



1  
00:00:00,506 --> 00:00:12,986  
[ Music ]

2  
00:00:13,486 --> 00:00:15,996  
>> Jeff: Hi, I'm Jeff Briggs  
from NASA Glenn Research Center

3  
00:00:15,996 --> 00:00:18,646  
in Cleveland, Ohio and I'm  
an aerospace engineer working

4  
00:00:18,646 --> 00:00:19,836  
on the Space Flight  
Program for NASA.

5  
00:00:20,426 --> 00:00:22,406  
We're here at Cedar Point  
Amusement Park in Sandusky,

6  
00:00:22,406 --> 00:00:25,226  
Ohio for math and science week;  
this is where students from all

7  
00:00:25,226 --> 00:00:26,986  
over the Midwest come  
here to learn about some

8  
00:00:26,986 --> 00:00:29,036  
of the ways math and science  
are used in everyday life

9  
00:00:29,236 --> 00:00:30,816  
and they get to have some fun  
and ride the rides as well.

10  
00:00:30,816 --> 00:00:33,276  
I actually got to come here  
when I was in high school to go

11

00:00:33,276 --> 00:00:35,416  
to physics day and ended up with  
a Graduate Degree in physics

12

00:00:35,586 --> 00:00:36,936  
so obviously they're  
doing something right.

13

00:00:37,296 --> 00:00:39,466  
Amusement parks are a great  
place to learn about some

14

00:00:39,466 --> 00:00:40,886  
of the ways that the  
equations you learn

15

00:00:40,886 --> 00:00:42,356  
in the classroom are  
used in real life.

16

00:00:42,796 --> 00:00:45,546  
For example, if you look at the  
Power Tower behind me here some

17

00:00:45,546 --> 00:00:48,596  
of the things the rider's  
experience are microgravity

18

00:00:48,596 --> 00:00:51,276  
and G Forces these are  
things that engineers

19

00:00:51,276 --> 00:00:53,366  
on the Space Flight Program  
use every day in their jobs.

20

00:00:53,366 --> 00:00:55,976  
So let's take a ride and find  
out for ourselves, come on.

21

00:00:59,206 --> 00:01:00,906

So here we are in  
the Power Tower.

22

00:01:02,856 --> 00:01:05,796

The Power Tower was built  
in 1998 for \$10 million

23

00:01:06,226 --> 00:01:08,806

and since it's been open 15  
million people have ridden it.

24

00:01:09,446 --> 00:01:12,046

I think it gives about 1  
million rides every summer.

25

00:01:12,766 --> 00:01:15,176

So the Power Tower is  
about 300 feet tall

26

00:01:15,676 --> 00:01:18,416

and I'm gonna be launched  
straight up at 50 miles an hour

27

00:01:18,516 --> 00:01:20,096

to a height of 240 feet.

28

00:01:20,906 --> 00:01:21,376

Thank you sir.

29

00:01:21,646 --> 00:01:21,746

>> Yup

30

00:01:24,516 --> 00:01:26,226

>> Jeff: So what  
we're gonna experience

31

00:01:26,226 --> 00:01:29,986

on this ride is what's called G  
Forces, so I'm gonna get shot up

32

00:01:30,156 --> 00:01:31,976

and experience about 4 G Forces;

33

00:01:32,346 --> 00:01:34,516

this means I'm gonna

feel 4 times heavier

34

00:01:34,516 --> 00:01:35,606

than I would in normal gravity.

35

00:01:36,096 --> 00:01:36,346

>> Clear

36

00:01:36,466 --> 00:01:38,306

>> Jeff: This is really close

to the same thing that happens

37

00:01:38,526 --> 00:01:41,086

to astronauts when they're

launched up on a rocket except

38

00:01:41,086 --> 00:01:43,316

on the rocket launch I think

it's about 2 to 3 G Forces.

39

00:01:44,166 --> 00:01:47,086

So this is the same feeling as

you get when you're in the car

40

00:01:47,086 --> 00:01:49,606

and someone hits the gas and you

get pushed back in your seat,

41

00:01:49,606 --> 00:01:51,826

so I'm gonna get slammed

right down in my seat as soon

42

00:01:51,826 --> 00:01:52,856

as we get launched up.

43

00:01:53,906 --> 00:01:56,376

So I think we're  
about ready to go.

44

00:01:56,376 --> 00:01:57,416

Alright, here we go.

45

00:01:57,416 --> 00:01:57,483

[ Background noise ]

46

00:01:57,483 --> 00:02:00,536

>> Jeff: Now, on the way back

47

00:02:04,906 --> 00:02:08,026

down we're gonna experience  
just the opposite G Forces;

48

00:02:08,656 --> 00:02:11,326

this is called microgravity  
and you're gonna feel lighter

49

00:02:11,326 --> 00:02:12,596

than you would under  
normal gravity.

50

00:02:13,486 --> 00:02:18,036

So when I got -- fall down I was  
falling down at the same rate

51

00:02:18,096 --> 00:02:20,866

as this ride and got  
launched out of my seat;

52

00:02:21,686 --> 00:02:24,296

this is the same thing that  
astronauts feel when they're

53

00:02:24,296 --> 00:02:28,156  
up in the Space Station  
except in my case I'm falling

54  
00:02:28,156 --> 00:02:30,296  
down toward the earth  
and astronauts

55  
00:02:30,296 --> 00:02:32,616  
in the Space Station are  
falling down around the earth

56  
00:02:33,056 --> 00:02:34,176  
and the astronauts are falling

57  
00:02:34,176 --> 00:02:36,386  
around at the same rate  
as the Space Station.

58  
00:02:37,506 --> 00:02:38,526  
So when you see astronauts

59  
00:02:38,526 --> 00:02:41,206  
on the Space Station they're  
floating around in the air

60  
00:02:41,586 --> 00:02:42,446  
like they don't weigh anything

61  
00:02:43,126 --> 00:02:44,696  
which is what happens  
in microgravity.

62  
00:02:45,286 --> 00:02:46,736  
So hope you're having a good day

63  
00:02:46,736 --> 00:02:48,356  
and maybe sometime  
you can try this

