transitions to slides. ▸ Use of a media clip and action buttons. ▸ Insert media clips (movie and sound)/ action buttons in the presentation. ▸ Import data from other applications.	▸ Demonstrating to children the advantages of using normal, slide sorter, slide master, slide show by using an existing presentation. ▸ Involving the children in a discussion to highlight how a presentation can be enhanced by using a media clip/ transitions/ animations and action buttons. ▸ Organising hands on activities for each child to: insert different objects; apply slide transition and custom animation; use action buttons to navigate between slides.	▸ Computers/ IWB with presentation software. ▸ Projector. ▸ Animation related activities. ▸ Presentation on media clip. ▸ Hands-on activities / experiences

Life Skills: Presentation skills, creativity

Topic 6: Scratch Programming – Introduction to Game Creation

In previous learning of the Topic on 'Scratch' children learnt how to handle basic motion block. This Topic aims at enabling children to handle and work with looks, control pen, and sound blocks of Scratch programming.

Learning outcomes:

Children will be able to:

- handle commands of different blocks;
- create a working multi-player game.

Scratch Programming – Introduction to Game Creation		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
▸ Revision from previous class. ▸ Changing sprites, images, shapes. ▸ Working with Multiple sprites ▸ Use of different blocks like Looks, Motion, Control, Pen and Sound. ▸ Use of Forever, Forever- IF.	▸ Explaining the working of Blocks like Looks, Motion, Control, Pen and Sound. ▸ Providing opportunities to children to use the commands in their own way in order to create games/ quizzes/ interactive cards. ▸ Demonstrating the use of blocks and working with multiple sprites to children in class.	▸ Computers/ IWB with Scratch software. ▸ Projector. ▸ Games, quizzes, interactive cards.

Integration: Mathematics, Physics
Life Skills: Collaborative learning

Topic 7: HTML - An Introduction

HTML an acronym for Hyper Text MarkUp Language, is the language used to describe structured documents as well as to create web pages in Internet. Hyper Text refers to links that connect web pages/ web sites and MarkUp means a set of markup tags. This aim of this topic is to enable children to understand the different features of HTML and develop the ability to design a simple web page using HTML editors.

Learning outcomes:

Children will be able to:

- define HTML;
- differentiate between web page, web site and web browser;
- list various features of HTML;
- use various HTML tags;
- design a web page.

HTML – An Introduction		
Key Concepts	**Suggested Transactional Processes**	**Suggested Learning Resources**
▸ Definition of webpage and website, web browser. ▸ Introduction to HTML programming and its features. ▸ Create a web page using HTML Editors (e.g. Notepad). ▸ Basic Structure of a HTML document. ▸ Basic HTML Tags (<HTML>, <HEAD>, <TITLE>, <BODY>, ▸ , <P>, heading tags from <H1> to <H6>, <B>, <I>, <U>, <SUP>, <SUB>, <CENTER>, <BGCOLOR>, <FONT COLOR>, <FONT SIZE>, <FONT FACE>, <TEXT>). ▸ Web Browsers for HTML (e.g. IE, Google Chrome, Netscape Navigator etc.). ▸ View HTML codes in a Browser. ▸ Create and save a web page through HTML editor.	▸ Explaining and discussing with children HTML, as a web designing tool, and its features. ▸ Demonstrating various tags in classroom activities. ▸ Demonstrating the process to view the code in a browser. ▸ Providing opportunities to each child to participate in project work to create webpage/ website.	▸ Computers/ IWB with HTML editor. ▸ Internet facility. ▸ Projector. ▸ . ▸ Project work

Life Skills: creative thinking, logical thinking and critical thinking.

Topic 8: Internet – Online Surfing

Internet is the largest wide area network. It provides us many facilities and services. In this chapter we will discuss internet services such as E-mail, E-commerce, Blogging, Podcasting and Google drive (to store and share data). The focus of this topic is to develop children's interest, understanding of and ability to use the Internet in simple ways.

Learning outcomes:

Children will be able to:

- communicate through e-mail;
- store and share data using google drive;
- explain online services of e-commerce;
- create a blog;
- express views/ opinions through blogs;
- differentiate between a website and a blog;
- create a podcast.

Internet – Online Surfing

Key Concepts	Suggested Transactional Processes	Suggested Learning Resources
▸ Features to be kept in mind while using the internet services – following netiquette; being aware of potential threats in the cyber world. ▸ E-mail: introduction; features; advantages; composing and sending e-mail, attachments, cc, bcc, inbox, outbox, trash, spam, logging in and out. ▸ Google Drive: introduction; using the drive: upload, organise and share. ▸ E-commerce: an understanding of E-commerce as online buying and selling of goods and services. ▸ Online modes of payment: credit card, debit card, e-money. ▸ Blogging and Podcasting: meaning purpose and uses.	▸ Having an open discussion with children on their experiences while surfing the internet, what they liked and did not and issues they faced if any. ▸ Discussing and debating with children on: • potential threats while using the internet • importance of netiquettes. • evolution of communication by comparing earlier modes with the modern modes and advantages and disadvantages of each. ▸ Demonstrating how to: • send an e-mail, with bcc, cc, attachments. • use the Google Drive and explaining the process of uploading and sharing data through it ▸ Introducing E -commerce by discussing the different modes online buying and selling ▸ Discussing with children the following: • advantages and disadvantages of online shopping • online modes of payment • the difference between a website and a blog ▸ Introducing the concept of podcast by giving real life examples of use of podcast in news ▸ Providing opportunities for hands-on activity through projects and individually on the internet, google, website and blog.	▸ Computers/ IWB with presentation software ▸ Use of internet in conducting activities ▸ Hands on experiences working on various functions of internet. ▸ Use of google drive ▸ Use of website and blog

Life Skills: Organisation skills

ARTS EDUCATION

Arts Education

The Arts are organised expressions of ideas, feelings and experiences in images, music, language, gesture and movement. They provide for sensory, emotional, intellectual and creative enrichment and contribute to the child's holistic development. Much of what is finest in society is developed through a variety of art forms which contribute to the cultural ethos and sense of well-being of an individual.

Overview

Various policy documents have recommended Arts Education as an area of immense importance for the overall development of students. Report of the Education Commission (1952-53) emphasized the "release of creative energy among the students so that they may be able to appreciate cultural heritage and cultivate rich interests, which they can pursue in their leisure and later in life" and the Kothari Commission re-emphasized the role of arts in education and stated, “The neglect of arts in education impoverishes the educational process and leads to a decline of aesthetic tastes and values."

