1 00:00:00,000 --> 00:00:04,490
station this is Houston are you ready

2 00:00:01,919 --> 00:00:04,490
for the event

3 00:00:05,750 --> 00:00:11,000
Houston misses the International Space

4 00:00:07,769 --> 00:00:13,768
Station yes we're ready for the event

5 00:00:11,000 --> 00:00:15,990
Monrovia Unified School District this is

6 00:00:13,769 --> 00:00:18,859
Mission Control Houston please call the

7 00:00:15,990 --> 00:00:18,859
station for a voice check

8 00:00:22,500 --> 00:00:30,929
station this is silly boat is here with

9 00:00:25,899 --> 00:00:30,929
my Rovia high school how do you hear me

10 00:00:31,528 --> 00:00:34,840
Monrovia high school we have you loud

11 00:00:34,270 --> 00:00:36,280
and clear

12 00:00:34,840 --> 00:00:38,920
greetings aboard the International Space

13 00:00:36,280 --> 00:00:40,600
Station from the crew of expedition 34

14 00:00:38,920 --> 00:00:43,088
I'm Kevin Ford along with Tom Marshburn
and Chris Hadfield we are happy to talk
to you today
great hi I'm hi I'm Sonia how do you
I'm glad we can I'm not a doctor so I
don't know exactly how it works but I
know like when I'm in bed at night I can
still digest my food my organs have a
way of processing the food that works
without the help of gravity it is a
little bit different it takes a little
while for our bodies to get used to
being up here my digestive system wasn't
exactly normal after I got here for
several weeks and it's always been a little bit different than Earth but I feel good and I can digest all my food.

we have to eat a lot more up here it seems to me than I do on earth so I think there are still some mysteries left and hopefully one of these days all the smart scientists will figure it all out maybe like you.

hello I'm Jack is it always night never damn on the ISS also what language are you since it's an International Space Station well you know Jack we go through 16 sunrises and sunsets a day we're
going 17,500 miles an hour so that means

time on the space station could be any

time we want to so between all the

time on the space station could be any

time we want to so between all the

time on the space station could be any

time we want to so between all the

time on the space station could be any

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time on the space station could be any

time we want to so between all the

time on the space station could be any

time we want to so between all the

but we can't look outside and tell right

now the the official language that we

use on the space station is English but

we love learning Russian and speaking

Russian with our Russian colleagues we

work a lot of our procedures in Russian

and about 1/3 of the time we're speaking
Russian and if there is an international partner up here from Japan or from any of the countries in Europe then we'll hear that language as well there's a lot of fun learning new languages up here hi my name is angel what do you miss most about Earth and why hi angel you know it's a really interesting place to work up here we are busy there are experiments the view out the window is unbelievable but it's not the same as being on earth and i think for me i don't know what the the other crewmembers think but there for me the
thing I miss the most is just the the physical contact of living with family and friends on earth the the hugging and handshakes and and just being with people around that you know that you know and you love this is a good hard-working crew we have lots of stuff to do but but everyone likes you know being welcomed and close to family and I think that's one of the things I'll really look forward to when I get home is just hugging my kids and my wife and contact of being around everybody that
you love all the time

