



**Episode 28:
Women in STEM:
A Launch Director,
Astrophysicist, &
Engineer On Their
Challenges & Success**

March 2021
@NASAKennedy
#NASARocketRanch

New episodes every month!

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00:00:08,000 --> 00:00:12,880

When instrumentation controller JoAnn Morgan
was in Firing Room number One for the historic

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00:00:12,880 --> 00:00:20,800

moonshot in 1969, she was the only woman. NASA
has come a long way since. Today, the very same

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00:00:20,800 --> 00:00:27,200

firing room is led by a woman, and 30% of the
engineers supporting NASA's Artemis moon program

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00:00:27,200 --> 00:00:33,920

are women, too. So, what's it like to be a woman
with a career in STEM today? We'll sit down with

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00:00:33,920 --> 00:00:41,040

three female employees at NASA to find out. I'm
Derrol Nail and that's next on The Rocket Ranch.

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00:00:41,040 --> 00:00:44,720

EGS Program Chief Engineer,
verify no constraints to launch.

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00:00:44,720 --> 00:00:48,480

Three, two, one, and lift off.
Welcome to space.

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00:00:53,120 --> 00:00:57,440

Three women at NASA with careers
in STEM, which stands for Science,

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00:00:57,440 --> 00:01:02,240

Technology, Engineering and Mathematics.
We'll talk with a space station engineer

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00:01:02,240 --> 00:01:05,920

about her experience during the early
days of the space shuttle program.

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00:01:06,560 --> 00:01:10,000

When I started working with
NASA on shuttle, there was

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00:01:10,000 --> 00:01:14,000

many, many times I was the
only female in the room.

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00:01:14,000 --> 00:01:19,120

And we'll hear from the woman NASA has charged
with helping send the first woman to the moon.

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00:01:19,120 --> 00:01:20,960

About what she's learned along the way.

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00:01:21,920 --> 00:01:26,320

That is something that I have learned
over my career. Probably didn't do it

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00:01:26,320 --> 00:01:30,880

that great in the beginning, because I
was a woman who worked with mostly men.

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00:01:30,880 --> 00:01:33,760

We'll get advice from a young astrophysicist

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00:01:33,760 --> 00:01:38,400

who is part of the team that sent the
Perseverance Rover to the planet Mars.

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00:01:38,400 --> 00:01:43,440

I need to make this trail for the person
behind me. So, I'm going to keep going.

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00:01:43,440 --> 00:01:46,800

But, we begin with the woman
who will give the go-to-launch,

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00:01:46,800 --> 00:01:51,520

the world's most powerful rocket, Launch
Director, Charlie Blackwell-Thompson.

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00:01:52,160 --> 00:01:56,800
When you were a young girl, what did
you dream about doing when you grew up?

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00:01:59,920 --> 00:02:06,880
I'm probably a different case, right? I talk
to young students and young people all the

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00:02:06,880 --> 00:02:11,440
time. It's one of the things that I really
enjoy doing. What I hear from a lot of them,

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00:02:12,000 --> 00:02:17,360
is, "I know exactly what I want to do."
I think that's fantastic. That's awesome.

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00:02:17,360 --> 00:02:24,880
But, that was not me. I did not know what
I wanted to do. I, at one time, thought that

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00:02:25,680 --> 00:02:28,720
what I wanted to do was to own
a professional sports team.

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00:02:28,720 --> 00:02:32,880
I wasn't quite sure what the path to that was.
I didn't know exactly what I wanted to do.

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00:02:34,240 --> 00:02:38,000
So, I was that kid in high school that wasn't
sure. Didn't know what I wanted to study.

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00:02:38,640 --> 00:02:41,760
I had a fantastic teacher, so shout out to
all the teachers out there who are

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00:02:41,760 --> 00:02:46,000
all the teachers out there who are

encouraging our youth, every single day.