Arts education was always recommended as an important component of the school curriculum in all National Curriculum Frameworks (1975, 1988 and 2000). The NCF 2005 recommendations brought in the major shift giving Arts Education the status of a curricular area of school education from classes I to X on one hand and arts as an approach to learning to be integrated across the complete school curriculum on the other.

At International front the UNESCO outlines the importance of Arts Education and its essential role in improving the quality of education. UNESCO's Road Map (2006) endeavors to define concepts and identifies good practices in the field of arts education, globally. It is meant to serve as an evolving reference document which outlines concrete changes and steps required to promote arts education in educational settings.

The Seoul Agenda (2010) is another important policy document of UNESCO on Arts Education. Its

three Goals for the Development of Arts Education reflect that Arts education has an important role to play in the constructive transformation of educational systems that are struggling to meet the needs of learners in a rapidly changing world characterized by remarkable advances in technology on the one hand and intractable social and cultural injustices on the other.

Objectives of Teaching and Learning Arts

Education deals with human nature, which has its own potential and pace of growth. Its objective is not to mould, but to facilitate the individual to grow and develop into a creative and productive citizen. The aim is to make an individual free to make his/her own choices in life and grow holistically. In other words, education in general and Art Education in particular is a way for one to grow and become sensitive to the beauty in nature, of social values and the aesthetic aspects of life as a whole.

The Objectives of teaching and learning Arts are:

- ✓ Awareness about oneself and one's immediate environment, from physical existence of objects to daily life experiences and their social importance.
- ✓ Development of individuality, sense of self and self-identity including personal identity and social identity.
- ✓ Opportunity for experiential learning through exploring, appreciating, creating, imagining and expressing.
- ✓ Develop sensory, kinesthetic, psycho motor and affective abilities.
- ✓ Develop cognitive abilities such as imagination, divergent thinking, critical and reflective thinking.
- ✓ Develop an understanding of art materials, methods, tools & techniques, and of processes to communicate and express ideas and feelings in different ways.
- ✓ Develop a non-verbal means of communicating ideas and seeing relationships to reinforce verbal learning.
- ✓ Develop the sensory and other skills in differently abled children (children with special needs) so as to include them in to the mainstream of the process of art learning with normal children.
- ✓ Appreciation of India's heritage and cultural diversity, and that of the world.
- ✓ Develop humane values of peaceful co-existence with nature and other human beings.

Art Education Curriculum and Suggestive Pedagogical Guidelines

Art is essential for cognitive, affective and psychomotor development of every child. It also helps them in modes of expression, visualizing, scenario building, creative problem solving, divergent, critical and reflective thinking. Arts education enhances a child's ability to understand their traditional art heritage as a national treasure and conserve and preserve it. Experiencing arts and

its explorations during the school years give them avenues to nurture creativity which makes them contributing citizens.

The Curriculum of 'Art Education' is delimited to the 'Visual Arts', which consists of; 2-D work such as; Drawing, Painting, Printing, Still-life, pen & Ink, Collage, Paper-craft, Photography, Animation, Graphic-designing etc. and 3-D work such as; Mask making, Clay-modelling, Puppet making, Sculpture, Installations etc.

Stage wise/class wise pedagogical guidelines are given in detail alongside the theme charts of curriculum outcomes, with general guidelines to assist teachers / facilitators plan and conduct the teaching learning experiences better are as given below:

Upper Primary Level

At the upper primary level children are just stepping into the period of adolescence. Physical and psychological changes are rapid and cause anxiety, mood swings, identity issues, etc. Arts education, as medium of creative and individual expression, can cater to their needs of engaging in constructive activities and channelization of thoughts and energy, which initiates a spirit to work in teams. This is the stage where children require adequate practice to develop skills in handling methods and materials, using tools and techniques of different art forms as they start analyzing their own work, as well as of others.

Profile of the Learner

Children of this stage are between the ages of 10+ to 14+ years. They are extremely self-conscious and critical of themselves due to peer and social pressures. There are many physical and emotional distractions, and diversions due to gender differences.

Content and Methodology

Content at upper primary level should cover self, family and society at large. Learning the skills to explore and express emotions through different art Experiences. Learning and understanding of regional arts and crafts to appreciate the national heritage and cultural diversity as value. Study of environmental and social issues and understanding of elements and principals of visual arts.

Methodology at this stage should be focused on experiential learning. Adequate time and space is to be given for exploration and experimentation with methods and materials. Teachers should ensure the participation of each child including those with special needs. Art experiences should be organized in such a way that it provides opportunities for individual as well as group assignments and presentations. Children should be encouraged to take the lead in the planning, designing and executing of different classroom and school programs. Art experiences should be designed and utilized to address values and life-skills. Exposure through media, field visits and community celebrations, where children and teachers interact and share responsibilities. Additional emphasis should be on

the process than the product. Wherever possible, art should be integrated with content of other subjects, for better understanding and joyful learning of concepts.

All activities whether individual or group, should be evaluated and tools and techniques for this stage recommended are; observation, interactions, portfolios, worksheets, display, presentations, visits, documentation and report etc.

Visual Arts Education

Visual arts education is the area of learning that is based solely on the kind of art that one can see which includes drawing, painting, print making, collage, textiles, sculpture, artefacts and design in jewellery, pottery, weaving, fabrics, etc. and design applied to more practical fields such as commercial graphics and home furnishings. The different types of visual arts are highlighted below.

Drawing

Drawing is a means of making an image, using any of a wide variety of tools and techniques. It generally involves making marks on a surface by applying pressure from a tool, or moving a tool across a surface using dry media such as graphite pencils, pen and ink, inked brushes, wax colour pencils, crayons, charcoals, pastels, and markers.

Painting

Painting is the practice of applying paint, pigment, colour or other medium to a solid surface. The medium is commonly applied to the base with a brush, but other implements, such as knives, sponges, and airbrushes, can also be used. Painting is a mode of creative expression, and the forms are numerous. Drawing, gesture, composition, narration, or abstraction, among other aesthetic modes, reflect the expressive and conceptual intention of the artist.

Print making

Print making is the process of making artworks by printing, normally on paper that involves the making of a work of art by transferring ink from the surface upon which the work was originally drawn or otherwise composed to another surface.

Collage

Collage is a technique of an art production, primarily used in the visual arts, where the artwork is made from an assemblage of different forms, thus creating a new whole. A collage may sometimes include magazine and newspaper clippings, ribbons, paint, bits of coloured or handmade papers, portions of other artwork or texts, photographs and other found objects, glued to a piece of paper or canvas.

