
NASA'S JOURNEY TO
MARS

1
00:00:01,819 --> 00:00:07,960
For the first time since the Apollo moon landings,
NASA is preparing to send astronauts beyond

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00:00:07,960 --> 00:00:13,230
Earth orbit . . . on the most ambitious adventure
ever.

3
00:00:13,230 --> 00:00:16,840
NASA's journey to Mars.

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00:00:16,840 --> 00:00:21,429
Launches for the journey to the Red Planet
begin right here at NASA's Kennedy Space Center

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00:00:21,429 --> 00:00:22,980
in Florida.

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00:00:22,980 --> 00:00:28,740
This unprecedented effort actually began 50
years ago with increasingly advanced robotic

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00:00:28,740 --> 00:00:36,350
scouts launched from Cape Canaveral Air Force
Station. From the Mariner 4 fly-by in 1965

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00:00:36,350 --> 00:00:42,730
. . . to the Mars Science Laboratory's Curiosity
rover that landed in 2012, NASA is learning

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00:00:42,730 --> 00:00:45,690
what future explorers may expect.

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00:00:45,690 --> 00:00:52,649
While landers investigate the Martian surface,
probes such as MAVEN – NASA’s Mars Atmosphere

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00:00:52,649 --> 00:00:59,230
and Volatile EvolutioN spacecraft -- now are

orbiting the Red Planet. Launched from the

12
00:00:59,230 --> 00:01:06,340
Cape in 2013, MAVEN is helping us understand
the planet's mysterious atmosphere.

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00:01:06,340 --> 00:01:13,630
Looking ahead, the Mars 2020 rover will build
on the success of the Curiosity mission. Scheduled

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00:01:13,630 --> 00:01:18,460
to launch four years from now, the mission's
goals include detecting and characterizing

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00:01:18,460 --> 00:01:24,060
ancient environments that could have harbored
life, collecting samples for a future sample

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00:01:24,060 --> 00:01:29,460
return mission and . . . testing the ability
to extract oxygen from the Red Planet's carbon

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00:01:29,460 --> 00:01:37,049
dioxide atmosphere. These robotic explorers
are paving the way for human pioneers who

18
00:01:37,049 --> 00:01:41,610
will journey to the surface of Mars.

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00:01:41,610 --> 00:01:47,090
To help prepare for that ambitious mission,
the NASA-industry team at Kennedy has converted

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00:01:47,090 --> 00:01:52,610
the center into a 21st century, multi-user
spaceport.

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00:01:52,610 --> 00:01:57,159
American providers are delivering critical
research and supplies to the International

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00:01:57,159 --> 00:02:02,969
Space Station, and soon will launch astronauts
to the orbiting laboratory once again from

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00:02:02,969 --> 00:02:03,930
Florida.

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00:02:03,930 --> 00:02:08,399
These commercial crew flights will increase
the expeditions to the space station from

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00:02:08,399 --> 00:02:14,860
six crew members to seven, doubling the amount
of time astronauts can devote to science,

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00:02:14,860 --> 00:02:18,120
research and technology demonstrations.

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00:02:18,120 --> 00:02:23,140
Aboard the station, crews are learning more
about living and working in space for longer

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00:02:23,140 --> 00:02:28,900
periods. These lessons will be crucial to
meet the challenges of the 49-million-mile

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00:02:28,900 --> 00:02:31,420
journey to Mars.

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00:02:31,420 --> 00:02:36,360
Investigations aboard the space station include
a project called "Veggie." Since a trip to

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00:02:36,360 --> 00:02:41,780
and from the Red Planet likely will last more
than a year, this plant growth chamber is

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00:02:41,780 --> 00:02:46,730

helping astronauts develop ways to grow food
during long missions.

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00:02:46,730 --> 00:02:52,570
Ground systems at Kennedy also are being prepared
to support the powerful new Space Launch System

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00:02:52,570 --> 00:02:52,920
rocket . . .

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00:02:52,920 --> 00:02:58,690
. . . which will boost the Orion spacecraft
and crews to the technological proving grounds

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00:02:58,690 --> 00:03:02,770
of space around and beyond the moon.

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00:03:02,770 --> 00:03:08,280
As astronauts embark on these bold missions,
they will test new capabilities developing

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00:03:08,280 --> 00:03:15,200
advanced propulsion systems and deep-space
habitats needed to reach and work on Mars.

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00:03:15,200 --> 00:03:20,200
In advance of working on the surface of Mars,
researchers at the Kennedy Space Center are

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00:03:20,200 --> 00:03:26,160
studying how to harvest raw materials to produce
supplies such as water and breathable air

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00:03:26,160 --> 00:03:30,310
for astronauts visiting deep-space destinations.

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00:03:30,310 --> 00:03:35,220
Once these new technologies are mastered,
astronauts will be ready to reach for our