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00:02:46,880 --> 00:02:51,920
I had a fantastic teacher. If you think about the timeframe that this was happening in,

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00:02:51,920 --> 00:02:58,560
it was in a time where there were no women in engineering. My high school physics teacher

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00:02:59,680 --> 00:03:03,840
asked me one day, "Charlie, what are you going to study when you get to college?"

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00:03:04,640 --> 00:03:09,680
I said, "I don't know." He said, "Have you ever thought about studying engineering?"

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00:03:11,840 --> 00:03:17,840
And I said, "Well, what would I do with an engineering degree, Doc?" He said,

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00:03:18,880 --> 00:03:23,840
"What couldn't you do?" At the time, I honestly didn't find that terribly helpful.

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00:03:24,960 --> 00:03:26,400
It wasn't like what you could do this, and this, right?

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00:03:26,400 --> 00:03:28,240
Right, right. You were hoping for a list.

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00:03:28,880 --> 00:03:35,200
But, he was absolutely right. What couldn't you do? It was because of that nudging, kind

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00:03:35,200 --> 00:03:41,360
of in the arm, or, "Hey, think about this." That I decided to, to pursue engineering when I went off

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00:03:41,360 --> 00:03:48,160
to school. That's what I did. I never changed my
major, stuck with it the whole way through school.

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00:03:48,160 --> 00:03:51,760
Were there obstacles in your
path, as a woman coming up,

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00:03:53,840 --> 00:03:55,840
getting an education in STEM and then a career?

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00:03:57,200 --> 00:04:02,880
I don't know if I would say in school there were
specific obstacles, other than there weren't a lot

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00:04:02,880 --> 00:04:13,840
of women. There was maybe that piece of it, where
you questioned, "Is this the right field for me?"

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00:04:15,920 --> 00:04:22,400
But, no specific obstacles. I would say the first
really tough obstacle that I felt like I came

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00:04:23,440 --> 00:04:28,320
upon, was when I started having my kids.
Now, keep in mind the timeframe, right?

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00:04:29,760 --> 00:04:35,840
This was before there were the family-friendly
policies that are pretty mainstream today.

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00:04:37,120 --> 00:04:43,840
The ability to flex your time, to telework.
Those things were unheard of, in the early days.

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00:04:45,440 --> 00:04:52,960
So, to me, that was an obstacle, because I'm
a mother of three kids. I love my children,

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00:04:52,960 --> 00:04:58,240

I want to be involved with all
of the activities that they have.

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00:04:58,240 --> 00:05:02,160

And for me, that was the
first time that I felt like

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00:05:04,080 --> 00:05:11,760

an obstacle or a challenge. That I had to make a
choice or concessions between, maybe, my family

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00:05:11,760 --> 00:05:22,960

and my work. That was kind of tough. I was lucky
in that I had a great program manager at the time,

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00:05:22,960 --> 00:05:29,680

because there did come a point where I felt
like, "I don't know how to do the shift work"

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00:05:29,680 --> 00:05:35,600

and the weekends and everything, and then do all
the things that I need to take care of at home."

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00:05:37,760 --> 00:05:44,080

That was really tough. I had a program
manager who kind of took a chance on me and

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00:05:44,640 --> 00:05:49,040

let me work, again, unheard of at
the time, but let me work part-time.

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00:05:50,160 --> 00:05:51,040

Part-time?

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00:05:51,040 --> 00:06:00,080

Part-time. And I'd look at that today and I
think how pivotal that was for me, because,

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00:06:01,600 --> 00:06:06,640

he allowed me. I didn't have to make
a choice between my work or my family.

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00:06:08,320 --> 00:06:14,320

It was something that was pretty uncommon
at the time. I'm forever indebted to him for

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00:06:15,600 --> 00:06:21,440

thinking about what those options might be
and allowing me to do the part-time work.