Textiles

Textiles are arts and crafts that use plant, animal and or synthetic fibres to construct practical or decorative objects. The textile arts also include those techniques which are used to embellish or decorate textiles – dyeing and printing to add colour and pattern; embroidery and other types of needlework; tablet weaving; and lace-making.

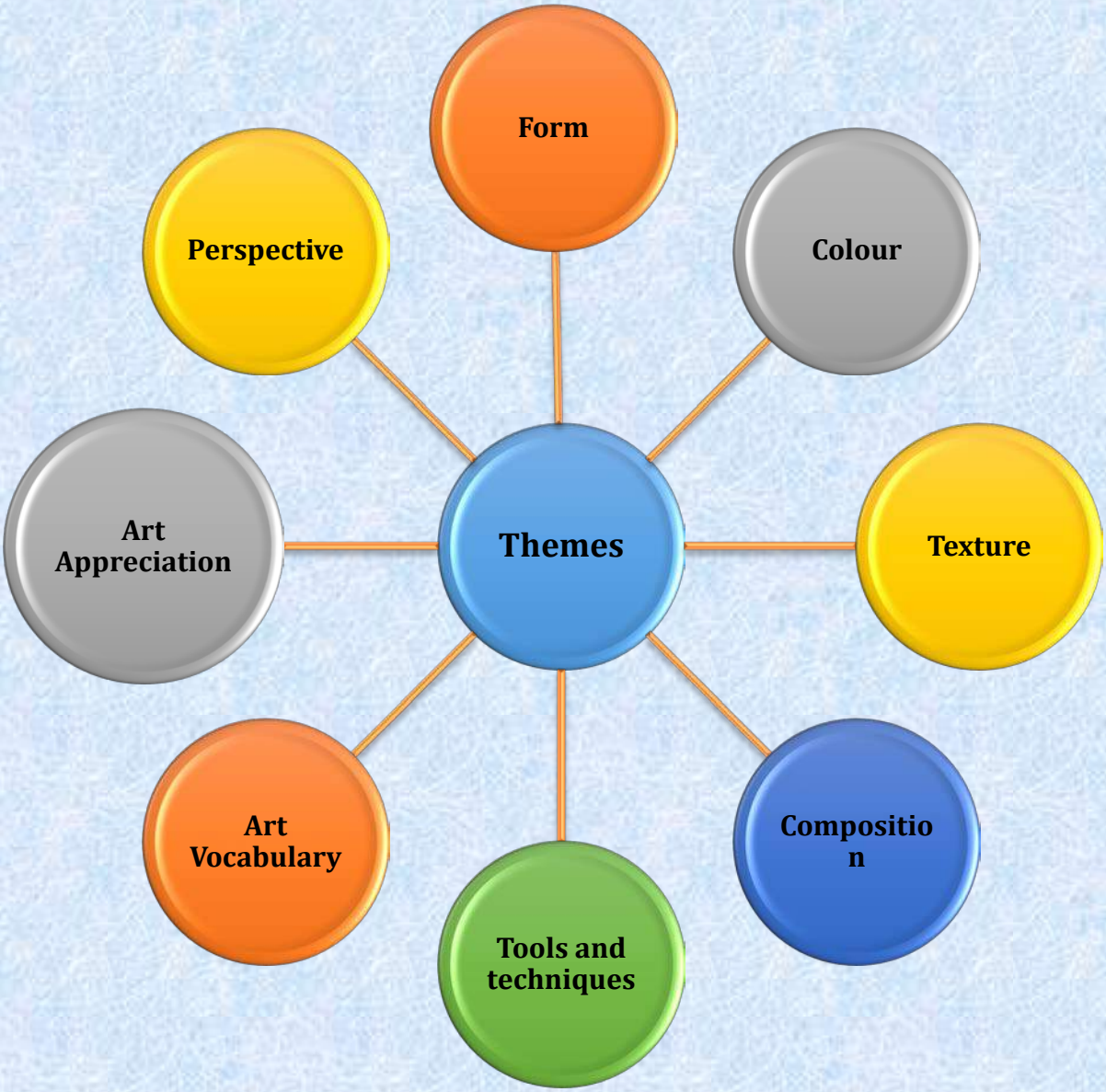
Three Dimensional Work

Three-dimensional art design is comprised of three main elements: balance, proportion and rhythm. Balance denotes visual balance and not the actual ability to stand upright. Proportion refers to the various parts of the three-dimensional object. The parts need to give the appearance of belonging together. Rhythm is the repetition of line or shape within the overall form.

Art & Artefacts

An artefact is something made or given a shape by man, such as a tool or a work of art, especially an object of archaeological interest. Examples include stone tools, pottery vessels, metal objects such as weapons, and items of personal adornment such as buttons, jewellery and clothing.

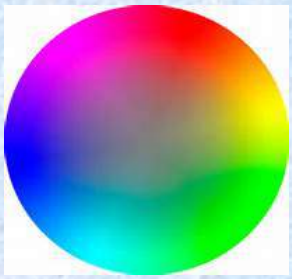
At the upper primary level the themes dealt with in the curriculum for Classes VI , VII and VIII are presented below, there are seven totally.



Theme 1 Form

Forms; Lines, shapes and sizes of the objects in the immediate surroundings/environment, both natural and man-made.

Theme 2 Colour



Colours and naming them after common objects /flowers /fruits / vegetables /animals etc. Understanding and using the characteristics of colour – hue, tint, shade

Theme 3 Texture

Different surfaces; soft, smooth, hard, rough etc.

Theme 4 Composition

Organisation of 2-D and 3-D space, Artistic placement of colours and forms, installation of 3-D objects, painting landscapes/ seascapes, composition based on seasons, sports, parks, situations, arranging patterns, making designs etc. Identification of different kinds of symmetry as types of balance – radial, symmetrical and asymmetrical

Theme 5 Tools and Techniques

Use of flat and round brushes, exploring 2-D and 3D methods & materials, such as; drawing, painting, printing, collage making, paper crafts, clay modelling, pottery, construction of objects & situations, mask making, etc.

Theme 6 Art Vocabulary

Identification of tools, papers and materials with their names. Names of techniques, such as: drawing, painting, folding, stretching, printing, block impression, spray work, blow painting and thumb painting. Names of colours, shapes, sizes, words of appreciation etc.

