SpacetoGround

1
00:00:00,179 --> 00:00:04,970
foreign

2
00:00:09,530 --> 00:00:06,889
welcome to space to ground I'm Chelsea

3
00:00:11,629 --> 00:00:09,540
ballarte last week two astronauts

4
00:00:14,270 --> 00:00:11,639
completed a spacewalk by going outside

5
00:00:15,829 --> 00:00:14,280
of the International Space Station and

6
00:00:18,830 --> 00:00:15,839
of course when an astronaut goes outside

7
00:00:21,170 --> 00:00:18,840
they can't just open the door so they

8
00:00:23,570 --> 00:00:21,180
use what's known as an airlock and when

9
00:00:25,490 --> 00:00:23,580
an experiment needs to go out the space

10
00:00:28,310 --> 00:00:25,500
station actually has a mini version

11
00:00:30,109 --> 00:00:28,320
called a payload airlock so come on

12
00:00:32,330 --> 00:00:30,119
let's go take a tour

13
00:00:34,610 --> 00:00:32,340

this is the Japanese experiment module

14
00:00:36,889 --> 00:00:34,620
better known as the gem first let's

15
00:00:38,630 --> 00:00:36,899
check out the pressurized module it's a

16
00:00:41,330 --> 00:00:38,640
room inside the International Space

17
00:00:42,950 --> 00:00:41,340
Station about the size of a tour bus and

18
00:00:45,290 --> 00:00:42,960
it's a place for astronauts to conduct

19
00:00:47,209 --> 00:00:45,300
scientific experiments here in the lab

20
00:00:49,130 --> 00:00:47,219
you'll find racks full of experiments

21
00:00:50,750 --> 00:00:49,140
all along the walls for crew members to

22
00:00:53,090 --> 00:00:50,760
work on throughout the day

23
00:00:55,369 --> 00:00:53,100
at the end of the room is the gem air

24
00:00:57,590 --> 00:00:55,379
lock through this chamber astronauts can

25
00:01:00,049 --> 00:00:57,600
move experiments from the inside to the

26
00:01:02,209 --> 00:01:00,059
outside of the space station and then

27
00:01:04,130 --> 00:01:02,219
astronauts can use a robotic arm to

28
00:01:06,350 --> 00:01:04,140
mount these experiments onto a platform

29
00:01:08,929 --> 00:01:06,360
out into the vacuum of space without

30
00:01:11,149 --> 00:01:08,939
actually having to go outside themselves

31
00:01:13,070 --> 00:01:11,159
this platform has been home to a number

32
00:01:15,469 --> 00:01:13,080
of experiments from different scientific

33
00:01:17,750 --> 00:01:15,479
Fields over the years some experiments

34
00:01:19,490 --> 00:01:17,760
have collected data on cosmic rays While

35
00:01:21,890 --> 00:01:19,500
others have looked at air pollution in

36
00:01:23,990 --> 00:01:21,900
Earth's atmosphere these experiments can

37
00:01:26,270 --> 00:01:24,000
be exposed to the space environment for

38
00:01:27,830 --> 00:01:26,280

years at a time and easily be swapped

39
00:01:29,570 --> 00:01:27,840
out using the Japanese experiment

40
00:01:31,550 --> 00:01:29,580
modules airlock

41
00:01:33,050 --> 00:01:31,560
sometimes researchers don't want their

42
00:01:35,270 --> 00:01:33,060
experiment to sit outside of the space

43
00:01:36,830 --> 00:01:35,280
station in some cases they prefer their

44
00:01:37,730 --> 00:01:36,840
small satellites flying free around the

45
00:01:39,170 --> 00:01:37,740
Earth

46
00:01:41,210 --> 00:01:39,180
a satellite could hitch a ride into

47
00:01:44,210 --> 00:01:41,220
orbit on a rocket launching from Earth

48
00:01:46,249 --> 00:01:44,220
or an astronaut can install a cubesat

49
00:01:48,770 --> 00:01:46,259
deployer to be sent out through the gem

50
00:01:51,109 --> 00:01:48,780
airlock and picked up by Jem's robotic

51
00:01:52,730 --> 00:01:51,119
arm the arm can then point away from the

52
00:01:54,770 --> 00:01:52,740
space station and deploy the small

53
00:01:55,670 --> 00:01:54,780
satellites into a safe orbit around the

54
00:01:57,590 --> 00:01:55,680
Earth

55
00:01:59,630 --> 00:01:57,600
researchers have more control because

56
00:02:01,490 --> 00:01:59,640
they can choose the best time to deploy

57
00:02:03,710 --> 00:02:01,500
their satellite without having to wait

58
00:02:05,510 --> 00:02:03,720
for a rocket launch the astronaut can

59
00:02:07,730 --> 00:02:05,520
also look them over and make sure

60
00:02:09,889 --> 00:02:07,740
they're not damaged before their release

61
00:02:11,990 --> 00:02:09,899
most of the small satellites and the

62
00:02:13,790 --> 00:02:12,000
other experiments inside the gem came to

63
00:02:16,190 --> 00:02:13,800

the space station aboard a cargo

64
00:02:17,750 --> 00:02:16,200
spacecraft these Freighters routinely

65
00:02:20,630 --> 00:02:17,760
deliver supplies to the space station

66
00:02:22,010 --> 00:02:20,640
and just this week the progress 83 cargo

67
00:02:24,229 --> 00:02:22,020
ship launched from the baikonur

68
00:02:26,750 --> 00:02:24,239
cosmodrome in Kazakhstan carrying

69
00:02:28,250 --> 00:02:26,760
thousands of pounds of supplies

70
00:02:30,350 --> 00:02:28,260
that's space to ground for this week

71
00:02:32,690 --> 00:02:30,360
thanks for watching you can keep up with

72
00:02:37,870 --> 00:02:32,700
the science and more by following at ISS