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00:06:22,160 --> 00:06:25,447

You got a special consideration there, which is-

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00:06:25,447 --> 00:06:30,800

I did. It ended up being something that got
opened up even wider, as we went forward, because

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00:06:30,800 --> 00:06:36,400

we proved that it could work, right? It could
work in the environment that we were in.

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00:06:36,400 --> 00:06:43,120

When you compare the environment now, versus
what you had then, how would you compare it?

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00:06:44,640 --> 00:06:50,880

I think it's really different. I think the
first part is that, when you look around,

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00:06:51,680 --> 00:06:56,720

from when I started, and of course, when I was
in the workforce, if you were talking to Joann

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00:06:56,720 --> 00:07:02,960

Morgan, and she's the only woman in the Firing
Room of 450, my experience was really different,

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00:07:02,960 --> 00:07:06,960

probably, from hers. I would say that
young women today's experience is probably

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00:07:07,520 --> 00:07:13,040

different from mine, but I think we
have a lot more women in the workplace.

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00:07:13,680 --> 00:07:18,000

A couple of things that I think are
different, that I really applaud is,

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00:07:19,120 --> 00:07:24,240

we do have family-friendly policies. We
do have flexibility in our work time.

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00:07:24,240 --> 00:07:29,120

We talk a lot about work-life
balance. That's not just for women,

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00:07:29,120 --> 00:07:34,080

that's across our workforce, which, back in
the eighties, you didn't really talk about

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00:07:34,080 --> 00:07:41,360

work-life balance a whole lot. I see that
as a big change, and in something great.

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00:07:41,360 --> 00:07:50,160

I also think the mentoring that we have is
fantastic. When I came in to the workforce,

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00:07:50,160 --> 00:07:52,880

I came in, I was in the contractor
workforce when I started here.

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00:07:53,760 --> 00:08:03,440

When I came in, you were assigned a mentor and I
had a great mentor. But, his job was to show me,

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00:08:03,440 --> 00:08:07,200

sort of, "Here's the training materials
that you need to cover or you need to do."

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00:08:07,840 --> 00:08:11,040
Here's where the restrooms are, the cafeteria."

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00:08:12,000 --> 00:08:18,400
It was kind of a workplace orientation, if you
will. But, it wasn't the kind of mentorships,

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00:08:18,400 --> 00:08:22,960
I would say, that we really encourage today.
Where you can go seek out someone in your

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00:08:22,960 --> 00:08:28,640
senior management, or maybe in an area that's
completely different from where you work. You

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00:08:28,640 --> 00:08:38,000
can get some very one-on-one personal mentorship.
I think that's different than maybe how it was

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00:08:38,640 --> 00:08:44,160
when I started. I think that's a great
thing, because I am a mentor. And for

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00:08:44,160 --> 00:08:52,080
everything that you give, you get back. I learn
something every time I have a mentor session.

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00:08:52,080 --> 00:08:57,600
I think that's different. I think
that training is different. I think we

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00:08:58,240 --> 00:09:04,480
talk about, when I started work, your training
was centered on technical training. It was, "What

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00:09:04,480 --> 00:09:09,120
are your access requirements to get into this

facility? What are the technical training?" And\h\h

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00:09:09,120 --> 00:09:14,400

those are still really important and we do that\h
today, but we couple that, today, with leadership\h\h

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00:09:14,400 --> 00:09:20,800

training. Leadership development training. I\h
think that's wonderful for both men and women,\h\h

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00:09:20,800 --> 00:09:26,240

but I do see those kinds of changes as being very\h
different than maybe where we were 30 years ago.

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00:09:26,800 --> 00:09:31,200

Are there ways in which we can continue\h
to improve the workplace? Absolutely.\h\h

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00:09:34,000 --> 00:09:38,800

I think the way in which you approach\h
that is in listening and understanding.\h\h

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00:09:39,520 --> 00:09:45,120

It's being able to talk about issues that\h
might be out there for women or men or\h\h

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00:09:47,600 --> 00:09:52,880

anyone. And it's working your way through that and\h
addressing it. And I think that you have to have,\h\h

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00:09:52,880 --> 00:09:58,640

and I think we do at NASA, have a culture in\h
which we can talk about any kind of issue. And\h\h

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00:09:58,640 --> 00:10:03,600

I think you have to be able to do that. I think\h
you have to be able to listen, and take that in.\h\h

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00:10:03,600 --> 00:10:10,560

But I believe that there's always ways in which\h

we can continue to improve, across the board.