Theme 7 Art Appreciation or Responding to Artefacts and Nature

Appreciation of artefacts and nature around us, understanding of visual representation of objects, situations and concepts.

Theme 8 Perspective

The way in which objects appear to our eyes based on their spatial dimensions, and position of our eye in relation to that object.

All the eight themes will be dealt with in the sequence given above. Each theme will deal with Classes VI, VII and VIII.

Theme 1: Form

The theme "Form' is aimed at children developing an understanding of lines, shapes and sizes of objects. The prime focus of this theme is to observe and identify lines and shapes in nature and in man-made objects from the immediate surroundings. Understanding of sizes such as: small, big, tall, huge, tiny etc., and creation of different forms with 2-D and 3-D materials. The process of identification of forms enhances skills, such as; observation, exploration, concentration and creative expression. Learning from this theme will be utilised for facilitating learning of other subjects.

Learning Outcomes:

Children will be able to:

- identify different geometrical shapes in furniture, building, plants and trees;
- draw and paint forms from imagination, while using different shapes of different sizes;
- decorate objects using variety of shapes;
- draw patterns using straight, curved, smooth, crooked vertical and horizontal lines;
- differentiate between geometrical and natural forms;
- demonstrate use of extended vocabulary related to the theme;
- link the experience and understanding of forms (in line, shape and size) with the study of mathematics in their class;
- engage and explore their immediate surroundings for joy of knowing more.

Form

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
▸ Identify different geometrical shapes in furniture, building, plants and trees. ▸ Draw and paint forms from imagination, while using different shapes of different sizes. ▸ Decorate objects using variety of shapes. ▸ Draw patterns using straight, curved, smooth, crooked, vertical and horizontal lines, skilfully. ▸ Link the experience and understanding of forms (lines, shapes and sizes) with learning of other subject of their class. ▸ Engage and explore	▸ Providing opportunities to children for sharing their personal experiences related to forms with others in school. A few suggested areas of sharing could be; Common furniture items in home and school, buildings and bridges in the immediate surroundings and nature. ▸ Encouraging children to create forms from their imagination, such as; chair, bed, classroom, furniture at home in drawing and painting, with clay and by using any other local specific materials for painting or construction. ▸ Creating geometrical patterns skilfully using different types of lines, on paper and/or on objects made with clay. ▸ Conducting discussions based on placards/ pictures/video clips etc. on	▸ Children's own learning experiences related to furniture items, classroom and school building, home and shopping centres, nature etc. ▸ Picture cards/ placards on different forms. ▸ Drawing and painting materials. ▸ Local specific and low-cost art materials. ▸ Potters clay. ▸ Art Room with working tables of appropriate height. ▸ Computers with relevant software and LCD projector for ICT based art experiences of varied

Form		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
immediate surroundings for joy of knowing more.	different type of forms. ▸ Making Paper craft for creating and understanding the beauty of 3-D forms. ▸ Creating forms using light and shadow technique (making use of sunlight or domestic torch to create different forms). ***Integration with other subjects:*** ***Language:*** ▸ Provide opportunities to make poems/ songs on objects to develop verbal expression. ***Mathematics:*** ▸ Clearing concepts of lines, angels of triangles, rectangles, square, circle etc.	forms. ▸ White board or classroom board/s. ▸ Water arrangements, ▸ Potter's clay. ▸ Origami paper. ▸ Aprons and towels.

Life Skills: Developing skills of observation, problem solving and co-operation by becoming aware of the immediate surroundings and accepting responsibility of its cleanliness through active participation.

Theme 2: Colour

The theme "colour' is aimed at developing an understanding of different colours on one hand and developing aesthetic sensibility on the other. The prime focus of this theme is to observe and identify colours in nature and in man-made objects. Understanding relationship of certain colours with plants, flowers, fruits and nature. For example, leaf green, sea blue & sky blue, bottle green, lemon yellow etc. Creation of different shades by mixing of two different colours. For example; mixing of red and yellow in equal quantity will create orange colour. The process of identification and understanding of colours enhances skills, such as; observation, exploration, experimentation and artistic expression.

Understanding relationship of colours with different subjects and emotions. For example, bright colours for joyful compositions and dull and grey shades for sad subjects. Contrast colours to break the monotony, bold use of warm colours to depict force and cool colours to depict peace and harmony, etc.

Learning Outcomes:

Children will be able to:

- identify different colours and shades of household objects, furniture items, flowers, vegetables, fruits, plants and trees appropriately;
- draw and paint images from immediate surroundings and colour them in their appropriate colours;
- create a chart of tertiary colours;
- use neutral colours (black and white) and create a chart of grey tones;
- demonstrate use of extended vocabulary related to the theme;
- link the experience and understanding of colours with learning of other subjects in their class;
- appreciate the beauty of colours in nature and in man-made objects.

Colour		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
▸ Identification of different colours and shades of household objects, furniture items, flowers, vegetables, fruits, plants and trees, appropriately. ▸ Drawing and painting of images from immediate surroundings and colouring them with appropriate colours. ▸ Create chart of tertiary colours. ▸ Use neutral colours (black and white) and create chart of grey tones.	Providing opportunities for sharing personal experiences with colours around them. ▸ Encouraging children to explore their immediate surroundings so as to learn more about colours of natural objects located /kept in different places such as -shopping centres, fruit and vegetable markets, mesas/fairs, events, gardens, zoo . ▸ Motivating children to make a keen observation of nature for noting colours and shades; of plant/tree leaves, of flowers, feathers, twigs, fruits, vegetables etc., for making scrap book on 'Colours in Nature'.	▸ Children's own experience related to colours. Their likes and dislikes, importance and value of colours to them. ▸ Scrap book on colours and shades. ▸ Shopping centres, fruit and vegetable markets, mesas/fairs, events, gardens, zoo. ▸ Picture cards on colours and shades of different colours. ▸ Drawing and painting materials, drawing sheets,

