NCERT Class 7 Science Syllabus 2019-2020

CLASS VII
SCIENCE

Questions	Key Concepts	Resources	Activities/ Processes
1. Food			**(Periods - 22)**
Food from where			
How do plants get their food?	Autotrophic and heterotrophic nutrition; parasites, saprophytes; photosynthesis.	Coleus or any other plant with variegated leaves, alcohol, iodine solution, kit materials.	Need for light, green leaf for photosynthesis, looking at any saprophyte/parasite and noting differences from a green plant.
Utilisation of food			
How do plants and animals utilise their food?	Types of nutrition, nutrition in amoeba and human beings, Digestive system – human, ruminants; types of teeth; link with transport and respiration.	Model of human teeth, charts of alimentary canal, types of nutrition etc., chart and model of amoeba. The story of the stomach with a hole.	Effect of saliva on starch, permanent slide of *Amoeba*. Role play with children.
2. Materials			**(Periods - 38)**
Materials of daily use			
Do some of our clothes come from animal sources? Which are these animals? Who rears them? Which parts of the animals yield the yarn? How is the yarn extracted?	Wool, silk – animal fibres. Process of extraction of silk; associated health problems.	Samples of wool and silk; brief account of silkworm rearing and sheep breeding.	Collection of different samples of woollen and silk cloth. Activities to differentiate natural silk and wool from artificial fibres. Discussion.
What kinds of clothes help us to keep warm? What is heat? What is the meaning of 'cool'/'cold' and 'warm' 'hot'?	Heat flow; temperature.	Potassium permanganate, metal strip or rod, wax, common pins, spirit lamp, matches, tumblers, Thermometer etc.	Experiment to show that 'hot' and 'cold' are relative. Experiments to show conduction, convection and radiation.

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How does heat flow from/to our body to/ from the surroundings?			Reading a thermometer.
Different kinds of materials			
Why does turmeric stain become red on applying soap?	Classification of substances into acidic, basic and neutral; indicators.	Common substances like sugar, salt, vinegar etc, test tubes, plastic vials, droppers, etc.	Testing solutions of common substances like sugar, salt, vinegar, lime juice etc. with turmeric, litmus, china rose. Activity to show neutralisation.
How things change/ react with one another			
What gets deposited on a *tawa/khurpi /kudal* if left in a moist state? Why does the exposed surface of a cut brinjal become black?	Chemical substances; in a chemical reaction a new substance is formed.	Test tubes, droppers, common pins, vinegar, baking powder, $CuSO_4$, etc.	Experiments involving chemical reactions like rusting of iron, neutralisation (vinegar and baking soda), displacement of Cu from $CuSO_4$ etc. *Introduce chemical formulae without explaining them.*
Why is seawater salty? Is it possible to separate salt from seawater?	Substances can be separated by crystallisation.	Urea, copper sulphate, alum etc, beaker, spirit lamp, watch glass, plate, petridish etc.	Making crystals of easily available substances like urea, alum, copper sulphate etc. using supersaturated solutions and evaporation.

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3. The World of the Living			**(Periods - 42)**
Surroundings affect the living			
Why are nights cooler? How does having winters and summers affect soil? Are all soils similar? Can we make a pot with sand? Is soil similar when you dig into the ground? What happens to water when it falls on the cemented/ bare ground?	Climate, soil types, soil profile, absorption of water in soil, suitability for crops, adaptation of animals to different climates.	Data on earth, sun – size, distance etc, daily changes in temperature, humidity from the newspaper, sunrise, sunset etc.	Graph for daily changes in temperature, day length, humidity etc.; texture of various soils by wetting and rolling; absorption / percolation of water in different soils, which soil can hold more water.
The breath of life			
Why do we/animals breathe? Do plants also breathe? Do they also respire? How do plants/ animals live in water?	Respiration in plants and animals.	Lime water, germinating seeds, kit materials.	Experiment to show plants and animals respire; rate of breathing; what do we breathe out? What do plants 'breathe' out? Respiration in seeds; heat release due to respiration. Anaerobic respiration, root respiration.
Movement of substances			
How does water move in plants? How is food transported in plants? Why do animals drink water? Why do we sweat? Why and how is there blood in all parts of the	Herbs, shrubs, trees; Transport of food and water in plants; circulatory and excretion system in animals; sweating.	Twig, stain; improvised stethoscope; plastic bags, plants, egg, sugar, salt, starch, Benedicts solution, $AgNO_3$ solution.	Translocation of water in stems, demonstration of transpiration, measurement of pulse rate, heartbeat;after exercise etc. Discussion on dialysis, importance; experiment

