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**NASA wants to smash a spacecraft into an asteroid, but don't worry — Earth isn't at risk**

By Future plc, adapted by Newsela staff

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On November 23, 2021, NASA launched the Double Asteroid Redirection Test (DART) mission. DART will attempt to smash an asteroid, which is a small, rocky object that travels around the Sun.

The DART spacecraft will attempt to hit the asteroid head-on and slightly change its orbit, or path. NASA hopes this mission will help them learn if they could stop an asteroid from hitting Earth in the future. If a large asteroid hit Earth, it could cause catastrophic damage. But don't worry — experts agree that there is no possibility that this asteroid could threaten Earth.

DART launched from Vandenberg Space Force Base in California aboard a SpaceX Falcon 9 rocket. If all goes well, it will crash into its asteroid target in late 2022.

**Spacecraft To Target Asteroid Moon For Practice**

**What does an astronomer do?**

Even if the DART mission doesn't go exactly according to plan, the asteroid that DART is targeting "has no chance of impacting the Earth whatsoever," said Amy Mainzer. She is an astronomer, which is a scientist who studies the planets, stars and space. Mainzer works for NASA and is involved in a mission to discover and measure asteroids and other objects that could pose a danger to Earth.

Some of these asteroids are large enough that they have their own small moons. A moon is a natural object that can orbit, or travel around, a planet or asteroid. DART will target the miniature asteroid moon named Dimorphos, which orbits around a larger asteroid called Didymos. (Together, Didymos and Dimosphos are known as a system.) Scientists chose to target this system for a number of reasons, but mostly because it is far away from Earth.

**What is the name of the system Dart will target and why was this system chosen?**

The distance to Didymos from Earth is around 300 million miles (483.6 million kilometers), but this distance varies as Earth and Didymos both orbit the Sun, said astrophysicist Jonathan McDowell. Astrophysicists are scientists who study how stars and planets work. They use physics to explain what astronomers find and see. McDowell works at the Harvard-Smithsonian Center for Astrophysics in Massachusetts.

When asked whether the DART mission posed any risk of setting any chunks of the asteroid on a path toward Earth, McDowell responded, "No, not at all." He said that DART is just a practice run in the possible event that a hunk of space rock was hurtling towards Earth. If this test proves successful, NASA could use this same type of technology to essentially push that threatening rock out of Earth's way.

**What does an astrophysicist do?**

**Learning More About Space Objects To Keep Earth Safe**

**What is a global extinction event?**

But just how likely is it that such an event could take place? Is there really a possibility that an asteroid could threaten life on Earth as it has in the past? Around 66 million years ago, an asteroid hit Earth. After the asteroid hit the planet, about three-quarters of all life on Earth died off, including the large dinosaurs. An event that kills off more than three-quarters of the world's species in a relatively short period of time is called a global extinction event.

**The good news is that's an incredibly unlikely scenario, Mainzer said.**

"Really large global events must be incredibly rare, or we human beings would not be here," she said. "I mean, if global extinction events were common, there's no way that you would have human life."

However, Mainzer said that there is a greater chance of an impact from a smaller object, and while it might not cause global problems, it could create severe regional damage.

"Those are potentially more frequent events," Mainzer said. But by frequent, she means on astronomical timescales, so possibly hundreds of thousands of years or even longer.

Mainzer also explained that our understanding of what exists near Earth is incomplete, and scientists around the globe are continuing to fill in the gaps of understanding about what objects exist near Earth. Near-Earth objects include any objects within 120.9 million miles (194.5 million kilometers) of Earth.

But, as we continue to learn more about what objects are close to Earth, DART will give us the protective tools we need, Mainzer said.

**Respond:**

* **What is the main idea of this article?**
* **Using evidence from this text, explain what DART does.**
* **Using evidence from this text, explain what the author wants you to learn.**
* **NASA’s project are very expensive. Using evidence from this text to explain whether or not the government should continue to fund space projects like this.**