Colour		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
▸ Use of extended vocabulary related to the theme. ▸ Integration of colour experiences with learning of other subjects of their class.	▸ Emphasising on the use of secondary and tertiary colours and shades of these colours while painting/printing curtain designs/patterns for their own room. ▸ Encouraging children to make their own colour chart of tertiary colours. ▸ Giving Home assignments to draw and colour or click objects based on colour theme. For example; 'Green around us' (spinach, of lady-fingers, of bitter gourd, of cucumber, cabbage, green colour fruits). ▸ 'Red around us', Yellow around us' etc. ▸ Making new colours, shades, tones etc. while using computers. ▸ Discussion on creation of new colours/shades and tones. Use sample cards. Ask questions such as; ☛ How do you make the lemon-yellow colour? ☛ What colour do you mix to get cherry red? ▸ Making Geometrical *Rangolis* using different colour leaves, flowers, sand, shells, coloured pebbles, saw dust, powder colours etc. ***Integration with other subjects:*** ***Language:*** ▸ Facilitating children to create poem/s on colours of your choice. (individual activity) ▸ ***Mathematics:*** Make Rangolis based on Geometrical designs	pigment, paints, inks, dyes, powder colours, sawdust, sand, etc. ▸ Thread, sponge, straw, paper cuttings, etc. ▸ Art Room with working tables of appropriate height, slabs on sides. ▸ Computers with relevant software and LCD projector for ICT based art experiences. ▸ Boards for art displays. ▸ Aprons and towels. ▸ Water arrangements

Life Skills: Developing skills of observation, problem solving, communication and cooperation by exploring and knowing about their immediate surroundings in teams and accepting responsibility of its cleanliness and beautification through participation.

Theme 3: Texture

The theme "Texture' is aimed at developing an understanding of different textures and surfaces. The prime focus of this theme is to enable children to observe, identify and create textures and understand the relationship of certain textures with plants, trees, flowers, fruits, furs, feathers, wool, sand, fabric, etc. For example, fur is soft, sand is rough, bark of a tree is rough, etc. They will also be able to create different textures and surfaces by using mix mediums and materials. For example; sand painting, impression of bark on clay slab etc. Their experience with different textures will help to sharpen their sense of touch. The process of identification, understanding and creation of texture enhances skills, such as; observation, imagination, experimentation and artistic expression.
Learning from this theme will be utilised for facilitating learning of other subjects.

Learning Outcomes:

Children will be able to:

- identify and name different textures and surfaces of common household and natural objects;
- create new textures in 2-D and 3-D mediums and materials;
- appreciate beauty and variety of surfaces in nature around them;
- demonstrate the use of extended vocabulary related to the theme;
- learn to link the experience and understanding of textures with learning in other subjects;
- engage and learn to observe and explore their immediate surroundings for joy of knowing and experiencing different surfaces and textures.

Texture		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
▸ Identification and naming different textures and surfaces of the common household and natural objects. ▸ Create new textures in 2-D and 3-D mediums and materials. ▸ Appreciate beauty and variety of surfaces in nature around him/her. ▸ Demonstrate use of extended vocabulary related to the theme. ▸ Learn to link the experience and understanding of textures with learning of other subjects of their class. ▸ Engage and learn to	▸ Encouraging children to conduct an 'Exploration Walk' in and around their school for observing and touching different textures and surfaces. ▸ Providing opportunities for sharing their experiences related to different textures and surfaces in class. ▸ Conducting activities related to drawing, painting and printing to create texture of different kinds of stone soil and wood etc. (2-D medium). ▸ Making a 3-D Collage and clay modelling for creating texture of wool, wood and sandy surface. ▸ Identifying textures and surfaces while blindfolded (group activity with a bag full of mixed objects to explore with). ***Integration with other subjects:*** ***Language:***	▸ Children's own experiences related to their household objects, ▸ Natural objects, such as; flowers, vegetables, fruits, plants & trees, birds & animals, fabrics, wool, sponge, soil of different kinds. ▸ Samples of different kinds of surfaces. ▸ Drawing and painting materials, glue, sponge, pieces of different fabrics, sand, bark, wool, feathers, potters clay, samples of soil, etc. ▸ Art Room with working tables of appropriate height, slabs on sides.

Texture		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
observe and explore immediate surroundings for joy of knowing more.	➢ Facilitating children to create a poem or story on topic such as; ☛ *'I still remember my bare feet walking on a wet and slippery surface.'* ☛ *'The comforting touch of my dog/cat/rabbit.' etc.* (individual activity) ➢ ***EVS****:* Aesthetic sensibility towards diversity in nature. ☛ *Engage children in the upkeep of the classroom after the art activity (to learn cleanliness, beautification and working together*).	➢ Boards for art displays. ➢ Aprons and towels. ➢ Water arrangements.

Life Skills: Developing skills of observation, empathy and compassion by observing, understanding and appreciating nature. Accepting responsibility of its protection through participation.

Theme 4: Composition

The theme "composition', particularly in visual arts (painting, printing, graphic design, sculpture, installation etc.) is meant for the placement or arrangement of visual elements and organisation of the space (2-D and 3-D both). The prime focus of the theme is developing in children the ability to undertake an artistic placement of colours and forms, painting of landscapes, seascapes, composition based on seasons, sports, parks, situations, arranging patterns, making designs, installation of 3-D objects, still life, graphic designs, crafts etc. In the visual arts, composition is often used interchangeably with various terms such as design, visual ordering or formal structure, depending on the context. The prime focus of this theme is that the child observes and finds out compositions in nature, and in man-made structures. Children will understand the relationship of one object with the other, of form with the colours, of objects with the overall theme and finally the visual impact of the work of art. For example, in a composition of the 'Rainy Day', the form of clouds, the lines of falling rain drops, colours supporting mood of the weather, and finally the visual impact of a composition, all are interrelated and interdependent. The process of visualizing and making composition enhances skills, such as; observation, imagination, experimentation, communication and artistic expression.

Learning Outcomes:

Children will be able to:

- select compositions from the immediate surroundings, using a view finder/window frame method;
- draw or paint compositions on themes, such as; my family, my school, festival/s I like, hockey/football/cricket match of my school, landscape, seascape, from their imagination;
- compose posters on environmental issues, such as; 'Save Trees', Save Tigers', 'Save Water', 'Keep your surrounding Clean';
- arrange and create 3-D objects on a given theme;
- demonstrate use of extended vocabulary related to the theme;
- link the experience gained while creating composition, with learning of other subjects;
- engage and learn to observe and explore immediate surroundings for joy of knowing different compositions;
- communicate and express their appreciation of visual images.

