SPACE TO GROUND

1
00:00:00,940 --> 00:00:02,870
V.O.: Houston, station on space to ground.

2
00:00:02,870 --> 00:00:06,230
Nicole: Welcome to Space To Ground, your weekly look at what's happening on board the International

3
00:00:06,230 --> 00:00:07,230
Space Station.

4
00:00:07,230 --> 00:00:11,620
I'm Nicole Cloutier-Lemasters.

5
00:00:11,620 --> 00:00:16,219
Orbital Science's Cygnus cargo ship launched from NASA's Wallops Flight Facility in Virginia

6
00:00:16,219 --> 00:00:20,960
Sunday afternoon and was attached to the station on Wednesday using Canadarm2.

7
00:00:20,960 --> 00:00:25,610
The spacecraft was loaded with more than 3,000 pounds of supplies, science experiments, and

8
00:00:25,610 --> 00:00:28,289
spacewalk equipment for the ISS crew.

9
00:00:28,289 --> 00:00:31,500
Hatches were opened on Thursday, and the crew will spend the next several days unloading

10
00:00:31,500 --> 00:00:32,770
the cargo.

11
00:00:32,770 --> 00:00:35,620
One of the onboard crew members received a few upgrades this week.

12
00:00:35,620 --> 00:00:39,719
Robonaut, the station's humanoid robot, was
outfitted with new helmet pieces by station

13
00:00:39,719 --> 00:00:41,480
commander Steve Swanson.

14
00:00:41,480 --> 00:00:45,700
Steve also upgraded the robot's torso and
joints - all in preparation for the installation

15
00:00:45,700 --> 00:00:48,809
of a set of robotic legs to be attached later.

16
00:00:48,809 --> 00:00:52,899
Robonaut arrived at the space station in 2011
to help station astronauts complete complex

17
00:00:52,899 --> 00:00:54,890
tasks in space.

18
00:00:54,890 --> 00:00:57,979
The station crew has been playing with fire
this week...or at least experimenting with

19
00:00:57,979 --> 00:00:58,979
it.

20
00:00:58,979 --> 00:01:03,260
The Flame Extinguishment or FLEX-2 experiment
uses small droplets of fuel to study the special

21
00:01:03,260 --> 00:01:06,320
characteristics of burning fuel droplets in
space.

22
00:01:06,320 --> 00:01:10,550
The experiment looks at how quickly fuel burns,
the conditions required for soot to form,

23
00:01:10,550 --> 00:01:14,190
and how mixtures of fuels evaporate before
burning.

24
00:01:14,190 --> 00:01:18,050
Understanding these processes could lead to
the production of safer spacecraft, as well

25
00:01:18,050 --> 00:01:22,500
as increased fuel efficiency for engines using
liquid fuel here on earth.

26
00:01:22,500 --> 00:01:25,820
This week's social media question comes from
geo-model-railroader.

27
00:01:25,820 --> 00:01:30,780
He asks: "How does the station crew attach
a cargo craft like HTV, Dragon, or Cygnus

28
00:01:30,780 --> 00:01:31,880
to the station?"

29
00:01:31,880 --> 00:01:36,270
Well, there are two ways to attach visiting
vehicles to the ISS.

30
00:01:36,270 --> 00:01:40,420
Crafts like the Cygnus that arrived at the
station this week, as well as SpaceX's Dragon

31
00:01:40,420 --> 00:01:45,280
and Japan's HTV, are captured by the crew
using the station's robotic arm and maneuvered

32
00:01:45,280 --> 00:01:48,990
safely into position by robotics officers
in mission control.

33
00:01:48,990 --> 00:01:54,180
On the other hand, Russian progress and Soyuz
vehicles and Europe's Automated Transfer Vehicle

34
00:01:54,180 --> 00:01:59,860
fly into their docking ports using an automated,
radar-based rendezvous and docking system.