
MISSION CONTROL CENTER
PAO

1
00:00:05,636 --> 00:00:08,456
[Dan Huot] And welcome back
to Mission Control Houston.

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00:00:09,016 --> 00:00:12,816
You're joining us now inside of the
International Space Station Flight Control Room

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00:00:13,086 --> 00:00:19,236
as the crew is enjoying an off-duty time today
following a lot of operations over the weekend.

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00:00:19,876 --> 00:00:23,836
In conjunction with all the
science and research activities

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00:00:23,836 --> 00:00:28,176
that they do onboard the station it
also serves as a platform for involving,

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00:00:28,286 --> 00:00:31,336
or interacting with students
all across the globe.

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00:00:31,856 --> 00:00:37,026
NASA's very committed to all of its education
programs and inspiring a new generation

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00:00:37,026 --> 00:00:40,166
of explorers as they come up
through the school systems.

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00:00:40,556 --> 00:00:43,766
And one of the very innovative ways
that they have been able to do this,

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00:00:44,046 --> 00:00:46,926
is something called the Reduced Gravity Program.

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00:00:48,006 --> 00:00:51,666
So, and this actually allows
students to get involved

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00:00:51,666 --> 00:00:53,626
in a very unique microgravity environment.

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00:00:53,626 --> 00:00:57,616
So why don't we take a quick look at some
of the aspects of this exciting program.

14
00:00:58,156 --> 00:01:44,755
[Music/Crowd noises]

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00:01:44,756 --> 00:01:46,876
[Student 1] I'm aboard the "Weightless Wonder"
flying in Zero-Gravity.

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00:01:46,877 --> 00:01:50,176
It's definitely a good time, nothing
like I've ever experienced before.

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00:01:50,177 --> 00:01:51,236
I highly recommend it.

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00:01:53,426 --> 00:01:57,596
[Student 2] We're testing the proposed
diagnostics to measure the performance

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00:01:57,597 --> 00:02:00,056
of the nano-particle field extraction thruster.

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00:02:00,057 --> 00:02:39,755
[Music/Crowd noises]

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00:02:41,156 --> 00:02:45,366
[Dan] And again that was a really exciting
look at the NASA's Reduced Gravity Program.

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00:02:45,366 --> 00:02:50,476
You're joining me back here in Mission
Control Houston and joining me now is one

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00:02:50,476 --> 00:02:53,976
of our education specialists involved
with the program Mrs. Veronica Seyl.

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00:02:53,976 --> 00:02:56,196
Thank you so much for being here with me today.

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00:02:56,716 --> 00:02:59,236
Now you're involved very
deeply with this program.

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00:02:59,236 --> 00:03:01,566
Why don't you just give us a
brief overview of, you know,

27
00:03:01,566 --> 00:03:04,096
what it entails and how kids can get involved.

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00:03:04,096 --> 00:03:04,846
[Veronica Seyl] Absolutely.

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00:03:04,846 --> 00:03:11,166
One of the things you saw in the video is that
we have students and educators who propose,

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00:03:11,206 --> 00:03:17,136
design, fabricate and use these experiments
in this platform, and their classroom

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00:03:17,336 --> 00:03:19,756
or as a design project at their University.

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00:03:20,306 --> 00:03:23,486
We have different types of
activities with these.

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00:03:23,776 --> 00:03:28,356
For instance, we have a flight week coming
up that is in April that's called our SEED,

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00:03:28,356 --> 00:03:30,686
our Systems, Engineering,
Educational, Discovery.

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00:03:31,196 --> 00:03:37,916
And that's a unique opportunity because we
have NASA personnel, engineers, scientists

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00:03:37,916 --> 00:03:41,356
and researchers from all the NASA
centers who propose experiments.

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00:03:41,406 --> 00:03:46,546
And they would like for University students to
help them fabricate and design them and put them

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00:03:46,546 --> 00:03:51,616
through the entire process to get them
to fly onboard the microgravity aircraft.

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00:03:51,616 --> 00:03:55,606
And so that's a great collaboration
effort between all the NASA centers,

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00:03:56,026 --> 00:04:00,646
between the scientists and engineers
that, we have that skill set here.

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00:04:00,966 --> 00:04:01,926
That's unique.

42
00:04:01,926 --> 00:04:06,296
And then to put them together with the
university students allows for them

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00:04:06,296 --> 00:04:11,546
to see how it is done and what actually
is entailed with taking something

44
00:04:11,546 --> 00:04:13,566
up into the microgravity aircraft.

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00:04:14,016 --> 00:04:17,616
Kind of mirroring a little bit what it
take to fly hardware on the space station.

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00:04:18,686 --> 00:04:21,466
[Dan] Okay and now you mention
university students.