Composition		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
▸ Select compositions from the immediate surroundings, using the view finder/window frame method. ▸ Draw or paint compositions on themes, such as; my family, my school, festival/s I like, Hockey/Football/Cricket	▸ Providing opportunities and encouraging children an independent exploration of interesting locations in and around school and home. ▸ Making a sketch of selected compositions with a pencil or dry pastels. ▸ Encouraging use of personal sketchbooks. ▸ Drawing and/or painting of imaginary	▸ Children's own experience related with arranging their household objects, land/seascapes, arranging idols during *poojas*, special days, festivals etc. ▸ School garden, children parks, historical monuments, etc. ▸ View finder, Picture cards

Composition		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
match of my school, landscape, seascape, etc., from imagination. ▸ Compose poster on environmental issues, such as; 'Save Trees', Save Tigers', 'Save Water', 'Keep your surrounding Clean' etc. ▸ Arrange and create 3-D objects on a given theme. ▸ Use of extended vocabulary related to compositions. ▸ Engage and learn to explore immediate surroundings for the joy of knowing more. ▸ Link experience and understanding of composition with learning of other subjects of their class.	compositions on themes, such as; my family, my school, my village, community festival/s, Hockey/ Football/ Cricket match of my school, landscapes, seascapes etc. ▸ Encouraging use by children of their own viewfinders. ▸ Providing opportunities to children to create 3-D compositions on themes, such as; home furniture, garden furniture, Gym equipment, means of transportation etc., and installation of the same. ▸ Discussing age appropriate compositional skills that cite examples related to the immediate environment of children. ▸ Making *Rangoli* using different compositions. ***Integration with other subjects:*** ***Languages:*** ▸ Facilitation to narrate experiences on subject related compositions freely. ▸ Write a paragraph describing experience related to the compositions created.	depicting different composition. ▸ Sketch books of children. ▸ Drawing/painting materials, paints, clay, adhesive, card board, *Rangoli* material, etc. ▸ Art Room with working tables of appropriate height, slabs on sides. ▸ Computers with relevant soft wares and LCD projector for ICT based art experiences. ▸ Boards for art displays. ▸ Aprons and towels. ▸ Water arrangements.

Life Skills: Developing skills of problem solving, communication and cooperation by observing, exploring and arranging compositions in their immediate surroundings. Accepting responsibility for the cleanliness and beautification of their surroundings through active participation.

Theme 5: Tools & Techniques

The theme "Tools and Techniques' is aimed at developing an understanding in children of the different tools and techniques used for experiencing visual arts. The prime focus of this theme is to identify, experiment and understand the appropriate use of different tools, materials and techniques used in visual arts. Understanding the relationship of tools and materials with that of the techniques. For example, knowledge of brushes, blocks, nibs & holders/pens for inks and their maintenance.

The ability to handle different tools, materials and techniques will be developed. For example; Use of soft, flat brushes (of bigger number) for broader strokes, round brushes for drawing lines of varied thickness, dry colours (pencils, wax crayons, pastels etc.) for drawings, inks for quick and transparent drawings and blow printing, glue/adhesives for fixing of paper cuttings and other materials for making collages, softness of clay for slab, coil and pinching method, converting clay models into terracotta, etc. Use of light and shade, ratio- proportion for arranging and making still life, knowing camera adjustments for clicking good pictures, knowing computer software for exploring and using computers for art experience. Knowing soft stone and wood for carving and sculpture, etc. The process of knowing and working with the tools and techniques enhances skills, such as; observation, experimentation, problem solving and free expression.

Experience with different tools and techniques can sharpen their common sense and make them a confident user and creator.

Learning Outcomes:

Children will be able to:

- identify and name the age appropriate tools and materials including computer software/s;
- understand and apply the age appropriate techniques of visual expression, such as; drawing, still life, colouring, painting, pen & ink, block printing, 2-D and 3-D work, origami, coil, slab and pinching methods of clay modelling, 3-D masks and puppets, simple crafts (local specific) rangoli, wall painting, photography, animation;
- demonstrate use of extended vocabulary related to the theme;
- create their own tools and techniques of visual expression;
- link the experience and understanding of tools and techniques with learning of other subjects;
- appreciate beauty and variety of methods and materials for visual expression.

Tools and Techniques

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
▸ Identify and name the age appropriate tools and materials including computer software/s. ▸ Understand and apply the age appropriate techniques of visual expression, such as; drawing, colouring, painting, pen & ink, block printing, 2-D and 3-D	▸ Providing opportunities for sharing experiences on use and preferences about different tools, materials and techniques used or seen. ▸ Participating in collection activities of tools and materials from home, community and from the immediate surroundings. ▸ Framing Question answers in 'Do you know?' format, such as;	▸ Children's experience with different tools and techniques, such as of drawing, painting, printing, and collage, of using sand, clay and soil, with origami and paper crafts, with self-found art materials etc. ▸ Collection and display of

Tools and Techniques

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
work, origami, coil, slab and pinching methods of clay modelling, 3-D masks and puppets, simple crafts (local specific) *rangoli*, wall painting, photography, animation. ▸ Create his / her own tools and techniques of visual expression. ▸ Use of extended vocabulary related to the theme. ▸ Create a small poem or song on tool/s of their liking. ▸ Integration of knowledge and experience of tools, materials and techniques with learning of other subjects.	*(i) Name any 5 tools of drawing and painting.* *(ii) Which are the materials that you have seen and used for drawing and painting?* *(iii) Name any 3 printing tools/materials you know?* *(iv) Name the collage materials that you like the most?* *(v) What precautions should you take while working on ink and pen technique?* *(vi) What is Block printing?* *(vii) What is the difference between slab, coil and pinching methods?* *(viii) What method of mask making do you like?* *(ix) What material do you use in origami? etc. etc.* ▸ Facilitating learning of new technique/s and use of new tools through demonstration method. For example; Drawing of human face, How and why of water colours as transparent colours and poster colours as opaque. Making of a poster based on its elements, maintenance of tools, etc. ▸ Making of wall painting is another example which involves local specific tools, technique/s, materials, motifs and composition. ▸ Organising visits by children to meet and see what local artists/artisans do. ▸ Inviting local artists and artisans to demonstrate and share their expertise with children. ▸ Conducting competitions in class on children imagining new tools, materials and techniques of visual expression, to encourage innovations. ▸ Organising group activities on block printing for creating carpet design on	age appropriate art tools, techniques and materials in the classroom. ▸ Collection and display of local specific /easily available tools and materials in the art room/classroom. ▸ Age appropriate samples in form of pictures or videos of different art methods and techniques. ▸ Drawing & painting materials, printing materials, dry and wet colours of different types, glue, sponge, pieces of different fabrics, sand, bark, wool, feathers, potters clay, etc. ▸ Art Room with working tables of appropriate height, slabs for 3-D work and display on sides. ▸ Computers with relevant soft wares and LCD projector for ICT based art experiences. ▸ Boards for art displays. ▸ Aprons and towels. ▸ Water arrangements.