hi I'm Kalani was it like the slogan

well we could show you how happy it

makes us how's this well you know it's

very unusual at first imagine imagine if

you found yourself just floating at home

or imagine how what your pet would think

if it found itself floating its little

crazy the first time it happens to you

and you're a little insecure you what

you want to grab a hold of things you

want to have pressure on your feet or

when you sit down you'd like to have


pressure on your backside but we never

00:04:49,079 --> 00:04:52,529
have that up here even when we're

00:04:50,430 --> 00:04:55,050
sleeping we're floating almost touching

00:04:52,529 --> 00:04:56,698
nothing and I would say it's a lot like

00:04:55,050 --> 00:04:57,990
being in warm water in a pool or

00:04:56,699 --> 00:04:59,939
something if you close your eyes and

00:04:57,990 --> 00:05:02,610
imagine just floating and having no

00:04:59,939 --> 00:05:05,009
pressure points on you anywhere so it's

00:05:02,610 --> 00:05:06,960
really unusual after you get used to it

00:05:05,009 --> 00:05:09,120
and you think about it it's really a lot

00:05:06,959 --> 00:05:11,219
of fun you can just pick a corner of the

00:05:09,120 --> 00:05:13,348
room and float up into that corner and

00:05:11,220 --> 00:05:15,240
enjoy floating back down and of course

00:05:13,348 --> 00:05:16,829
we like to play a lot of games up here

00:05:15,240 --> 00:05:18,389
in zero-g so there are a lot of
advantages to being up here I don't think you'd want to do it forever because we we're really engineered and made for gravity and I like running around and walking through parks and stuff like that so there are things I miss about earth I even miss gravity about Earth but I do like floating around for for the time I've been up here for for the time I've been up here for four and a half months or so hi my name is Jared and what do you do during your free time on the ISS well everybody's got their favorite thing to do during free time we don't
have a lot of it some of us like to play guitar someone's like to read but like one thing everybody loves to do and that's to look out the window we've got the most spectacular view I can imagine being 250 miles above the earth so we're always looking for interesting beautiful landforms we're looking for cities that we recognize even new cities we've never been to and we've learned an incredible amount about the geography of the earth and what it really looks like not just what it looks like on a map so probably the most popular thing to do in our
Spare time is to look out the window.

Hi, my name is Grant. I was inspired you to become an astronaut.

Hey, Grant! You're gonna grow up to be something. Guaranteed, you're gonna grow up to be something. And the question is, you know how that's gonna happen and who and what are you gonna grow up to be?

You know how is that gonna happen and who and what are you gonna grow up to be?

Who and what are you gonna grow up to be?

And it's really up to you. You're the product of the decisions that you make.

And for me when I was your age, I was inspired by the very first people who left Earth and walked in another heavenly body. Another plane of the first.
two people who walked on the moon and

00:07:06,509 --> 00:07:13,139
their names were Edy and Neil Buzz Aldrin and Neil Armstrong and to me I

00:07:10,978 --> 00:07:15,810
just thought you know it's it was up

00:07:13,139 --> 00:07:17,579
until yesterday it was impossible to

00:07:15,810 --> 00:07:21,329
walk on the moon and now people have

00:07:19,139 --> 00:07:23,098
done that and I thought who knows what's

00:07:21,329 --> 00:07:24,810
gonna be possible for me but I'm gonna

00:07:23,098 --> 00:07:26,579
start getting ready I'm gonna start

00:07:24,810 --> 00:07:28,769
thinking about things that I can do then

00:07:26,579 --> 00:07:29,430
maybe someday I could do something like

00:07:28,769 --> 00:07:32,188
that

00:07:29,430 --> 00:07:34,590
and over the last 40 years I turned

00:07:32,189 --> 00:07:36,120
myself into an astronaut like we all did

00:07:34,589 --> 00:07:37,739
here and give us a chance to do
something like this it was because of those people who inspired me

hi I'm Emily how do you emotionally prepare your mind to go into space for so long

I am lay that that's a really great question

staying in space for five or six months is very challenging we know before we volunteer a course that we're gonna be here this long and it's something it's something we just set our sights on when

I when I was thinking about coming I was thinking about how many weekends I had
up here I have about 22 or 23 free
weekends the rest of the time I'm really
working hard and the days just are
flying by and what would I like to do
with those weekends and to me 22 or 23
weekends in space didn't seem like very
many to me so frankly the time was flown
by for me and I didn't expect it to seem
long but for those things where you you
have to might like I might get an
extension and spend maybe more months in
space and when I have to face something
like that I just kind of face it one day
at a time and I realized that you know
if I have to be someplace that I wouldn't want to be for a long time I love being here but if it was something that I wanted to get through that each day or each hour is just it's that much shorter for me that I have remaining if I have to do a long run for exercise or something like that so it's just kind of a mental game I play with myself and I'm used to handling those kinds of challenges those long challenges when they come hi my name is Steven and why doesn't the space station run our oxygen
you know why it's because of a lot of
very smart people that planned and
buildings this spaceship and that's why
we need a nation with a lot of knowledge
and history a spacefaring nation to be
able to figure these things out so we
bring up air in tanks and there's oxygen
in there we also brought up liquid
oxygen in tanks they're sitting on the
outside of the space station that's
really precious liquid there we don't
want to use that very much but we have a
lot stored up here if we need it one of
the coolest things I think is the oxygen
we breathe in and then breathe out again
and that comes out and then our sweat

that's all grabbed by the system of the

space station and they take those oxygen

molecules back out those systems do and

put it back into the air so we can

rebreathe a lot of that oxygen so we use

up just a little bit we have supplies on

board but we reuse a lot of the oxygen

as well it's a brilliant engineering

system as really proud to be a part of

it I am discovered in space enterprise

you

you know I've this was my third space

flight and on the previous two flights I
tried to tell people afterwards just how

