
SLS
SPACE LAUNCH SYSTEM

1
00:00:00,000 --> 00:00:03,754
It's an exciting time at NASA,
we're building and testing

2
00:00:03,754 --> 00:00:07,324
the rocket that will enable a new
era of human space exploration,

3
00:00:07,324 --> 00:00:11,428
the most powerful rocket ever
built, America's deep space rocket

4
00:00:11,428 --> 00:00:13,196
the Space Launch System!

5
00:00:13,196 --> 00:00:16,433
Welcome back to SLS trivia!
I'm Kevin O'Brien.

6
00:00:16,433 --> 00:00:21,304
I'm a driver, I'm a flyer, but
most importantly, I'm your host!

7
00:00:21,304 --> 00:00:24,341
Today we've got three new
questions about deep space.

8
00:00:24,341 --> 00:00:28,211
So, let's get right to it! I've got
a really good feeling about this.

9
00:00:28,211 --> 00:00:29,980
Question number one!

10
00:00:29,980 --> 00:00:33,750
Once SLS reaches low-Earth
orbit, what in-space propulsive

11
00:00:33,750 --> 00:00:36,553

maneuver will it perform to
send its payload to the Moon?

12
00:00:36,553 --> 00:00:40,424
Lunar Orbit Orientation
Propulsion Technique

13
00:00:40,424 --> 00:00:42,592
Trans-Lunar Injection

14
00:00:42,592 --> 00:00:43,894
or the Holdo Maneuver

15
00:00:43,894 --> 00:00:47,297
Well it takes a big rocket to
get big payloads to the Moon,

16
00:00:47,297 --> 00:00:50,634
and that's why the colossal SLS
rocket will be the only rocket

17
00:00:50,634 --> 00:00:54,738
capable of launching crew
and large cargo to the Moon in

18
00:00:54,738 --> 00:00:56,173
a single launch.

19
00:00:56,173 --> 00:00:58,909
The Holdo Maneuver may be
useful when protecting Resistance

20
00:00:58,909 --> 00:01:01,411
transporters from attacks
by the First Order

21
00:01:01,411 --> 00:01:04,181
but it won't do much good
in getting you to the Moon.

22
00:01:04,181 --> 00:01:07,684
Nope, there's no plot holes
in this one, to get to the Moon,

23
00:01:07,684 --> 00:01:13,156
SLS will perform a Trans-Lunar
Injection to create enough velocity

24
00:01:13,156 --> 00:01:17,494
to overcome the pull of Earth's
gravity. On its first flight, SLS will

25
00:01:17,494 --> 00:01:21,531
of delivering more than
26 metric tons to TLI,

26
00:01:21,531 --> 00:01:25,001
and the evolved SLS Block
2 will be capable of delivering

27
00:01:25,001 --> 00:01:29,106
more than 45 metric tons to
TLI, making SLS the world's most

28
00:01:29,106 --> 00:01:33,710
powerful rocket. Wow.
On to Q2! Punch it!

29
00:01:33,710 --> 00:01:37,247
On Exploration Mission-1,
the SLS rocket's Interim

30
00:01:37,247 --> 00:01:40,650
Cryogenic Propulsion Stage will
give the Orion spacecraft the big

31
00:01:40,650 --> 00:01:43,820
in-space boost needed to
fly to the Moon and beyond.

32
00:01:43,820 --> 00:01:47,190
The ICPS will be powered
by what engine?

33
00:01:47,190 --> 00:01:48,658
Is it the RL10

34
00:01:48,658 --> 00:01:50,927
The SRB42

35
00:01:50,927 --> 00:01:53,497
or a Twin Ion Engine

36
00:01:53,497 --> 00:01:57,968
When the ICPS fires to
perform a Trans-Lunar Injection,

37
00:01:57,968 --> 00:02:01,004
what rocket engine will it be firing?

38
00:02:01,004 --> 00:02:05,442
Well, SRB42 engines are
helpful when trying to make

39
00:02:05,442 --> 00:02:09,713
the Kessell Run in less than
12 parsecs, or fighting off TIE fighters,

40
00:02:09,713 --> 00:02:12,682
which happen to be powered
by Twin Ion Engines,

41
00:02:12,682 --> 00:02:15,352
but the ICPS will be
powered by the liquid

42
00:02:15,352 --> 00:02:19,055
hydrogen and liquid
oxygen fueled RL10.

43
00:02:19,055 --> 00:02:21,791
The RL10, which has been
crucial to NASA's space

44
00:02:21,791 --> 00:02:25,896
exploration and has put hundreds
of commercial and military payloads

45
00:02:25,896 --> 00:02:30,000
into orbit, will produce more
than 24 thousand pounds of thrust

46
00:02:30,000 --> 00:02:31,935
when performing at TLI.

47
00:02:31,935 --> 00:02:33,503
How are you doing so far?

48
00:02:33,503 --> 00:02:35,906
Great kid, don't get cocky!

49
00:02:35,906 --> 00:02:37,440
Question number three.

50
00:02:37,440 --> 00:02:41,111
Flying as secondary payloads
on EM-1, 13 CubeSats

51
00:02:41,111 --> 00:02:43,780
will be located where on
the SLS rocket?

52
00:02:43,780 --> 00:02:45,982
Orion Stage Adapter

53
00:02:45,982 --> 00:02:48,018
The Launch Vehicle Stage Adapter

54
00:02:48,018 --> 00:02:49,219
or the Forward Skirt

55
00:02:49,219 --> 00:02:53,723
After the Orion spacecraft
separates from the ICPS,

56
00:02:53,723 --> 00:02:57,194
the CubeSats will embark on
their own deep-space missions,

57
00:02:57,194 --> 00:03:00,497
but where will these little
stowaways hitch their rides?

58
00:03:00,497 --> 00:03:04,701
The 13 small satellites will ride
into deep space inside

59
00:03:04,701 --> 00:03:09,339
the Orion Stage Adapter, which
will connect Orion to the ICPS.

60
00:03:09,339 --> 00:03:12,175
Each has a mission that can
provide NASA with new

61
00:03:12,175 --> 00:03:14,477
key knowledge and test
new technologies.

62
00:03:14,477 --> 00:03:18,381
CubeSats flown on the mission
will perform in-space experiments

63
00:03:18,381 --> 00:03:21,184
and demonstrations that
will advance the capabilities

64

00:03:21,184 --> 00:03:24,988
needed to take humans farther
into space than ever before.

65
00:03:24,988 --> 00:03:28,658
There you go! Three questions
all about how SLS

66
00:03:28,658 --> 00:03:31,861
will enable a new era of
deep-space exploration.

67
00:03:31,861 --> 00:03:35,498
You know, sometimes I amaze
even myself. How'd you do?

68
00:03:35,498 --> 00:03:38,034
Let us know in the comments,
and make sure to share

69
00:03:38,034 --> 00:03:39,236
with your friends.

70
00:03:39,236 --> 00:03:41,338
For more about the
Space Launch System,

71
00:03:41,338 --> 00:03:44,107
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