Tools and Techniques		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
	large size paper, using block created by the team. ▸ Taking impressions of all Indian coins (in use) on clay slabs for demonstrating relief and reverse techniques. ***Integration with other subjects.*** ***Languages:*** ▸ Encouraging children for creating stories on brush / colour/ block etc. in small groups. ▸ Scripting the enactment of role play, such as; 'I am the brush', 'I am your new colour plate' 'I am your printing roller', etc. ▸ *(story making can cover it's making process, it's use, it's value, etc.)*	

Life Skills: Developing skills of problem solving and perseverance by using different tools and materials of creative expression. Developing the confidence in learning to handle tools and materials and joy of learning the appropriate techniques to express through. Participation in cleaning and beautification of their own classroom, school and homes.

Theme 6: Art (Visual Arts) Vocabulary

The theme "Art Vocabulary' is aimed at enabling children to learn and use appropriate names and terms related to art techniques, to hues and shades of colours, to tools and accessories that are used and to different mediums and materials for appreciating a work of art. The prime focus of this theme is to enable children to know, remember and to use art related vocabulary appropriately. For example, block printing is done with the blocks, and is a technique which is used to take same kind of impression again and again. Soft paint-brushes are used for doing water based colours, flat brushes (of bigger number) are used for broader strokes whereas round brushes are used for drawing lines of varied thickness, slab method and coil method are techniques of making 3-D objects with potter's clay, terracotta is the result of baking clay models at an appropriate temperature, perspective is a skill for making 2-D objects and sceneries look 3-D, use of different colours can help in creating different effects in an art work, composition is a grouping of different objects/forms and colours in a visually pleasant manner, animation is a technique which provides movement to the graphics, etc. etc. The process of knowing and using appropriate vocabulary will enhance the communication skills of the learner.

Knowledge and experience of art vocabulary helps in better learning of the subject on one hand and effective communication on the other.

Learning Outcomes:

Children will be able to:

- identify and name different tools and techniques, such as; round brushes, flat brushes, hard and soft brushes, type of scissors, rollers/rolling pins, drawing and painting, printing, clay modelling, terracotta, pottery, spray painting, reverse techniques, origami, construction, round and relief work, 2-D and 3-D work, paper craft;
- name the terms/specifications of materials, such as; colours, medium of colours, water colours, pastel colours, neutral colours, shades and tones of colours, paints, pen & ink, background and foreground in the composition, landscapes, seascapes, lines of different types, shapes and sizes, modelling, still life, photography;
- narrate art experiences using appropriate (age appropriate) vocabulary;
- communicate in their art class using appropriate vocabulary;
- demonstrate use of extended vocabulary related to the theme;
- link the knowledge of art vocabulary with learning of other subjects.

Art Vocabulary

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
Names of age specific tools and techniques (brushes, type of scissors, rollers/ rolling pins, drawing and painting, printing, clay modelling, terracotta, pottery, spray painting, reverse techniques, origami, construction,	Encouraging use of appropriate art vocabulary while sharing knowledge and art experience in the classroom/school. Providing opportunities to children to give their observations on art work of peers to promote and practice art vocabulary. Discussing different art techniques,	Children's scrap book on tools and materials of visual arts, with their name or title. The scrap book should cover all the tools, materials, including that of the local ones Children's portfolios of their art activities.

Art Vocabulary		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
round and relief work, 2-D and 3-D arts, paper craft). - Terms/specifications of materials, such as; colours, medium of colours, water colours, pastel colours, neutral colours, shades and tones of colours, paints, pen and ink, background and foreground in the composition, landscapes, seascapes, lines of different types, shapes and sizes, modelling, still life, photography, etc. - Narrate art experiences using appropriate (age appropriate) vocabulary. - Communicate in their art class using appropriate art vocabulary. - Use of extended vocabulary related to the theme. - Integration of art experiences with learning of other subjects.	quality of materials and value of art tools, such as; brushes, type of scissors, rollers/ rolling pins, drawing & painting, printing, clay modelling, terracotta, pottery, spray painting, reverse techniques, origami, construction, round and relief work, 2-D and 3-D arts, paper craft, etc. - Viewing art related videos for taking quick observations. - Encouraging presentation/s on tools, colours, paintings, clay work, different medium and materials, art room, art work in school corridors, etc. This can either be through scrap book or power point presentation (PPT). - Organising visits to local museums, galleries, art exhibitions, craftsmen, potter, etc. and writing of field experience, using appropriate vocabulary. ***Integration with other subjects:*** ***Languages:*** - Assisting them in writing letter/s to a friend describing painting/s of their liking, by using appropriate vocabulary. - Writing an imaginary dialogue: (i) between colour and its shades, (ii) between brush and sheet, between potter's clay and potter, between fire and terracotta, etc.	- Samples of paintings, photographs, of selected compositions, slides, videos of art camps and exhibitions etc. - Collection and display of age appropriate art tools and materials in the class. This also includes the local specific and easily available tools and materials. - Drawing and painting materials, potters clay. - Boards for art displays

Life Skills: Learning based on this theme will help in developing skills of observation, communication and free expression. Confidence of knowing words and terms for different tools and materials, methods and techniques and joy of free expression, can also enhance creativity.

Theme 7: Responding to the Artefacts and Nature

The theme 'Responding to the Artefacts and Nature' is aimed at developing in children the knowledge, understanding and appreciation for the beauty of nature and the artefacts. The process of responding to the artefacts and nature will enhance the skills of; observation, exploration, critical analysis interpersonal relations, effective communication and artistic expression. The prime focus of this theme is to make children understand the beauty and value of natural, as well as man-made objects. The process of appreciation will sensitize their eye for aesthetics of an object, subject and situation. It will also will help in developing an attitude for accepting and appreciating multiple perspectives on any given subject or situation.

Learning Outcomes:

Children will be able to:

- describe objects, buildings, structures, scenes and situations of their liking in the immediate surroundings;
- respond to the good in art work done by their classmates;
- appreciate nature and natural beauty based on form, colours, composition, perspective, etc.; such as plants and trees, buds & flowers, birds & animals, ponds & lakes, pastures & deserts, sea beaches, rivers and mountains, sky with and without clouds, wind and rain, sun, moon and stars, rainy day, starry night, sunny day.;
- respond to the artefacts displayed in galleries and museums, such as; paintings, prints, pottery, terracotta and sculptures, installations, local crafts, etc. done by experts/ artists;
- write an appreciation note on their experiences of the art museum and art gallery while describing a few artefacts seen;
- demonstrate use of extended vocabulary related to the theme; and
- link the knowledge of appreciation and responding to the nature and to the artefacts with learning of other subjects.