beautiful it is what an amazing

experience and new experience it is but

on this flight because of new technology

that NASA is put up here we can send

pictures and sounds and things from the

space station almost right away to the

earth so that people can really start to

see this new thing that people are doing

and because of that because of all the

different ways the social media and like

talking to you today what's really

surprised me is the huge amount of

reaction to that the hundreds of
thousands of people all around the world that are directly following what we're doing here really interested in what we're doing and actually making it part of their lives so I think the thing that surprised me the most and that I really like is the huge support and interest in this new human exploration of space that were part of

hi my name is Phoebe and what is the best part about being in a low gravity environment

well the floating is really really fun like we said before your food floats
your microphone floats and your friends

00:11:50,289 --> 00:11:57,909
float but what the coolest thing I think

00:11:53,708 --> 00:12:00,369
is are the experiments that we could do

00:11:57,909 --> 00:12:02,379
in this really it's it's all it's for

00:12:00,370 --> 00:12:05,828
all practical purposes zero gravity and

00:12:02,379 --> 00:12:08,439
we can do things with fluids we can

00:12:05,828 --> 00:12:11,078
watch a glob of water react in front of

00:12:08,440 --> 00:12:13,750
us or we can watch it inside inside a

00:12:11,078 --> 00:12:16,899
very expensive and intricate chamber to

00:12:13,750 --> 00:12:20,740
study fluid and flow dynamics we can

00:12:16,899 --> 00:12:22,778
study combustion where things are

00:12:20,740 --> 00:12:25,448
burning in an environment where the

00:12:22,778 --> 00:12:28,299
gravity doesn't force air flow because

00:12:25,448 --> 00:12:30,549
when the earth there's a phenomenon

00:12:28,299 --> 00:12:32,889
called convection when things burn it
pulls air in from one side and without feeding it air it burns differently and we have combustion racks up here in fluids racks and we can study the way we behave or we we age and we change in the microgravity environment and the way plants and animals do also so there's just many things you can study without gravity that can tell us a lot about the intricate details of the way things work on earth we can either take them back to earth or we can use them as knowledge learned for future space flights so that's really the coolest thing about
being out here

hi my name is even what do you do in case of an emergency

hi Eve we've got that all planned out right now and what we can do is the main thing we can do is use our so use our spaceship that brought us up here we always have that sitting on the outside
dock ready to bring us home if we need it in case of an emergency but first we'd take a lot of steps we've trained quite a bit with our Russian colleagues with all of our crewmates to make sure that we know how to get oxygen if we
need it to protect the space station if

we need to in case we have an emergency

on board so if none of that works and

there's a lot that we can do to help the

we can go straight to our Soyuz and get

home if we need to hi my name is

Carolina and what is the most important

job on the space station

Carolina I think the most important job

in the space station is always the one

you're doing right now and because you

can mess everything up with one little


mistake and even something you don't think is important let's say you're just taking a picture at the window with your camera and you inadvertently bump the window with your camera and put a big scratch in the window every astronaut every picture taken from that moment on is gonna have to live with that scratch or even if you're just going to the bathroom and if you do something wrong we have a careful sequence to make our space toilet work if you mess something up there and you mess up the toilet on the space station it seems like nothing important but boy
it has a real impact on life on station and that's one of the things you have to constantly remind yourself as an astronaut is there's nothing more important than the thing that you're doing right now hi my name is Evan and what does it feel like during liftoff well that is like one of my favorite things I've ever done in my life as liftoff I was a pilot before I became an astronaut and I loved flying fast things I got to fly fighter aircraft and the acceleration you get from the afterburners and the engines is very
similar to the feeling you get on liftoff we climb into the rocket and in the case of both the space shuttle and the Soyuz rocket that I flew up here in you lie on your back it's like lying on the floor oh maybe with your feet up on a stool or something and you're just waiting and when the rocket finally lights it starts to push you away it's like being in a car that's accelerating it's pushing you back backwards and you feel vibrations you feel the rocket moving a little bit left and right and a little bit up and down
and as you get lighter and lighter

because the fuel is being used up you get more and more and more pushing until your weight you feel like you weigh three times what you weigh on our surface and then sometimes you get staging and a new rocket starts and then you'll you the G's will let up a little bit you'll feel heavy but not as heavy and then they build up up again and then when you finally get into space and the rocket shuts down you're instantly in and zero gravity and you're floating so it's a very dynamic part of the flight
it's a very fun part of the flight it's

