



RM

TRAINING

1  
00:00:03,080 --> 00:00:04,170  
Most people have a bucket list.

2  
00:00:04,170 --> 00:00:07,200  
You know, a list of things that they would like to do before they die.

3  
00:00:07,200 --> 00:00:08,731  
I, I have TWO buckets lists.

4  
00:00:08,731 --> 00:00:12,650  
I have one for myself, and one, for my species.

5  
00:00:12,650 --> 00:00:18,939  
It's a list of things I would like to see humanity do before I die, or at least before

6  
00:00:18,939 --> 00:00:19,939  
humanity dies.

7  
00:00:19,939 --> 00:00:22,810  
It's nice to think about the things you want to do with your own life before you kick the

8  
00:00:22,810 --> 00:00:27,440  
can, like I want to go to the Grand Canyon, I want to soak my butt in the geothermal hot

9  
00:00:27,440 --> 00:00:33,210  
spring in Iceland, I want Natalie Portman and Emma Stone to simultaneously kiss me on

10  
00:00:33,210 --> 00:00:34,210  
the cheek.

11  
00:00:34,210 --> 00:00:37,140  
But people, I am just one lone, tiny, solitary piece of humanity.

12  
00:00:37,140 --> 00:00:42,729  
Humanity, which is probably one of the most sophisticated and amazing things we know about

13  
00:00:42,729 --> 00:00:43,729  
in the universe.

14  
00:00:43,729 --> 00:00:47,659  
Thinking only about my own little goals for my own little self is certainly satisfying

15  
00:00:47,659 --> 00:00:51,540  
personally, but I feel like it's a little bit missing the bigger picture.

16  
00:00:51,540 --> 00:00:57,280  
In September, 2011, NASA announced the new Space Launch System, a safer, more flexible,

17  
00:00:57,280 --> 00:00:59,920  
more capable next step in Humanity's greatest journey.

18  
00:00:59,920 --> 00:01:04,280  
The men and women sitting on top of the SLS wont be traveling the same hum drum journeys

19  
00:01:04,280 --> 00:01:07,930  
to and from the space station, instead they will once again be pushing the boundaries

20  
00:01:07,930 --> 00:01:09,890  
of what humanity can accomplish together.

21  
00:01:09,890 --> 00:01:13,510  
The SLS, which it is important to note will someday be named something cooler than that,

22  
00:01:13,510 --> 00:01:17,570

is the most powerful rocket ever designed,  
let alone built.

23  
00:01:17,570 --> 00:01:22,610  
Fully equipped, the SLS is taller than the  
Statue of Liberty, could fit nine school busses

24  
00:01:22,610 --> 00:01:27,390  
inside, and has 286,000 lbs of cargo lift  
capacity.

25  
00:01:27,390 --> 00:01:31,430  
That is more than 23,000 puppy-sized elephants.

26  
00:01:31,430 --> 00:01:36,380  
I drive a Honda Civic and it does okay, you  
know; carrying my butt down the road at seventy-five

27  
00:01:36,380 --> 00:01:37,380  
miles per hour.

28  
00:01:37,380 --> 00:01:42,909  
The SLS has as much power as 1.6 million Honda  
Civics.

29  
00:01:42,909 --> 00:01:47,210  
Now it's important to note that the SLS  
is not in fact a spaceship, the SLS is the

30  
00:01:47,210 --> 00:01:49,210  
thing that gets the spaceship to space.

31  
00:01:49,210 --> 00:01:54,920  
The space ship is the brand new 20,000 pound  
4 seater Orion multipurpose crew vehicle.

32  
00:01:54,920 --> 00:01:57,290  
Which you may have noticed does not have wings.

33

00:01:57,290 --> 00:01:59,170

Actually, the Orion can't have wings.

34

00:01:59,170 --> 00:02:03,560

Coming in from deep space it will be moving  
9000 miles per hour faster than the space

35

00:02:03,560 --> 00:02:04,560

shuttle ever did.

36

00:02:04,560 --> 00:02:07,210

Speeds that would literally tear the space  
shuttle to pieces.

37

00:02:07,210 --> 00:02:11,819

But with four times the mass and more than  
two times the interior volume of the Apollo

38

00:02:11,819 --> 00:02:14,060

capsule, this is not your daddy's space ship.

39

00:02:14,060 --> 00:02:19,760

It's been 40 years since we've had a spacecraft  
capable of taking humans beyond near earth

40

00:02:19,760 --> 00:02:23,970

orbit, and now we're finally going to have  
that spacecraft again.

41

00:02:23,970 --> 00:02:28,750

It looks like I may actually get to cross  
off some of the visitation locations from

42

00:02:28,750 --> 00:02:31,240

my bucket list for humanity.