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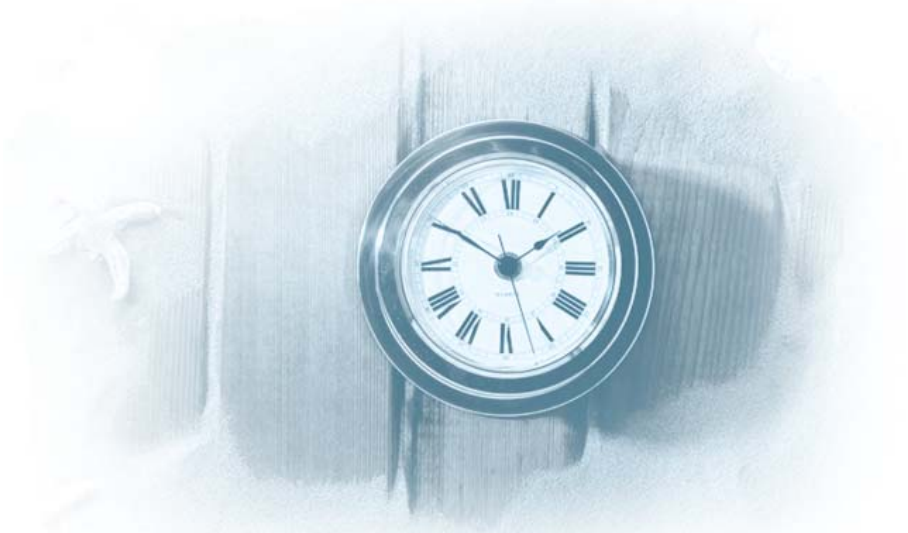
body? Why is blood red? Do all animals have blood? What is there in urine?			on dialysis using egg membrane.
Multiplication in plants Why are some plant parts like potato, onion swollen – are they of any use to the plants? What is the function of flowers? How are fruits and seeds formed? How are they dispersed?	Vegetative, asexual and sexual reproduction in plants, pollination - cross, self pollination; pollinators, fertilisation, fruit, seed.	*Bryophyllum* leaves, potato, onion etc.; yeast powder, sugar.	Study of tuber, corm, bulb etc; budding in yeast; T.S./ L.S. ovaries, w.m.pollen grains; comparison of wind pollinated and insect pollinated flowers; observing fruit and seed development in some plants; collection and discussion of fruits/seeds dispersed by different means. **(Periods - 16)**
4. Moving Things, People and Ideas ***Moving objects*** Why do people feel the need to measure time? How do we know how fast something is moving?	Appreciation of idea of time and need to measure it. Measurement of time using periodic events. Idea of speed of moving objects – slow and fast motion along a straight line.	Daily-life experience; metre scale, wrist watch/ stop watch, string etc.	Observing and analysing motion (slow or fast) of common objects on land, in air, water and space. Measuring the distance covered by objects moving on a road in a given time and calculating their speeds. Plotting distance vs. time graphs for uniform motion. Measuring the time taken by moving objects to cover a given distance and calculating their speeds. Constancy of time period of a pendulum.



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5. How Things Work			
Electric current and circuits			
How can we conveniently represent an electric circuit?	Electric circuit symbols for different elements of circuit.	Recollection of earlier activities. Pencil and paper.	Drawing circuit diagrams.
Why does a bulb get hot?	Heating effect of current.	Cells, wire, bulb.	Activities to show the heating effect of electric current.
How does a fuse work?	Principle of fuse.	Cells, wire, bulb or LED, aluminium foil.	Making a fuse.
How does the current in a wire affect the direction of a compass needle?	A current-carrying wire has an effect on a magnet.	Wire, compass, battery.	Activity to show that a current-carrying wire has an effect on a magnet.
What is an electromagnet?	A current-carrying coil behaves like a magnet.	Coil, battery, iron nail.	Making a simple electro-magnet. Identifying situations in daily life where electromagnets are used.
How does an electric bell work?	Working of an electric bell.	Electric bell.	Demonstration of working of an electric bell.
6. Natural Phenomena			**(Periods - 24)**
Rain, thunder and lightning			
What causes storms? What are the effects of storms? Why are roofs blown off?	High-speed winds and heavy rainfall have disastrous consequences for human and other life.	Experience; newspaper reports. Narratives/stories.	Making wind speed and wind direction indicators. Activity to show "lift" due to moving air. Discussion on effects of storms and possible safety measures.
Light			
Can we see a source of light through a bent tube?	Rectilinear propagation of light.	Rubber/plastic tube/ straw, any source of light.	Observation of the source of light through a straight tube, a bent tube.

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How can we throw sunlight on a wall?	Reflection, certain surfaces reflect light.	Glass/metal sheet/metal foil, white paper.	Observing reflection of light on wall or white paper screen.
What things give images that are magnified or diminished in size?	Real and virtual images.	Convex/concave lenses and mirrors.	Open ended activities allowing children to explore images made by different objects, and recording observations. Focussed discussions on real and virtual images.
How can we make a coloured disc appear white?	White light is composed of many colours.	Newton's disc.	Making the disc and rotating it.
7. Natural Resources *Scarcity of water* Where and how do you get water for your domestic needs? Is it enough? Is there enough water for agricultural needs? What happens to plants when there is not enough water for plants? Where does a plant go when it dies?	Water exists in various forms in nature. Scarcity of water and its effect on life.	Experience; media reports; case material.	Discussions. Case study of people living in conditions of extreme scarcity of water, how they use water in a judicious way. Projects exploring various kinds of water resources that exist in nature in different regions in India; variations of water availability in different regions.

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Forest products What are the products we get from forests? Do other animals also benefit from forests? What will happen if forests disappear?	Interdependence of plants and animals in forests. Forests contribute to purification of air and water.	Case material on forests.	Case study of forests.
Waste Management Where does dirty water from your house go? Have you seen a drain? Does the water stand in it sometimes? Does this have any harmful effect?	Sewage; need for drainage/sewer systems that are closed.	Observation and experience; photographs.	Survey of the neighbourhood, identifying locations with open drains, stagnant water, and possible contamination of ground water by sewage. Tracing the route of sewage in your building, and trying to understand whether there are any problems in sewage disposal.

Disclaimer
Dropped Chapters

Chapter 3: Fibre to Fabric
Full Chapter

Chapter 7: Weather, Climate and Adaptations of Animals to Climate
Full Chapter

Chapter 8: Winds, Storms and Cyclones
Full Chapter

Chapter 9: Soil
Full Chapter

Chapter 16: Water: A Precious Resource
Full Chapter