



**DOES  
ANYTHING  
ORBIT  
THE MOON?**

1  
00:00:11,330 --> 00:00:01,490

[Music]

2  
00:00:13,249 --> 00:00:11,340

NASA's lunar reconnaissance Orbiter and

3  
00:00:14,930 --> 00:00:13,259

a handful of other active spacecraft are

4  
00:00:16,490 --> 00:00:14,940

currently orbiting the moon one of the

5  
00:00:18,890 --> 00:00:16,500

really cool cubesats I'm excited about

6  
00:00:20,810 --> 00:00:18,900

is NASA Capstone which will be joining

7  
00:00:22,970 --> 00:00:20,820

these other spacecraft in orbit around

8  
00:00:25,070 --> 00:00:22,980

the Moon Capstone stands for the Sith

9  
00:00:26,750 --> 00:00:25,080

lunar autonomous Positioning Systems

10  
00:00:28,910 --> 00:00:26,760

Technology operations and navigation

11  
00:00:30,710 --> 00:00:28,920

experiment it serves as a Pathfinder

12  
00:00:32,810 --> 00:00:30,720

mission for Gateway as part of NASA's

13  
00:00:34,430 --> 00:00:32,820

Artemis program Gateway is a space

14

00:00:36,110 --> 00:00:34,440

station that will orbit the Moon and

15

00:00:37,850 --> 00:00:36,120

provide a place for astronauts to

16

00:00:39,830 --> 00:00:37,860

resupply and prepare for their trips

17

00:00:41,209 --> 00:00:39,840

down to the lunar surface did you know

18

00:00:43,250 --> 00:00:41,219

that orbits around the moon are very

19

00:00:45,049 --> 00:00:43,260

unstable the moon's gravity is

20

00:00:46,729 --> 00:00:45,059

extraordinarily lumpy so it's really

21

00:00:48,290 --> 00:00:46,739

hard to stay in orbit around the Moon if

22

00:00:50,150 --> 00:00:48,300

the satellite orbits too close to the

23

00:00:51,950 --> 00:00:50,160

lunar surface the moon's gravity might

24

00:00:53,750 --> 00:00:51,960

cause the satellite to actually crash

25

00:00:55,430 --> 00:00:53,760

into the moon on the other hand if the

26

00:00:57,350 --> 00:00:55,440

satellite is slightly too far away from

27

00:00:59,150 --> 00:00:57,360

the Moon the Earth's gravity will pull

28

00:01:01,010 --> 00:00:59,160

the spacecraft out flaking it away from

29

00:01:02,869 --> 00:01:01,020

the Moon altogether what's really cool

30

00:01:04,729 --> 00:01:02,879

about Capstone is that it's the first

31

00:01:07,010 --> 00:01:04,739

spacecraft to test the entrance and

32

00:01:09,190 --> 00:01:07,020

sustainability of a very unique near

33

00:01:13,130 --> 00:01:09,200

Richter linear Halo orbit also known as

34

00:01:14,810 --> 00:01:13,140

nrho this nrho orbit is at a precise

35

00:01:16,910 --> 00:01:14,820

balance point between the gravities of

36

00:01:18,830 --> 00:01:16,920

the Earth and the moon which offers a

37

00:01:20,690 --> 00:01:18,840

long stable orbit so that Gateway and

38

00:01:22,010 --> 00:01:20,700

future spacecraft don't have to carry so

39

00:01:23,870 --> 00:01:22,020

much fuel to stay in orbit around the

40

00:01:26,210 --> 00:01:23,880

Moon Capstone is helping lead the way

41

00:01:28,310 --> 00:01:26,220

for Gateway and helps reduce risk for

42

00:01:30,230 --> 00:01:28,320

future spacecraft in this orbit another

43

00:01:31,969 --> 00:01:30,240

really cool thing about Capstone is that

44

00:01:34,010 --> 00:01:31,979

it is also demonstrating a really

45

00:01:35,630 --> 00:01:34,020

Innovative navigation system that will

46

00:01:37,490 --> 00:01:35,640

allow future spacecraft to determine

47

00:01:40,010 --> 00:01:37,500

their location without having to rely

48

00:01:42,170 --> 00:01:40,020

exclusively on tracking from Earth so

49

00:01:43,789 --> 00:01:42,180

does anything orbit the Moon in summary

50

00:01:45,469 --> 00:01:43,799

yes there are several spacecraft

51

00:01:47,390 --> 00:01:45,479

orbiting the moon and there will be

52

00:01:50,569 --> 00:01:47,400

plenty more to come including Capstone