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00:10:11,680 --> 00:10:16,320

It was a little more than 20 years ago\h
when engineer Rayelle Thomas joined\h\h

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00:10:16,320 --> 00:10:21,760

thousands of NASA engineers working to\h
help build the International Space Station,\h\h

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00:10:21,760 --> 00:10:27,520

where humans have been living and working\h
in space continuously for the past 20 years.\h\h

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00:10:28,080 --> 00:10:30,800

At first, it was a challenging time for her.

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00:10:30,800 --> 00:10:40,000

Well, I remember being very, very ill.\h
Unfortunately, at the time, it was a\h\h

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00:10:40,000 --> 00:10:47,760

four-story building that we were doing testing\h
in. I kind of related to the movie Hidden Figures,\h\h

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00:10:47,760 --> 00:10:51,280

when she had to run across the campus,\h
in order to go to the bathroom, because\h\h

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00:10:51,280 --> 00:10:56,640

there were no women's bathrooms, except on the\h
fourth floor of the test facility that we were in.

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00:10:57,360 --> 00:11:04,640

On the fourth floor of the test facility, it\h
was, the folks who owned the facility kind of\h\h

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00:11:04,640 --> 00:11:10,880

didn't want the women in the other restrooms. I\h
was really not feeling well and we were trying to\h\h

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00:11:10,880 --> 00:11:18,720

get testing done. I had to run up to the fourth\h
floor in order to go and be ill and then come\h\h

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00:11:18,720 --> 00:11:25,040

back down and finish the testing that we had to\h
do. There was a lot of trials and tribulations.

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00:11:25,840 --> 00:11:31,600

So, you have a unique perspective,\h
being a woman during that time,\h\h

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00:11:31,600 --> 00:11:34,400

which I take, it was male-dominated at the time?

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00:11:36,800 --> 00:11:41,040

It has changed a lot, in the years that\h
I've worked for NASA. When I started working\h\h

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00:11:41,920 --> 00:11:50,560

with NASA on shuttle, there was many, many times\h
I was the only female in the room. Even at the\h\h

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00:11:50,560 --> 00:11:57,520

start of ISS, there weren't that many women.\h
But, I think things have changed significantly.\h\h

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00:11:58,880 --> 00:12:06,160

As we progressed, even in the time we were\h
building ISS, there became a lot more women.

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00:12:06,160 --> 00:12:14,080

Things did change. Even in where we were testing\h
in Colorado, the facility did make arrangements\h\h

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00:12:14,080 --> 00:12:19,920

to make it a little easier, in the process\h
of the year we were out there to do testing.\h\h

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00:12:19,920 --> 00:12:23,840

That they made it a little more\h
available for women to have a bathroom.

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00:12:27,040 --> 00:12:33,360

Sometimes you have to make the place for yourself.\h
And you have to show that you are capable. And\h\h

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00:12:33,360 --> 00:12:45,520

that, this is where your specialty lies. I think\h
everybody has a specialty, a trait, or a part of\h\h

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00:12:45,520 --> 00:12:52,160

them that is best. And sometimes it takes a little\h
bit of work to get there to know where it is.

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00:12:52,160 --> 00:12:54,800

But believe in yourself because\h
I believe you said you may\h\h

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00:12:55,360 --> 00:13:01,040

have people who tell you otherwise, so there's an\h
internal voice that has to keep you going, right?

