Spaceport KSC at Kennedy Space Center

Ride 1: Daring Explorers

Script Development Package

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Educational Outline

Pedagogical Goal: Understanding how unmanned space probes of the past have expanded our knowledge of the solar system and the paved the way for future exploration

Applicable NASA Objective: Developing new technology in the pursuit of peaceful exploration and discovery

Story Outline: Following the paths of the robotic explorers who came before, visitors will marvel at natural wonders like the storms of Jupiter or rings of Saturn on this majestic tour of the outer solar system. Featuring striking views of familiar planets as well as a close encounter with one of Europa's powerful geysers, this voyage to the farthest planets from the sun will offer visitors new insight into the history of space probes and the wonders of our solar system.

Key Scientific Information:

New Horizons – the first reconnaissance mission to Pluto

Pluto – the distant dwarf planet

Voyager 2 – the only spacecraft to visit Uranus and Neptune

Neptune – the windy ice giant

Uranus – the sideways ice giant

Voyager 1 – the most distant human-made object from Earth

Saturn – the ringed planet

Juno – investigating the origin and evolution of Jupiter

Jupiter – the storm-enveloped gas giant

Europa – one of the most promising candidates for extraterrestrial life in the solar system

Parker Solar Probe – flying closer to the sun than ever before

Narrative Timing Matrix

Section	Duration	Breakdown	Possible Topics	Narrative Recommendation
Launch	50 s	Seats Move into Show Position Greeting Prelaunch and Countdown Exit Atmosphere Pass ISS and James Webb Lunar Gateway	Unmanned Probes	We could rocket into a bright blue sky, passing quickly through clouds and Earth's upper atmosphere. Reaching orbit, we might pass the ISS and James Webb Telescope before hurtling on to make contact with the Lunar Gateway orbiting the moon.
Destination 1	1 min	Topic Introduction Topic 1 Music and Flight Moments Transition to Next Destination	New Horizons or Voyager 1 or Voyager 2 or Parker Solar Probe	We could zoom up to Pluto for our first destination, where we might hear about: **New Horizons** – how the probe revolutionized our understanding of the composition and geology of Pluto and the impressive feat of its speed and precision
Destination 2	30 s	Topic Introduction Topic 2 Music and Flight Moments	Juno or Cassini	Next, we could rocket to Jupiter to learn about: **Juno** – the probe's investigations into Jupiter's weather layer and origins
Conflict	35 s	Conflict and Resolution Transition to Earth	Europa or Enceladus	While there, we could also investigate: **Europa** – its geysers and substrate liquid water ocean with potential for life, and suddenly get caught in one of the moon's geysers. We'd feel our ship tilt and shake as we barely maintain control long enough to escape.
Landing	35 s	"Blue Marble" Conclusion Reentry Landing Return to Load Position	Conclusion	Finally, we'd return to Earth, maybe pausing for a moment to admire the globe before making our approach for landing. Clouds and flares of burn-off could cross our viewport as we hurtle to the ground, reverse thrusters slowing our descent. With a gentle bump, we'd touch down smoothly onto one of KSC's launch pads.

Guest Narrative

We buckle into our seats, eager for our journey to begin. We can't see anything beyond the wall in front of us, but our excitement grows as launch chatter begins to sound in the darkness.

The doors before us open, revealing a high-tech dome-shaped viewport looking out into a bright blue sky. We hear a greeting from our ship's commander as our seats push forward into flight position suspended near the center of the dome. The countdown begins and our seats vibrate as we rocket into the sky, passing quickly through clouds and Earth's upper atmosphere.

Reaching orbit, we pass the ISS and James Webb Telescope before hurtling on to make contact with the Lunar Gateway at the moon.

As we travel to our first destination, our HUD pulls up a dramatic visualization of our solar system in motion, the planets swirling around us in miniature. Dotted across the screen are blinking indicators marking the positions of some of the system's most famous unmanned probes—Voyager 1 and 2 far off in the interstellar medium, New Horizons in the Kuiper Belt, Juno orbiting Jupiter. We hear about the crucial role unmanned probes have played in exploring our solar system.

We arrive at Saturn and are treated to a view of the planet's magnificent rings and roiling storms. As we soar through the rings, we learn about Voyager and Cassini's discoveries at Saturn and hear about Cassini's dramatic final plunge into the planet's atmosphere.