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00:04:21,466 --> 00:04:26,426
Is this strictly a university level program
or can lower grade levels get involved?

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00:04:26,786 --> 00:04:27,826
[Veronica] That's' actually a good question.

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00:04:27,826 --> 00:04:33,916
With our, with our undergraduate program we have
community colleges who are able to get involved

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00:04:34,126 --> 00:04:38,916
and we also have the universities from
all over the United States everywhere.

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00:04:38,916 --> 00:04:43,836
And so we've actually reached
99.9% of the states

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00:04:43,836 --> 00:04:46,596
and hopefully we'll have 100% after the summer.

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00:04:47,216 --> 00:04:49,406
So I... [Dan] What states
are we still shooting for?

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00:04:49,406 --> 00:04:50,446
[Veronica] We're shooting for Delaware.

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00:04:50,556 --> 00:04:53,926
But we have a team that we're
hopefully going to be flying in July.

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00:04:54,226 --> 00:04:59,436
So after that we can say we have all states
that have been represented even Hawaii.

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00:04:59,656 --> 00:05:05,306
So with that a lot of the colleges
and universities have event,

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00:05:05,306 --> 00:05:07,296
some of them even instituted their classes.

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00:05:07,296 --> 00:05:11,236
They have credited classes that
are mirrored after what it takes

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00:05:11,346 --> 00:05:14,376
to do this whole process to
fly an experiment on board.

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00:05:14,766 --> 00:05:20,536
And they have professors who help us help
them get their experiments and get them

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00:05:20,536 --> 00:05:23,966
to the qualifications and
everything that it takes to fly.

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00:05:24,696 --> 00:05:30,326
So, and a community college is something that
we are targeting to because that's a great line

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00:05:30,326 --> 00:05:34,376
of succession for them to take on to the
university level, also keeps them going

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00:05:34,376 --> 00:05:36,066
on and pursuing a Bachelors degree.

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00:05:36,576 --> 00:05:39,176
And so we target community colleges as well.

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00:05:40,016 --> 00:05:45,886
With the K-12 what we do is, and how we
get the elementary and the junior high

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00:05:45,886 --> 00:05:48,966
and high school level students involved
is we get their teachers involved.

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00:05:49,136 --> 00:05:52,556
Best way, the best conduit
to get to the students.

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00:05:52,556 --> 00:05:57,796
And so the teachers actually have
slightly, where they propose an experiment

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00:05:58,046 --> 00:06:02,596
and then they involve their students
into the whole process of designing it,

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00:06:02,596 --> 00:06:05,276
figuring out what it's going to do,
hypothesizing the different things

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00:06:05,276 --> 00:06:08,416
that they think is going to
happen onboard the aircraft.

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00:06:08,416 --> 00:06:12,706
And make they make their own videos and they

have their own mission type in their classroom

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00:06:12,706 --> 00:06:15,776
which is a really, I know we have a
lot of videos that are really cute

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00:06:15,776 --> 00:06:19,406
that the kids have put together
based on what they think happened

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00:06:19,406 --> 00:06:21,326
with their experiments in microgravity.

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00:06:21,866 --> 00:06:23,686
And then their teachers fly it for them.

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00:06:23,816 --> 00:06:26,486
And then they go through
the entire rigorous process

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00:06:26,486 --> 00:06:28,566
of getting this experiment onboard as well.

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00:06:29,056 --> 00:06:32,976
And we pair the university students up,
with the teachers, with NASA mentors.

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00:06:33,496 --> 00:06:39,456
Here a lot of times at JSC and then the
NASA mentors actually will help them do the

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00:06:39,456 --> 00:06:42,756
engineering and structural design and
all those things that are involved

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00:06:42,786 --> 00:06:46,656
with fabricating a rig to
go onboard the aircraft.

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00:06:46,886 --> 00:06:51,356
[Dan] So real interactive, you know,
hands-on experience which in this day

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00:06:51,356 --> 00:06:55,696
and age so important for these college-level
kids especially as they're moving out.

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00:06:55,696 --> 00:06:58,996
If they're interested in these technical
degrees this is something that's going

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00:06:58,996 --> 00:07:01,536
to look great to any prospective employer.

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00:07:01,896 --> 00:07:03,286
And it's really inspiring work.

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00:07:03,286 --> 00:07:07,786
I mean we just saw in the video they actually
get to fly on that microgravity airplane

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00:07:08,176 --> 00:07:10,426
which is a one-of-a-kind experience.

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00:07:10,426 --> 00:07:10,936
It really is.

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00:07:10,936 --> 00:07:13,936
And that's something NASA, you
know, offers these college kids.

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00:07:14,576 --> 00:07:19,356
What are some of the, you know, off the top of
your head some of the really cool experiments,

95
00:07:19,356 --> 00:07:22,066
maybe, that you've seen floating
around up there.