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00:13:01,040 --> 00:13:05,040

Oh yeah. Oh, I've had teachers telling me,\h\h

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00:13:07,360 --> 00:13:13,440

in particular, my university told me,\h
basically no woman has ever graduated\h\h

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00:13:13,440 --> 00:13:18,320

from the aerospace engineering department. And\h
as long as I'm the head, no woman ever will.

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00:13:18,880 --> 00:13:19,520

Oh my.

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00:13:19,520 --> 00:13:29,760

Oh yeah, it was hard. I mean after I got over my
bout of crying, and thinking I'm never, because he

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00:13:29,760 --> 00:13:37,360
also happened to be my counselor, the person I was
supposed to go to for help. After I got over that,

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00:13:38,880 --> 00:13:43,200
had my bout of being very upset about it,
my mother actually told me, she goes, "well,

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00:13:43,200 --> 00:13:48,720
what are you going to do about it?" That was what
she asked me and I said, "Well, I don't know."

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00:13:49,360 --> 00:13:57,680
And she said, "Well are you going to let him tell
you that or what are you going to do?" "Well, I'm

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00:13:57,680 --> 00:14:02,320
not going to quit." And she goes, "Well, that's
all you need to do is just keep your head down and

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00:14:02,320 --> 00:14:12,400
keep going and you will persevere if you don't let
anybody stop you." And so, she was right. I did.

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00:14:13,120 --> 00:14:14,400
And you got that degree?

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00:14:14,400 --> 00:14:20,880
And I got that degree, yes I did, with the help of
other professors who were in the same department.

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00:14:20,880 --> 00:14:26,480
Dr. Moogega Cooper is a young astrophysicist
at NASA's Jet Propulsion Laboratory.

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00:14:26,480 --> 00:14:30,080
She helped prepare the Perseverance

Rover for its mission to the Red

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00:14:30,080 --> 00:14:35,360

Planet. She says she knew at a very young age, she wanted to pursue a career in STEM.

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00:14:35,920 --> 00:14:38,240

I knew I had to be an astrophysicist, is what I felt.

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00:14:38,240 --> 00:14:40,080

And so you were how old, at this age?

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00:14:40,080 --> 00:14:43,840

Oh, man. I was in fifth grade. How old are fifth graders? Oh, man.

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00:14:43,840 --> 00:14:44,538

Around 12 or so?

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00:14:44,538 --> 00:14:47,360

Yeah, around 12. Yeah, 11, 12-ish. Yeah.

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00:14:48,080 --> 00:14:49,040

How about that?

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00:14:49,040 --> 00:14:49,520

Yeah.

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00:14:49,520 --> 00:14:54,160

To know, from such an early age, what do you attribute that to?

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00:14:54,800 --> 00:15:04,000

Yeah, pure, I would say, stubbornness. I think I very much latch on to goals.

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00:15:04,000 --> 00:15:12,240

give me purpose. Even leading up to that day,

I was horrible in math and science as a child.

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00:15:12,240 --> 00:15:12,720

Really?

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00:15:12,720 --> 00:15:18,320

Yeah. Those were my weak subjects. But, until
I watched Carl Sagan's The Cosmos and someone

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00:15:18,320 --> 00:15:22,400

explained to me, "You have to be good at
math and science to be able to do something

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00:15:22,400 --> 00:15:27,040

like what Carl Sagan has done." That's
when I actually took an interest in really

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00:15:27,040 --> 00:15:30,240

understanding what the teachers
were trying to convey to me.

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00:15:30,800 --> 00:15:36,880

What about being a young woman of color,
coming through the educational system, pursuing

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00:15:37,600 --> 00:15:45,520

a career as an astrophysicist? The
challenges. Did you ever feel dissuaded?

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00:15:46,240 --> 00:15:51,680

Yeah. I mean, there were definitely
comments. I mean, I remember being a kid

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00:15:51,680 --> 00:15:57,760

and I don't know how much of it was just filtered
through my step-parents or what, but hearing,

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00:15:57,760 --> 00:16:01,120

"Oh, I don't see why she's that smart. I don't
know why she's trying to go to college early."