Next we proceed on to Jupiter to learn about Juno's discoveries and to take in the gas giant's swirling storms, including the Great Red Spot. As we swoop down towards Europa, we see one of its geysers is erupting water vapor into space and our pilot flies us into the spray. We feel our ship tilt and shake as it's pummeled by the geyser, only narrowly maintaining control. With a burst of speed, we emerge from the geyser and take in one last view of Jupiter's impressive surface before returning home.

We return to Earth, admiring the globe as we make our approach for landing. We experience the thrill and jeopardy of reentry, clouds and flares of burn-off crossing our viewport as we hurtle to the ground. Reverse thrusters slow our descent, and with a gentle bump, we touch down smoothly onto one of KSC's launch pads, journey complete.

Script

SAFETY VIDEO (0:45)

With a futuristic chime, the overhead screens activate.

COMMANDER
This is your commander, [COMMANDER 2 NAME]. Welcome aboard. Your pilot today is [PILOT 2 NAME].

As the Pilot talks, HUD graphics and icons illustrate the safety information.

PILOT
Hello and welcome. We appreciate your attention for a few important safety announcements. As you find your seats, please continue to move all the way across the row, making room for everyone. Regulations require all loose items be placed in the storage compartment behind your seat.

To fasten your seatbelt, thread the belt on your left through the center strap loop and insert it into the buckle on your right. Interplanetary conditions can be unpredictable, so please remain seated and upright for the duration of the flight.

The screens begin to tick off various preflight checklists as the flight crew finishes their preparations.

PILOT (CONT)
We'll be taking off soon, so please sit back and relax. On behalf of Kennedy Space Port, welcome aboard and thank you for flying with us.

The screens switch to a looping hold of the tour company's logo until operations confirms the ride is ready to proceed.

DOORS OPEN AND SEATS MOVE INTO RIDE POSITION (0:17.5)

We can't see anything beyond the wall in front of us, but our excitement grows as launch chatter begins to sound in the darkness.

MISSION CONTROL 5
(Radio voice)
Intrepid-2, Launch Director. Activate Viewport.

The doors before us open, revealing a high-tech dome-shaped viewport looking out into patches of blue sky interspersed with thick clouds. Our seats begin to push forward into the dome.

COMMANDER

Today's tour is inspired by the first great explorers of our Solar System—robotic probes. Following the paths of trailblazing missions like Voyager, Galileo, Cassini, and Juno, we're headed to the outer Solar System.

PILOT

All systems green, Commander.

The HUD lights turn green when we settle into flight position suspended near the center of the dome. We see another ship launch from a nearby pad as our seats tilt slightly backward in preparation for our own launch.

COMMANDER

(Radio voice)

LD, Intrepid-2 is go.

MISSION CONTROL 6

(Radio voice)

Confirmed, Intrepid-2. You are go. Main engine ignition in five… four… three… two… one…

Our seats rumble and bump as we begin to rocket skyward.

MISSION CONTROL 6

(Radio voice)

Liftoff!

We pass rapidly through clouds, emerging into Earth's upper atmosphere. As we feel our seats tip forward into Earth's orbit, our HUD traces out the trajectories of past probes arcing away from Earth and into space in a variety of directions. Line-art images of some of the probes appear before us as we pass close to their trajectory lines. We see Pioneer 10, New Horizons, and Voyager 1 before intersecting with the line labeled "Cassini–Huygens" and paralleling its path.

COMMANDER

Before we had ships like ours, probes and satellites were one of our best ways to learn about the Solar System. Probes were capable of traveling faster and farther than was once safe for human explorers. They went first so we could follow.

Our ship's HUD locks onto Cassini's trajectory.

COMMANDER

We're tracing the path of Cassini, which spent 13 years studying Saturn and its moons. It arrived in 2004, along with the Huygens lander, which it delivered to our first stop—Saturn's largest moon, Titan.

Our HUD highlights a spot in the distance and shows our course laid into a navigational chart. The viewport blurs as we feel the ship accelerate. A few seconds later, the view clears to reveal Saturn's

moon Titan. As we arc around the moon, the HUD strips away Titan's atmosphere to show its oceans and lakes.

COMMANDER

When Huygens touched down, it discovered evidence of recent liquid activity on Titan's surface. And in 2007, Cassini confirmed liquid methane and ethane here, making Titan the only place besides Earth known to have bodies of liquid on its surface.

The HUD pulls up a graphic of the Great Lakes.

COMMANDER

In fact, Cassini found that Titan's largest sea, Kraken Mare, is larger than all five of the North American Great Lakes combined.