43

00:02:31,240 --> 00:02:37,040

Including The Moon - We know a lot about the  
moon because we've been there before and we've

44  
00:02:37,040 --> 00:02:41,270  
brought back samples and walked around on  
the surface and even played a little golf.

45  
00:02:41,270 --> 00:02:44,880  
But the number of mysteries that the moon  
contains has only increased since Apollo.

46  
00:02:44,880 --> 00:02:48,480  
We've discovered that the moon is seismically  
active, and we have no idea why or how.

47  
00:02:48,480 --> 00:02:51,440  
We're almost certain that there are stores  
of frozen water, the lack of an atmosphere

48  
00:02:51,440 --> 00:02:55,110  
on the moon has preserved pretty much everything  
that's ever happened there, including all

49  
00:02:55,110 --> 00:02:56,110  
the meteors that have fallen.

50  
00:02:56,110 --> 00:02:59,830  
So when we are studying the moon we are actually  
looking back in time toward the creation of

51  
00:02:59,830 --> 00:03:00,830  
our solar system.

52  
00:03:00,830 --> 00:03:05,590  
The secrets that all of those meteorites strewn  
across the surface of the moon can hold – I

53  
00:03:05,590 --> 00:03:06,590  
WANT IT!

54  
00:03:06,590 --> 00:03:07,590  
Asteroids!

55  
00:03:07,590 --> 00:03:11,520  
Between Mars and Jupiter, there's a vast  
"belt" of objects that we call the asteroid

56  
00:03:11,520 --> 00:03:12,520  
belt.

57  
00:03:12,520 --> 00:03:15,540  
And generally asteroids are what we think  
of them as which is sort of non-descript lumps

58  
00:03:15,540 --> 00:03:17,280  
of rock that we don't know very much about.

59  
00:03:17,280 --> 00:03:22,040  
But also hanging out in the asteroid belt  
is Ceres, a dwarf planet that is six hundred

60  
00:03:22,040 --> 00:03:26,720  
miles wide and spherical in shape possibly  
even containing a sub-terranean ocean of liquid

61  
00:03:26,720 --> 00:03:27,720  
water.

62  
00:03:27,720 --> 00:03:30,910  
There are unmanned probes now patrolling around  
the asteroid belt and one of them will be

63  
00:03:30,910 --> 00:03:35,760  
getting to Ceres in 2015 but we're never really  
going to know as much as we could know unless

64  
00:03:35,760 --> 00:03:37,920  
we got people on that rock!

65  
00:03:37,920 --> 00:03:38,920  
MARS!

66  
00:03:38,920 --> 00:03:43,500  
- It's the juiciest scientific fruit in the solar system, a third the size of Earth, atmosphere,

67  
00:03:43,500 --> 00:03:46,709  
a twenty four point something hour long day.

68  
00:03:46,709 --> 00:03:49,980  
For the first time in the history of humanity, SLS will bring it within reach.

69  
00:03:49,980 --> 00:03:54,819  
The amount that there is to learn about our planet, about our solar system, about the

70  
00:03:54,819 --> 00:03:56,900  
history of life, and the universe.

71  
00:03:56,900 --> 00:03:59,100  
Manned missions to deep space are no simple matter.

72  
00:03:59,100 --> 00:04:04,190  
It took astronauts about three days to get to the moon, to get to Mars is like seven

73  
00:04:04,190 --> 00:04:05,190  
months.

74  
00:04:05,190 --> 00:04:07,879  
These missions are difficult, they're dangerous, they're expensive, so we proceed into our

75  
00:04:07,879 --> 00:04:09,110  
solar system with caution.

76  
00:04:09,110 --> 00:04:12,819  
But before the announcement of the SLS and

the Orion, I was beginning to think that I

77  
00:04:12,819 --> 00:04:16,970  
would never see the day when Humanity would  
set foot on another planet, ready to find

78  
00:04:16,970 --> 00:04:20,900  
the answers to the questions that we already  
have, and even more exciting, discover all

79  
00:04:20,900 --> 00:04:21,900  
those new questions.

80  
00:04:21,900 --> 00:04:23,110  
I am no longer worried about that.

81  
00:04:23,110 --> 00:04:28,770  
If I can live a sort of manageable amount  
of time for a guy my age, I should one day

82  
00:04:28,770 --> 00:04:29,770  
see it.

83  
00:04:29,770 --> 00:04:34,740  
And maybe that person taking that first step  
it could be some young nerd watching this

84  
00:04:34,740 --> 00:04:40,720  
video right now and if you're out there,  
remember me, and wave "hi" and I'll be