Responding to the Artefacts and Nature

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
▸ Describe objects, buildings, structures, scenes and situations of their liking in the immediate surroundings. ▸ Responds to the good in art work done by their classmates and herself/himself. ▸ Appreciates nature and nature's beauty based on its form, colours, composition, such as; plants & trees, buds & flowers, birds & animals,	▸ Encouraging and providing opportunities to explore and experience the beauty of nature and natural objects, buildings, structures, scenes and situations in their immediate surroundings. ▸ Individual sharing/ of experience and appreciation on scenes of their liking. ▸ Providing opportunities to record and share self/ peer assessment of art activities/ experiences, periodically. ▸ Worksheet/s on appreciation of nature and its beauty and on specific theme/s, such as; plants, flowers, animals, lakes, deserts, sea beaches,	▸ Children's own experiences, likes and dislikes on nature and natural objects, on artefacts and architectural sites in the immediate surroundings. ▸ Art work of every child in the class. ▸ Samples/replicas of artists work in 2-D and 3-D, pictures or videos of artists' work. ▸ Children's scrap books. ▸ Collection and display of

Responding to the Artefacts and Nature		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
ponds & lakes, pastures & deserts, sea beaches, rivers & mountains, sky with and without clouds, winds and rains, sun, moon and stars, rainy day, starry night, sunny day, etc. ▸ Responds to the artefacts displayed in galleries and museums, such as; paintings, prints, pottery, terracotta and sculptures installations, local crafts, etc. done by experts/ artists. ▸ Writes an appreciation note on their experience of the art museum and art gallery while describing a few artefacts seen. ▸ Links the skills of appreciation with learning of other subjects of their class.	rivers, mountains, clouds, wind and rain, sun, moon and stars, rainy day, starry night, sunny day, etc. ▸ Conducting Visual thinking sessions on paintings, photographs, pottery and ceramics, terracotta and sculpture, installations, etc. of known artists ▸ Providing a well-designed worksheet on museum and gallery visits to facilitate appreciation of any one section. For example, 'Make a sketch of the Harrappan terracotta, and describe its beauty in five lines'. ▸ Organising guided tour to the museum/s and art galleries followed by discussion of/on/about what they saw. ***Integration with other subjects*** ***Languages:*** ▸ Assisting children in illustrating one story from their course book. ▸ Guiding children in writing 10 sentences describing any one drawing/painting they have made.	age appropriate art tools and materials in the class. ▸ Display boards with theme based display of children work and/or artist work.

Life Skills: Learning based on this theme will help in sharpening the skills of observation, critical thinking and that of art appreciation. Increase in participation for cleaning and beautification of classroom, school and home.

Theme 8: Perspective

The theme "Perspective is aimed at knowing, understanding and appreciating the beauty of the 3rd dimension in any object, architecture, or in a scene etc. Perspective, in the context of visual perception, is the way in which objects appear to our eyes based on their spatial dimensions, and position of our eye in relation to that object. The prime focus of this theme is to make children aware of beauty and value of the 3rd dimension of any object in visual expressions. The process of applying perspective in the visual arts will sensitize their eye on the play of light and shade, ratio and proportion, colour variation, use of lines in creating life- like similarities in the objects. The application of perspective will also help in developing skill of creating required distance between foreground and background on a flat (2-D) surface. The process of understanding and application of the perspective in visual arts will enhance the skills of; observation, imagination, critical analysis, artistic skills and creative expression.

Learning Outcomes:

Children will be able to:

- know the meaning of perspective;
- describe the play of light and shade on the given object;
- understand difference between 2-D and 3-D work of art;
- create 3-D objects and scenes of their liking from the immediate surroundings;
- respond to the perspective in art work done by their classmates and herself/himself;
- respond to the perspective in 2-D and 3-D artefacts displayed in galleries and museums, such as; paintings, pottery, terracotta and sculptures, installations, local crafts done by experts, artists and artisans;
- demonstrate use of extended vocabulary related to perspective;
- to link the knowledge of perspective with learning of other subjects.

Perspective

Key Concepts	Suggested Transactional Process	Suggested Learning Resources
▸ Know the meaning of perspective. ▸ Describe the play of light and shade on the given object. ▸ Understand difference between 2-D and 3-D work of art. ▸ Create 3-D objects and scenes of his / her liking from the immediate surroundings. ▸ Respond to the perspective in art work done by their classmates and self. ▸ Respond to the perspective	▸ Encouraging and providing opportunities to children to explore and experience the play of light and shade on natural and artificial objects, buildings, structures, scenes etc. in their immediate surroundings. ▸ Guided tour to view natural and artificial objects, architectural sites in the immediate surroundings. ▸ Sharing of children's own understanding of perspective, light and shade, 2-D and 3-D art work, based on their sketch book. ▸ Organising Individual sketching/ of natural and artificial objects based on children's liking in their sketch books.	▸ Art work of every child in the class. ▸ Actual samples or even replicas of artist's work on perspective, on 2-D and 3-D work, videos of artists' work etc. ▸ Children's scrap books. ▸ Computer with LCD projector /ICT facilities. ▸ Display boards with theme based display of children work and/or artist work.

Perspective		
Key Concepts	**Suggested Transactional Process**	**Suggested Learning Resources**
in 2-D and 3-D artefacts displayed in galleries and museums, such as; paintings, pottery, terracotta and sculptures, installations, local crafts, etc. done by experts, artists and artisan. • Demonstrate use of extended vocabulary related to the theme.	• Conducting classroom discussions on 'perspective' and on the difference between 2-D and 3-D effects, based on live examples. • Organising Still life drawing to practice 3-D effects on a 2-D surface. A group of 2-3 objects such as; book, glass bottle/jug and a fruit can be organised on a table with proper light from one angle to practice light and shade, ratio and proportion etc. • Providing opportunities to describe self-work and work done by peers on use of perspective. • Guided tour to the museum/s and art galleries. • Worksheet/s on use of perspective and its description in the work of masters, while visiting art gallery/ies or a museum/s.	

Life Skills: Learning based on this theme will help in sharpening the skills of observation, imagination, critical thinking and that of artistic expression. Increase in the interest of creating life like art work and also develop the ability to appreciate such work done by others.