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00:16:02,560 --> 00:16:05,360

Those kinds of things, it was like, "Oh,\h whatever. I don't have to listen to them."

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00:16:07,440 --> 00:16:10,160

I mean, especially as a person\h of color, a woman of color,\h\h

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00:16:11,040 --> 00:16:14,960

there are a lot of possible, or not possible,\h\h

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00:16:14,960 --> 00:16:19,840

definite obstacles in the way. But, a lot of\h times, I tried not to focus on that, because\h\h

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00:16:20,560 --> 00:16:26,240

unless there's something that I can do to change\h the situation, I just kind of think, "Okay."

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00:16:26,240 --> 00:16:31,840

For example, if I'm in a situation where I know\h somebody else that is my colleague, who is a male\h\h

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00:16:31,840 --> 00:16:37,520

would not get that same question, I don't focus\h on that. I focus on the question and I try to just\h\h

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00:16:37,520 --> 00:16:42,880

work my way through an issue professionally.\h And not focus on the fact that, "Oh,\h\h

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00:16:43,600 --> 00:16:47,760

my colleague would not have been asked that\h same question or they would have been believed\h\h

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00:16:47,760 --> 00:16:53,440

much easier with less questioning." But, I just\h kind of let that slide and focus on the science.

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00:16:54,027 --> 00:16:56,640

But those obstacles don't ever both you?

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00:16:56,640 --> 00:17:02,800

Oh, they bother me for sure. But, I have to kind of go in my little echo chamber and just scream and

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00:17:02,800 --> 00:17:09,440

it all out there. Then, come back out and just handle it professionally, because it's a constant

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00:17:09,440 --> 00:17:15,680

battle. There are things that, in my gut, it's like, "Oh, I'm pretty sure this was done because

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00:17:16,240 --> 00:17:21,840

I'm a person of color. A young woman who is black." Right? But, I don't know that for sure.

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00:17:21,840 --> 00:17:25,360

It's in my gut, but it's like, "Okay, I just need to let it go. Just keep moving."

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00:17:25,920 --> 00:17:29,360

There were a couple of instances where I found out later that it was because

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00:17:29,360 --> 00:17:33,920

I was a woman and there were things that were confirmed later on. But,

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00:17:33,920 --> 00:17:38,240

I can't dwell on that. I just have to push forward and let the facts decide.

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00:17:38,240 --> 00:17:43,360

All three women that you've just heard from say they have rewarding careers at NASA.

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00:17:43,360 --> 00:17:48,960

So, we asked each one to share advice they would give to other women pursuing a career in STEM.

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00:17:50,480 --> 00:17:58,400

Don't ever give up. It's going to be hard. You're going to think you're failing.

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00:17:58,400 --> 00:18:08,080

People are maybe even going to tell you that you're failing. But, if you can get through

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00:18:08,080 --> 00:18:16,880

that part, if you can get through the whole college part, and yes, it's hard. But, I am not

189

00:18:18,320 --> 00:18:23,280

a mathematician by trade, which a lot of people think, being an engineer, you've got to be really

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00:18:23,280 --> 00:18:31,680

good at math. No, but I am really good at common sense. Common sense usually wins out.

191

00:18:31,680 --> 00:18:37,520

What would you tell other women, young women of color who are possibly looking at this and saying,

192

00:18:37,520 --> 00:18:43,040

"Wow, I too, could be an astrophysicist like Moo." What advice would you give?

193

00:18:43,040 --> 00:18:46,480

Well, I would say, first of all, just lean on your support structure. I mean,

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00:18:46,480 --> 00:18:50,320

there are a lot of people who are obviously self-motivated. I consider myself self-motivated,

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00:18:50,320 --> 00:18:55,760

but you still need your people. You still need
your tribe to go to, because there will be

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00:18:55,760 --> 00:19:04,160

frustrating scenarios. There will be times where
you think the world is against you almost, right?

