

## Double Asteroid Redirection Test (DART) [UPSC Notes]

The Double Asteroid Redirection Test or DART spacecraft of NASA slammed into an asteroid moonlet Dimorphos in a test of a technology that could pave the way to hit asteroids and other alien objects if they are headed directly towards us in the future.

This is an important topic for the [UPSC exam](#) science and technology segment. In this article, you can learn all about the DART mission, its objectives, impact, etc.

### What is the Double Asteroid Redirection Test (DART)?

DART is the world's first planetary defence technology demonstration - that aims to protect the planets from any possible collision with alien particles. This mission was carried out by NASA. It was launched on a SpaceX Falcon 9 rocket.

- Dimorphos is a smaller asteroid that revolves around a larger asteroid called Didymos. The Dart mission has changed the orbital period of Dimorphos to ensure that they remain in their tight orbit. The European space agency will send the Hera probe to Dimorphos in 2024 in order to ensure that the moonlet is following its intended path.

### What is planetary defence?

There are various objects that revolve in the solar system. These objects range from tiny particles to large rocky particles. These objects can cause serious damage to earth if they collide in the course of revolution around the sun. Therefore, efforts are made across the world to protect the planet from possible harm. Therefore, planetary defence is a unifying step of the scientific community across the world to track any object which can be a potential threat to the earth and destroy them before they become lethal. Mission DART is an outcome of this initiative.

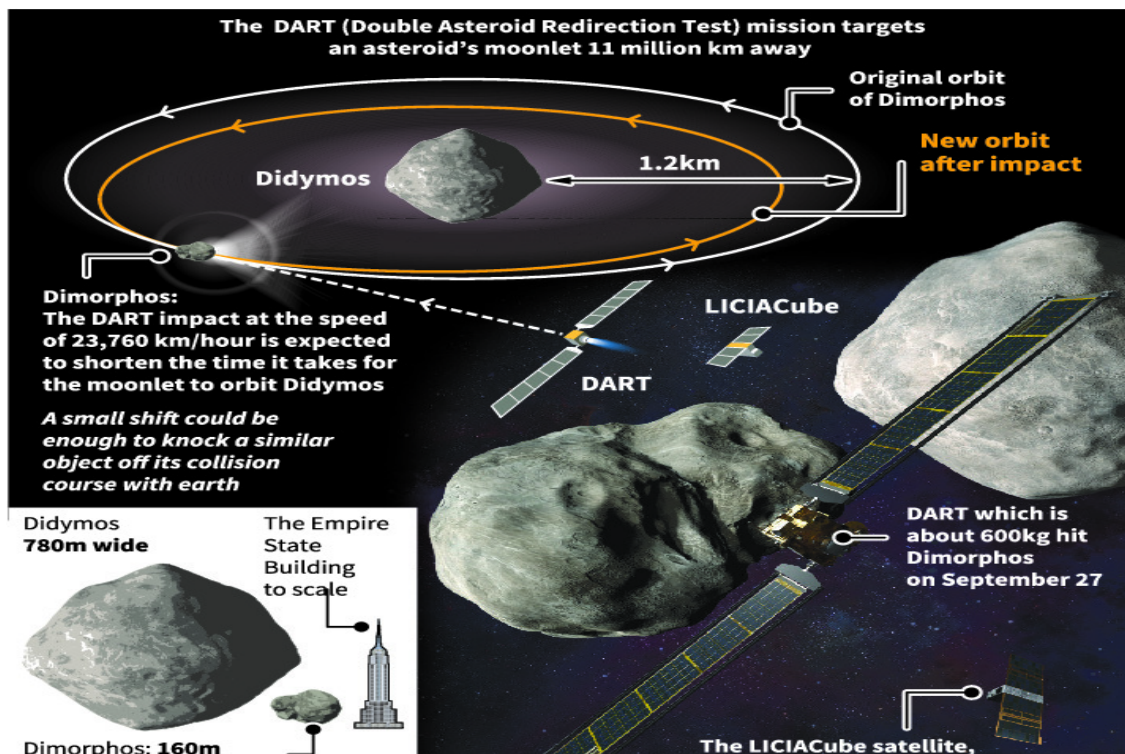


Image: DART MISSION

Source: The Hindu

### DART Mission Details

- DART is the first-ever mission aimed at investigating and demonstrating a method of asteroid deflection by changing an asteroid's motion in space through kinetic impact.
- The DART craft carried a high-resolution DRACO (Didymos Reconnaissance and Asteroid Camera for Optical navigation) camera to observe the collision and its consequences. DRACO will be used for sending the image to the earth on a real-time basis. It will help in studying the object with precision.
- DART's impact with the asteroid Dimorphos demonstrates a viable mitigation technique for protecting the planet from an Earth-bound asteroid or comet.
- Telescopes placed on the earth's surface will track the success made by this mission in changing the course of the asteroid.
- It will be a low-cost spacecraft. It has a two solar array which uses hydrazine propellant for channelling spacecraft.
- Apart from DRACO, it will also carry a small satellite, CUBESAT called LICIACube, it will capture the image of a crater and an impact crater formed as a result of the collision.

**What are Asteroids?**

Asteroids are the belt of rocky particles that revolve around the sun, like planets. Though they revolve around the sun like planets, they are much smaller than the planets. There are a large number of asteroids found in our solar system but a large number of such asteroids are concentrated in a region between Mars and Jupiter, called the Asteroid Belt. Sometimes these asteroids leave their path and come within the gravitational force of the earth and thus could become potential threats to the people on the earth.