We bank right around the moon, then tip left to approach the ringed planet. With a small burst of acceleration, we zoom close enough to the rings to take in detail of their swirling particles.

COMMANDER

Now we're coming up on Saturn's most iconic feature—its rings. Saturn isn't the only planet in our system with rings, but these are by far the most impressive. They're made of millions of pieces of ice and dust ranging in size from tiny particles to small mountains.

We rise up over the rings to skim along them from above, taking in their grooves, gaps and embellishments.

COMMANDER

On its final orbits, Cassini dove through the gap between Saturn's rings and upper atmosphere for an unforgettable new perspective of the planet—one that you, too, are now about to share.

We tilt into a dive and swoop through the gap between the planet and its rings. Saturn's hexagonal north pole races by above us.

COMMANDER

Saturn's famous hexagon at its north pole was first discovered by Voyager 2 in 1981. It's a hurricane-like storm more than twice as wide as Earth with winds pushing 300 miles per hour.

We accelerate through the gap on the other side and level off. Our HUD highlights Jupiter in the distance.

COMMANDER

Next we're going to visit the largest planet in our Solar System and target of the Juno orbital probe, Jupiter!

Our seats vibrate as the ship jumps to the gas giant.

COMMANDER

Juno arrived in 2016 and spent years withstanding conditions too extreme for prolonged human exposure, including intense radiation and gravity 2.5 times that of Earth.

We see a HUD graphic of Juno swoop past our viewport. We bank left around the planet to follow the arc of the probe's orbit, Jupiter's swirling surface and the Great Red Spot passing far below.

COMMANDER

Over the course of its mission, Juno studied Jupiter's formation and weather, including the Great Red Spot, which is a giant storm almost one-and-a-half Earths wide that has been raging for at least 200 years.

Europa comes into view from behind the horizon of the planet.

COMMANDER

Ahead is Jupiter's moon Europa. After NASA's Galileo satellite found evidence of a water ocean beneath its surface in 1996, Europa became a target of our search for extraterrestrial life.

As we tilt closer to the moon, we see several geysers erupt from Europa, spraying vapor miles above the surface of the moon.

COMMANDER

These geysers were first detected by the Hubble Space Telescope in 2012, but it's likely Galileo actually flew through one in 1997. I'm going to take us in.

We fly straight into the nearest plume. The ship rumbles and shakes as we're enveloped in its spray. After a few seconds, the ship accelerates and steers us clear. As we take in a final look at Jupiter, our HUD pulls up telemetry for the journey back to Earth.

COMMANDER

Humanity's search for answers to the mysteries of the universe has propelled us hundreds of millions of miles to the distant reaches of our Solar System and beyond.

We emerge from our travel to a stunning view of the globe.

COMMANDER

But no matter how far we've roamed, every mission, technology, dream, and idea started right here.

We swoop into a smooth bank as we approach, taking in Earth's beauty.

MISSION CONTROL 7

(Radio voice)

Intrepid-2, Mission Control. Welcome home. Your approach is free of arriving traffic. Cleared for landing on Kennedy pad two bravo.

COMMANDER

(Radio voice)

Intrepid-2, copy.

Our seats tilt down as we rocket forward. As we enter Earth's atmosphere, clouds and flares of burn-off cross our viewport, our seats bucking and vibrating. The horizon swoops up to meet us and our ship's reverse thrusters fire, reorienting us to face skyward and slowing our descent. We see clouds and our contrail receding above us, and finally, with a gentle bump, we touch down smoothly onto KSC's landing pad 2B.

MISSION CONTROL 8

(Radio voice)

Intrepid-2, hold for disengagement from flight position.

COMMANDER

(Radio voice)

Intrepid-2, holding.

SEATS MOVE INTO LOAD POSITION AND DOORS CLOSE (0:17.5)

Our seats begin to move backward.

COMMANDER

Our Solar System is still full of wonders to discover and robotic probes will always be there on the forefront of exploration. Even as humanity ventures across the Solar System and beyond, probes will continue to go first, go farther, and pave our path to the stars.

The doors before us close as our seats settle into their load/unload position.

WALKOUT

PILOT

Welcome back to Earth. Please unfasten your seatbelts by pressing the button on your right. Be sure to gather all your carry-on items from the compartment behind you and proceed through the open door to exit. Thank you for flying with us!

With a click, our restraints release and we exit, energized and inspired by the amazing journey we've just shared.