



Spaceto**Ground**

1
00:00:02,696 --> 00:00:04,656
"HOUSTON, STATION
ON SPACE TO GROUND."

2
00:00:05,216 --> 00:00:07,606
WELCOME TO SPACE TO
GROUND, I'M LEAH CHESHER.

3
00:00:07,846 --> 00:00:10,746
THIS WEEK, THE SPACE STATION'S
RESIDENT FARMER - BETTER KNOWN

4
00:00:10,746 --> 00:00:13,156
AS NASA ASTRONAUT RICKY
ARNOLD - CONTINUED WORK

5
00:00:13,156 --> 00:00:15,406
ON THE PLANT HABITAT-1
INVESTIGATION.

6
00:00:16,206 --> 00:00:19,456
IN MICROGRAVITY, PLANTS
EXPERIENCE A VARIETY OF PHYSICAL

7
00:00:19,456 --> 00:00:21,966
AND PHYSIOLOGICAL
CHANGES, MUCH LIKE HUMANS.

8
00:00:22,346 --> 00:00:25,366
ON MONDAY, RICKY HARVESTED
ARABIDOPSIS PLANTS AS PART

9
00:00:25,366 --> 00:00:27,566
OF A STUDY THAT WILL HELP
US BETTER UNDERSTAND HOW

10
00:00:27,566 --> 00:00:29,426
MICROGRAVITY AFFECTS
PHOTOSYNTHESIS,

11
00:00:29,766 --> 00:00:32,526
FORMATION OF CELL WALLS,
GENE FUNCTION AND MORE.

12
00:00:32,526 --> 00:00:33,706
"WELL, THEY'RE DOING GREAT!

13
00:00:33,816 --> 00:00:36,626
WE'RE GOING TO GO AHEAD AND
REMOVE THE STEMS FROM THEM,

14
00:00:36,626 --> 00:00:38,336
AND THEN WE'RE GOINT TO REMOVE
THE PLANTS, FREEZE THEM,

15
00:00:38,506 --> 00:00:40,916
AND SEND THEM TO THE
GROUND FOR ANALYSIS.

16
00:00:40,916 --> 00:00:43,506
WHAT'S INTERESTING HERE IS
TYPICALLY THESE DON'T GROW

17
00:00:43,666 --> 00:00:44,926
TANGLED LIKE THIS."

18
00:00:44,926 --> 00:00:47,236
THIS STUDY'S RESULTS COULD
PROVIDE GREATER KNOWLEDGE

19
00:00:47,236 --> 00:00:50,136
OF BASIC PLANT SCIENCE AND
BENEFIT NOT ONLY THE EFFORTS

20
00:00:50,166 --> 00:00:51,486
TO GROW PLANTS IN SPACE,

21
00:00:51,606 --> 00:00:53,736
BUT ALSO AGRICULTURE

FOR US ON EARTH.

22
00:00:54,806 --> 00:00:58,246
DID YOU KNOW THERE ARE MICROBIAL
SPECIES LIVING INSIDE OF YOU?

23
00:00:58,246 --> 00:01:00,206
THIS WEEK, THE CREW
WORKED ON A STUDY LOOKING

24
00:01:00,206 --> 00:01:02,636
AT THE BIG ROLE THESE
TINY ORGANISMS CAN PLAY.

25
00:01:04,286 --> 00:01:06,596
THE MICROBES IN OUR
GASTROINTESTINAL TRACT HELP

26
00:01:06,596 --> 00:01:09,756
WITH DIGESTION AND INTERACT WITH
OTHER ORGANS - EVEN THE BRAIN.

27
00:01:10,296 --> 00:01:13,266
WHEN THIS BRAIN-GUT INTERACTION
IS DISRUPTED, THE IMMUNE

28
00:01:13,266 --> 00:01:15,296
AND METABOLIC SYSTEMS
MAY BE AFFECTED,

29
00:01:15,296 --> 00:01:16,876
WHICH COULD IMPACT
HEALTH IN SPACE.

30
00:01:17,476 --> 00:01:20,726
TO LEARN MORE, SCIENTISTS STUDY
MODEL ORGANISMS, LIKE RODENTS,

31
00:01:20,966 --> 00:01:23,136
BECAUSE THEY HAVE A WELL

UNDERSTOOD GENETIC MAKEUP

32

00:01:23,136 --> 00:01:24,696
THAT IS SIMILAR TO
HUMAN SYSTEMS.

33

00:01:25,196 --> 00:01:27,406
BY COMPARING CHANGES
OF ORGANISMS IN SPACE

34

00:01:27,500 --> 00:01:28,900
TO A CONTROL GROUP ON
EARTH, WE CAN LEARN HOW

35

00:01:28,900 --> 00:01:30,900
TO PROTECT ASTRONAUT
HEALTH DURING MISSIONS

36

00:01:30,960 --> 00:01:32,660
AND ALSO GUIDE TREATMENT
DEVELOPMENT

37

00:01:32,660 --> 00:01:34,220
FOR HEALTH DISORDERS ON EARTH.

38

00:01:35,400 --> 00:01:38,260
THIS WEEK'S QUESTION COMES
FROM LANDILE, WHO ASKS WHERE

39

00:01:38,260 --> 00:01:40,340
AND HOW ASTRONAUTS
SLEEP IN SPACE.

40

00:01:41,640 --> 00:01:44,760
ON THE SPACE STATION, ASTRONAUTS
HAVE PRIVATE CREW QUARTERS,

41

00:01:44,760 --> 00:01:46,880
AN AREA JUST BIG
ENOUGH FOR ONE PERSON.

42

00:01:47,380 --> 00:01:50,260

SINCE THERE IS NO UP OR
DOWN, ASTRONAUTS CAN SNOOZE

43

00:01:50,260 --> 00:01:52,860

IN ANY ORIENTATION, AND OFTEN
STRAP THEIR SLEEPING BAGS

44

00:01:52,860 --> 00:01:55,660

TO A WALL SO THEY DON'T FLOAT
AROUND OR BUMP INTO ANYTHING.

45

00:01:56,420 --> 00:01:58,480

MANY ALSO STRAP DOWN
THEIR ARMS AND HEAD,

46

00:01:58,480 --> 00:02:00,700

AND SOME ASTRONAUTS
WEAR EARPLUGS TO CANCEL

47

00:02:00,700 --> 00:02:02,580

OUT ANY NOISE INSIDE
THE SPACE STATION.

48

00:02:04,060 --> 00:02:07,420

KEEP SENDING IN YOUR QUESTIONS
USING THE HASHTAG SPACETOGROUND.

49

00:02:07,420 --> 00:02:08,300

WE'LL SEE YOU NEXT WEEK.