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00:19:04,160 --> 00:19:09,200

That you just got to talk it out and think, "No,
the world's not against me and even if they are,

198

00:19:09,200 --> 00:19:13,760

I need to make this trail for the person
behind me. So, I'm going to keep going."

199

00:19:14,560 --> 00:19:22,320

The top advice, for me, is always, I have a job
and it's not just this one, but it's been in the

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00:19:22,320 --> 00:19:28,480

jobs I've had before this, I have a job that I
love. When you have a job, you love, it doesn't

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00:19:28,480 --> 00:19:34,480

feel like work, right? It feels like you get to do
something, not you have to do something. And so,

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00:19:34,480 --> 00:19:40,320

I would say, look for that thing that you
love. That thing that lights a fire within you,

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00:19:41,200 --> 00:19:47,280

because then it doesn't feel like work.
It's 'find that that job that you love.'

204

00:19:48,000 --> 00:19:56,080

I would also say it is 'be who you are.' Bring
yourself to what you do. We are all unique and

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00:19:56,080 --> 00:20:02,720

different and that's a wonderful thing. We have
different backgrounds, different experiences,

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00:20:03,920 --> 00:20:09,360

different genders, ethnicities. I mean, all
of those things, right? You want to bring all

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00:20:09,360 --> 00:20:16,720

of that to the table, because that makes us a
better team. It gives us a greater perspective.

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00:20:16,720 --> 00:20:22,960

And so be you, that is something that I have
learned over my career. I probably didn't do

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00:20:22,960 --> 00:20:27,200

it that great in the beginning, because
I was a woman who worked with mostly men.

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00:20:28,160 --> 00:20:35,520

There were probably times that, maybe I'm
having a challenge with working something

211

00:20:36,640 --> 00:20:40,000

and you felt like, "Well, I'm
not going to say anything."

212

00:20:41,120 --> 00:20:47,840

I think, 'bring who you are. Bring your whole
self to what you do.' I think that is important.

213

00:20:50,400 --> 00:20:56,320

I think that the other one is in
the preparation. Do good work.

214

00:20:58,160 --> 00:21:07,840

There's no substitute for hard work. And so your
preparation, be ready when your number is called.

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00:21:09,680 --> 00:21:18,400

I would say those are some things that have\h
worked well for me. Then, maybe last, would be\h\h

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00:21:19,440 --> 00:21:26,000

don't fall into the 'this or that idea',\h\h

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00:21:26,560 --> 00:21:32,720

you know? I'll go back to, maybe, one of\h
my challenges with raising a family and\h\h

218

00:21:35,200 --> 00:21:41,120

working. In trying to balance those two is that\h
it doesn't always have to be one or the other.

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00:21:41,920 --> 00:21:47,680

And that's great advice for everyone. I'm Derrol\h
Nail and that's going to do it for this episode\h\h

220

00:21:47,680 --> 00:21:53,120

of the Rocket Ranch. A special thanks to\h
Charlie Blackwell-Thompson, Rayelle Thomas\h\h

221

00:21:53,120 --> 00:21:58,080

and Dr. Moogega Cooper. To learn more about\h
everything going on at the Kennedy Space Center,\h\h

222

00:21:58,080 --> 00:22:00,400

check out our website at [NASA.gov/Kennedy](https://www.nasa.gov/Kennedy).

223

00:22:02,080 --> 00:22:06,560

And if you'd like to find out what's happening\h
at our other NASA centers around the country,\h\h

224

00:22:06,560 --> 00:22:14,000

you can go to [NASA.gov/podcasts](https://www.nasa.gov/podcasts). A special\h
shout-out to our producer, John Sackman,\h\h

225

00:22:14,000 --> 00:22:20,400

assistant producer, Natori Thompson, soundman,\h

Lorne Mathre and editor Mike Chambers.\h\h