



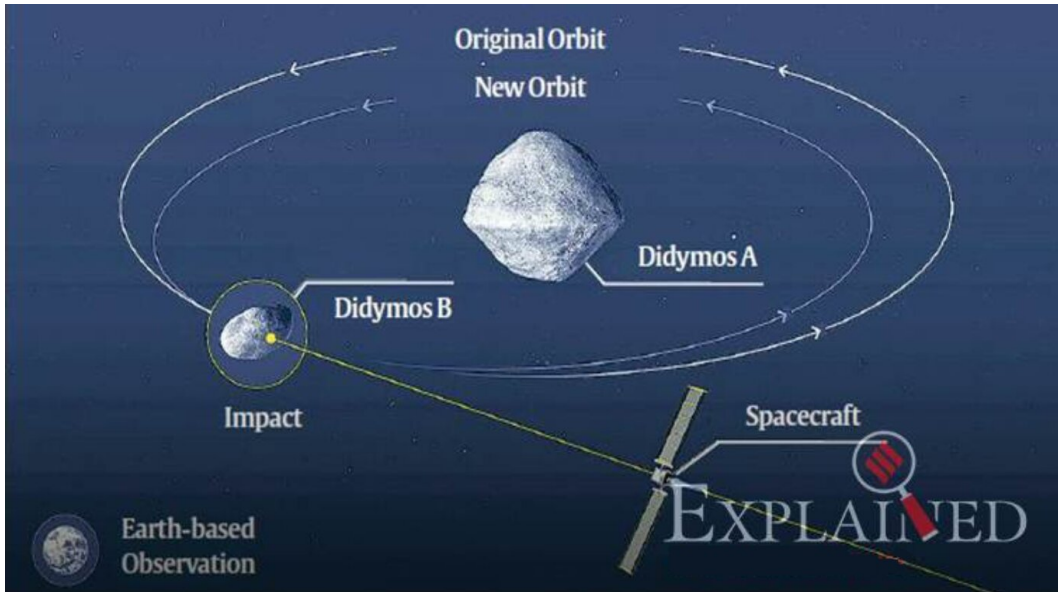
drishti

Asteroid Impact Deflection Assessment (AIDA)

 drishtiias.com/printpdf/asteroid-impact-deflection-assessment-aida

Asteroid researchers with a view to establishing a planetary defence mechanism against huge asteroid will gather in Italy to discuss the progress of **Asteroid Impact Deflection Assessment (AIDA)**.

- An asteroid hit is widely acknowledged as one of the most likely, among all the causes that may eventually cause the extinction of life on Earth,
- In general, there are two different ways of planetary defence against an asteroid.
 - **Blowing** up the asteroid before it reaches Earth,
 - **Deflecting** it off its Earth-bound course by hitting it with a spacecraft.
- The **Asteroid Impact Deflection Assessment (AIDA)** project seeks to explore the defence mechanism **through deflection**.
 - It is a **joint mission** of the **National Aeronautics and Space Administration (NASA)** and the **European Space Agency (ESA)**.
 - It is an ambitious **double-spacecraft mission** to deflect an asteroid in space.
 - **Target of AIDA**
 - The target is the smaller of two bodies in the “**double Didymos asteroids**”. These are in orbit between Earth and Mars.
 - Didymos is a near-Earth asteroid system.
 - Its main body measures about 780 m across; the smaller body is a “moonlet” about 160 m in diameter.



- The project aims to deflect the orbit of the smaller body through an **impact by one spacecraft**.
 NASA is building the **Double Asteroid Impact Test (DART)** spacecraft for this.
- Then a second spacecraft will survey the crash site and **gather the maximum possible data** on the effect of this collision.
 - ESA's contribution is a mission called **Hera**, which will perform a close-up survey of the post-impact asteroid.
 - Hera will also deploy a pair of **CubeSats** for close-up asteroid surveys. This would allow researchers to model the efficiency of the collision.
- Flying along with **DART** will be an Italian-made miniature CubeSat, called **LICIACube**, to record the moment of impact.

The Double Asteroid Impact Test (DART) spacecraft will be launch in 2021. It is planned to collide with the target in September 2022.

CubeSats

- CubeSats are a class of research spacecraft called **nanosatellites**.
- CubeSats are built to standard dimensions (Units or "U") of 10 cm x 10 cm x 10 cm.
- They can be 1U, 2U, 3U, or 6U in size, and typically weigh less than 1.33 kg (3 lbs) per U.

Source: IE