
BEHIND THE SPACECRAFT
DART
REDIRECTING AN ASTEROID

1
00:00:00,500 --> 00:00:03,837
In case there was an asteroid coming towards Earth and you're there.

2
00:00:03,837 --> 00:00:05,672
You can actually stop it.

3
00:00:05,672 --> 00:00:07,574
I mean, that's kind of fantastic.

4
00:00:07,574 --> 00:00:10,443
NASA is crashing a spacecraft into an asteroid.

5
00:00:10,710 --> 00:00:13,680
What? You think science fiction. But this is real.

6
00:00:13,680 --> 00:00:20,787
Never in my life would I have thought I would take a couple hundred million dollar spacecraft and crash it into a

7
00:00:21,221 --> 00:00:22,489
My name is Michelle Chen.

8
00:00:22,489 --> 00:00:23,590
I'm Elena Adams.

9
00:00:23,590 --> 00:00:24,824
My name is Kelly Fast.

10
00:00:24,824 --> 00:00:25,592
I'm Andy Rivkin.

11
00:00:25,592 --> 00:00:29,229
I'm Justyna Surowiec and I help tell the story of the DART mission.

12
00:00:29,429 --> 00:00:30,997
I'm a planetary defender.

13
00:00:30,997 --> 00:00:35,001

And I study how the orbits of asteroids change after we hit them with spacecraft.

14
00:00:35,001 --> 00:00:39,239
My job is primarily to make sure all the systems on the spacecraft work together.

15
00:00:39,239 --> 00:00:45,879
The DART mission is NASA's first test of a planetary defense technique called the kinetic impactor.

16
00:00:45,879 --> 00:00:48,548
DART is the Double Asteroid Redirection Test.

17
00:00:48,548 --> 00:00:52,318
It's just a spacecraft that is going to go and smack an asteroid,

18
00:00:52,318 --> 00:00:55,989
the moonlet Dimorphos which orbits the asteroid Didymos,

19
00:00:55,989 --> 00:00:59,559
and see if we can change its trajectory just a little bit.

20
00:00:59,559 --> 00:01:03,129
in order to show that we can deflect incoming asteroids if we need to.

21
00:01:03,129 --> 00:01:08,568
DART will only be changing the period of the orbit of Dimorphos by a tiny amount.

22
00:01:08,568 --> 00:01:13,039
But in space, just a little bit is just enough to make an asteroid actually miss us

23
00:01:13,039 --> 00:01:19,179
in the event that an asteroid is discovered well ahead of time before it might impact Earth.

24
00:01:19,179 --> 00:01:21,314
Behind me, you see the spacecraft.

25
00:01:21,314 --> 00:01:24,284
It's really cool to see it coming together in real life.

26
00:01:24,284 --> 00:01:26,586
It is fantastic to see it in real life.

27
00:01:26,586 --> 00:01:32,158
To see it turn from ideas into real pieces that are going to go into space.

28
00:01:32,158 --> 00:01:35,895
The solar arrays will actually roll out to 28 feet in length.

29
00:01:35,895 --> 00:01:39,232
Once the solar arrays are deployed, it's going to be the size of a school bus.

30
00:01:39,232 --> 00:01:43,369
As the solar array opens out, it's going to swing out in this direction.

31
00:01:43,369 --> 00:01:45,805
The asteroid's only two football fields in size.

32
00:01:45,805 --> 00:01:48,975
We're flying at over six kilometers a second.

33
00:01:48,975 --> 00:01:52,045
Thirty days out, we see one pixel on our field of view.

34
00:01:52,045 --> 00:01:54,414
You can see Didymos and Dimorphos as one point of light.

35
00:01:54,414 --> 00:01:57,617
About four hours out, our spacecraft becomes autonomous.

36
00:01:57,617 --> 00:02:00,353
And then that's where everything gets really exciting.

37
00:02:00,353 --> 00:02:02,789
And you actually are seeing impact.

38
00:02:02,789 --> 00:02:05,892

We're super excited and nervous as well.

39
00:02:05,892 --> 00:02:15,201
I feel really honored and humbled to be working in an area of science that has such a broader impact, you kno

40
00:02:15,702 --> 00:02:16,536
Go DART!

41
00:02:16,903 --> 00:02:21,774
The dinosaurs are made completely extinct by an asteroid impact so many years ago.