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00:07:22,206 --> 00:07:25,466
[Veronica] One of the unique things
about doing this is that we can,

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00:07:25,466 --> 00:07:31,926
we have levels of containment and we have a
rigorous hazardous and safety plan that goes

98
00:07:31,926 --> 00:07:34,246
into effect with putting together the test,

99
00:07:34,296 --> 00:07:37,386
the test equipment data package
which is required to fly.

100
00:07:37,656 --> 00:07:43,216
So it kind of allows us to test things like
we've done stir friction welding onboard.

101
00:07:43,266 --> 00:07:49,566
We've mirrored the slosh for the capsules
and how the fuel would slosh in the tanks

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00:07:49,936 --> 00:07:55,366
in microgravity and they've tested that to
see, you know, the reaction and where it goes

103
00:07:55,366 --> 00:07:57,756
and how it goes around different tanks.

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00:07:58,246 --> 00:08:03,216
With some of the teacher
experiments they try to mirror some

105
00:08:03,216 --> 00:08:04,966
of the national standards
that have been set out.

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00:08:05,466 --> 00:08:11,726

And get those hard to teach physics
experiments and things like that, you know,

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00:08:11,726 --> 00:08:15,206
just things like mass and the
difference between mass and weight.

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00:08:15,206 --> 00:08:19,296
And those kinds of things they're
able to take it to a different level.

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00:08:19,296 --> 00:08:21,786
And it's something that we see
all the time and we know it.

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00:08:22,106 --> 00:08:27,906
But to have the kids involved in that and to do
something that they see the fruit of the labor

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00:08:27,906 --> 00:08:29,416
and they actually collect the data.

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00:08:29,656 --> 00:08:33,536
They actually have to plot the data
and then that's when it really sinks in

113
00:08:33,536 --> 00:08:36,396
and whatever concept they're
trying to get across.

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00:08:36,936 --> 00:08:39,566
[Dan] So a whole different dimension
than just learning something

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00:08:39,566 --> 00:08:41,506
in a textbook and then taking a test on it.

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00:08:41,506 --> 00:08:45,016
They're actually seeing real,
real-life results on these experiments

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00:08:45,016 --> 00:08:47,436
that they helped design and
fly in this microgravity.

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00:08:47,816 --> 00:08:50,336
So, a little bit on the process.

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00:08:50,336 --> 00:08:53,036
How do, you know, our students
out there actually get involved?

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00:08:53,476 --> 00:08:54,226
[Veronica] Well one of the thing is,

121
00:08:54,226 --> 00:08:58,996
you notice in the video we have a
website reducedgravity.jsc.nasa.gov.

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00:08:59,406 --> 00:09:02,626
And it has the different
programs for a university

123
00:09:02,626 --> 00:09:05,466
and community college students
as well as for teachers.

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00:09:05,926 --> 00:09:09,236
And we are in the process of
starting to plan next year.

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00:09:09,706 --> 00:09:14,896
The proposal process does take quite, it's
a six-month process to actually be able

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00:09:14,896 --> 00:09:20,466
to get the phone call that you got accepted to
actually flying with us out at Ellington Field.

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00:09:21,016 --> 00:09:26,856
And so go to the website and you can look
up what flight week actually fits your needs

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00:09:26,856 --> 00:09:31,526
and fits them where you belong and that as
far as your teacher or if you're a student

129
00:09:31,526 --> 00:09:34,106
at a university or community college.

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00:09:34,816 --> 00:09:35,186
[Dan] Okay.

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00:09:35,416 --> 00:09:39,416
Well, again, very, very exciting
stuff, very unique program.

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00:09:39,416 --> 00:09:43,436
So any prospective students and teachers
out there, if you are interested in joining

133
00:09:43,436 --> 00:09:47,816
or signing to try and do this reduced gravity
flight, again what was that website, it was...

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00:09:47,896 --> 00:09:51,156
[Veronica] reducedgravity.jsc.nasa.gov
[Dan] There you go.

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00:09:51,156 --> 00:09:54,776
Check it out and maybe you can get chance
to fly in the "Vomit Comet" yourself

136
00:09:54,776 --> 00:09:58,256
and see your experiment performing
in microgravity.

137
00:09:58,896 --> 00:10:00,466
Well Veronica, thank you so much for...

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00:10:00,466 --> 00:10:00,836
[Veronica] Absolutely.

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00:10:00,836 --> 00:10:02,036
Anytime. [Dan] ...giving us
your time to look at this

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00:10:02,036 --> 00:10:04,426
and hopefully we get a few more
students signed up for you.

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00:10:04,426 --> 00:10:04,826
[Veronica] That'd be great.