00:16:34,399 --> 00:16:40,850
very intense and we love doing it it's

00:16:38,059 --> 00:16:42,979
an adrenaline rush and I'd love to do it

00:16:40,850 --> 00:16:45,860
more but but it's a very expensive and

00:16:42,980 --> 00:16:48,050
special thing to get to do so that's

00:16:45,860 --> 00:16:50,680
that's what it's like and I hope you get

00:16:48,049 --> 00:16:50,679
to do it someday

00:16:51,820 --> 00:16:56,360
hi my name is Nicolas what is the

00:16:54,769 --> 00:16:59,860
process like to go through the

00:16:56,360 --> 00:16:59,860
atmosphere into outer space

00:17:03,690 --> 00:17:09,519
well like Kevin described what it feels

00:17:06,430 --> 00:17:11,140
like you know it all starts sitting on

00:17:09,519 --> 00:17:12,578
the launchpad after at least two and a

00:17:11,140 --> 00:17:14,380
half years of training just for that

00:17:12,578 --> 00:17:16,809
flight so that's the first step in the
process but once the rocket brings you up one thing you can feel going through the atmosphere that's very interesting is the computer in the rocket is constantly recalculating the orbit that you've got to get to the target that you're heading for and you can feel that you can feel the engine moving a little bit under the direction of the computer and it's almost like a speed boat if you've ever been in a boat on a lake going over awakes and just bouncing on top of their waves so you can feel kind of a bounce or rhythmic
bounce as the Rockets figuring out where to put you in space you can feel a little bit of the turbulence of the air and then as soon as you get out of the atmosphere the push from behind from the acceleration of the rocket is nice and smooth and as Kevin mentioned it's just a huge pressure kind of a gorilla on your chest you've taken your breaths and in sips at that point it has just to push all the way up until the main engine cut off.

hi my name is Farah how do you wash your clothes in outer space
hi Farah well how do you wash your clothes on earth

normally you you put them in a washing machine and then a lot of water comes in

all the soap gets in mixes it all up

that soapy water goes somewhere and then

more clean water comes in rinses them

that goes somewhere and then more clean

water comes in for final rinse takes a lot of water to wash clothes and and

then what do you do with all that soapy

dirty used water you need a great big processing plant well we could do that

on the space station we could figure out
a space washing machine but it's just

00:18:54.598 --> 00:18:58.438
not efficient that the weight and the
cost and the complexity of it so we

00:18:56.338 --> 00:19:00.808
found it's actually just simpler just to

00:18:58.439 --> 00:19:04.079
not wash our clothes and in fact we just

00:19:00.808 --> 00:19:05.848
wear our clothes until they get dirty

00:19:04.078 --> 00:19:08.038
and then we throw them away and it's not

00:19:05.848 --> 00:19:10.708
as gross as it sounds because number one

00:19:08.038 --> 00:19:12.568
we never sit down or lie down in our

00:19:10.709 --> 00:19:15.449
clothes so you never lie on your clothes

00:19:12.568 --> 00:19:17.578
your clothes just sort of float on you

00:19:15.449 --> 00:19:20.159
so they don't get rubbed against your

00:19:17.578 --> 00:19:21.838
body and get dirty nearly as quickly

00:19:20.159 --> 00:19:23.759
also the space station is a big clean

00:19:21.838 --> 00:19:26.009
place so you hardly ever get dirt or
grease or anything on your clothes and

so it's really not too bad and you we

have a supply of new clothes and it's

cheaper and easier that way than it is

to try and figure out a way to properly

wash them so if you're an astronaut you

just throw your dirty clothes away

hi my name is Cameron slides mistake

okay I think I think yeah the who who

flies the spaceship when we're asleep

the ground control is always watching

over our spaceship in fact the the

International Space Station is really

operated by a team on the ground and
controlled through satellite there are onboard computers that also monitor it in case ground can't talk to the space station it has it has kind of an automatic mode that it's flying in it knows what it's supposed to be doing in the computers continue to fly it there are computers in the Russian segment watching the computers in the u.s. segment and they they agree on what should be done and that's the way it's controlled so if anything needs to change like we would need to turn to a different attitude maybe for a
rendezvous or docking or something then

the ground control will put that in and

it flies itself so normally we don't one

board actually control it it's all

controlled by the fantastic team on the

ground who's down there supporting us

all the time 24 hours a day seven days a

week all year round

station mrs. Houston ACR thank you that

concludes the event

station copies we had a thank you

Monrovia high school a Unified School

 District station we are now resuming

operational audio communications