Destination Solar System Show Description

Destination Solar System (75 minutes)

All of our shows take you on a tour of the solar system. Discover how astronomical observations of planets and stars have given us clues to their composition and environments. As we visit the planets of our solar system, the shows covers science curriculum, presenting topics such as the nature of gravity; how time is measured with the orbits of the planets around the sun; the importance of water to sustain life and the Earth's position in the solar system and the Milky Way.

Meets 2nd Grade Next Generation Science Standards (NGSS) as follows:

ESS1.C: The History of the Planet Earth: The show presents how the Earth has changed over time.

- ✓ Internal geological changes and external forces, have affected the shaping of our planet: Volcanoes, bombardment from space by meteors and comets.
- ✓ Many of these changes happened very slowly over long periods of time. Some changes, such as comets strikes, led to dramatic and rapid changes, such as extinction of plants and animals, such as dinosaurs.

ESS1.C: Earth Materials and Systems: The show demonstrates how water and wind have shaped the Earth's environment.

- ✓ Water played a major role in the creation of continents and oceans on Earth.
- ✓ The wind and weather also shape the earth through erosion and rain storms. Earth is contrasted with conditions on Mars

ESS2.C: The Roles of Water in Earth's Surface Processes. The show demonstrates how water plays a major role in the surface processes of the Earth.

- ✓ Water is found in oceans, lakes and rivers as a liquid and as a solid in ice. Ice is commonly found in glaciers and at the poles.
- ✓ Water is a necessary component for life.

Meets 3rd Grade Next Generation Science Standards (NGSS) as follows:

LS2.C: Ecosystem Dynamics, Functioning, and Resilience: The show demonstrates the effect of environmental changes.

- ✓ The show discusses how environmental changes can lead to changes in temperature and other factors. Environmental changes affect how life forms adapt to survive. Some life forms no longer exist on Earth, like dinosaurs.

PS2A: Forces and Motion: The show demonstrates the force of gravity and planetary motion

- ✓ The effects of the suns gravitational pull on the planets that orbit it
- ✓ Our moons gravitational effect on the Earth's orbit around the sun.
- ✓ Additionally discusses the magnetic field created by the spinning molten iron core of the Earth and how this field allows atmosphere and water to remain on the planet, which sustains life (contrasted with Mars, which lost its magnetic field, which caused the loss of its water and atmosphere).

PS2B: Types of Interactions

- ✓ Gravity
- ✓ Orbital
- ✓ Magnetic

Meets 5th Grade Next Generation Science Standards (NGSS) In Area 5 as follows:

PS2B: Types of Interactions: Show demonstrates the force of Earth's gravity on nearby objects

- ✓ Earth's gravitational pull on our Moon
- ✓ Our moons gravitational effect on the Earth's orbit around the sun, and its effect on the ocean tides

ESS1A: The Universe and its Stars: Show demonstrates the scale of our Solar System

- ✓ Distance from the Sun to Earth
- ✓ Distance from the Earth to the Moon

ESS1B: Earth and the Solar System: Show demonstrates the orientation and orbit of the Earth, Moon and Planets

- ✓ Planetary orbits around the sun
- ✓ Earth's orbit around the Sun and the Moons orbit around the Earth
- ✓ The ecliptic and paths of the Sun, Moon and Planets through Constellations
- ✓ Earth's axial tilt and seasons
- ✓ Position of Earth in Galaxy (Goldilocks Zone)

Expanded Description of Next Generation Science Standards in our Shows

All our shows cover the following NGSS material:

2nd Grade

Water and the earth's environment

We show how water has shaped life on Earth. Earth is in a habitable or Goldilocks zone and is capable of sustaining liquid water. We orbit in an area that is neither too hot (water would evaporate) or too cold (water would be frozen solid into ice), and can sustain liquid water and support life.

We see how the earth is able to sustain life through an active magnetic field that allows the planet to keep an atmosphere and liquid water on its surface. The magnetic field also protects us from the solar wind – radiation that could damage life and strip air and water from the planet.

The Earth is contrasted with Mars, which lost its magnetic field and has almost no water on its surface and very little atmosphere. Mars does have ice caps and water under its surface. We explain that the changes on Mars happen over a long period of time. Recently, a lake of liquid water was discovered underneath Mars' South Pole. We examine if it may be possible for life to exist in this lake.

Water is necessary for life to exist. On Earth we have oceans, lakes and rivers and ice at our polar caps.

Earth and the planets have been struck by comets and meteors and these events have sometimes shaped the planets, such as a cometary event that may have led to the extinction of dinosaurs.

3rd Grade

Planets

Discover how astronomical observations of planets and stars have given us clues to their composition and environments. As we visit the planets of our solar system, the shows covers science curriculum, presenting topics such as the nature of gravity; how time is measured with the orbits of the planets around the sun; what we know about comets; and what is an eclipse.

Gravity, Earth's magnetic field and planetary motion

The effects of the suns gravitational pull on the planetary orbits.
Our Moon's gravitational effect on the Earth's oceans and tides.

Additionally discusses the magnetic field created by the spinning molten iron core of the Earth and how this field allows atmosphere and water to remain on the planet, which sustains life. This is contrasted with Mars, which lost its magnetic field and caused the loss of its water and atmosphere.

5th Grade

Discover how astronomical observations of planets and stars have given us clues to their composition and environments. As we visit the planets of our solar system, the shows covers science curriculum, presenting topics such as the nature of gravity; how time is measured with the orbits of the planets around the sun; what we know about comets; and what is an eclipse.

Solar System and Milky Way

The scale of our Solar System
Distance from the Sun to Earth
Distance from the Earth to other planets and stars.
Distance to other galaxies.
The solar wind and its effect on the Earth and planets – auroras.
The orientation and orbit of the Earth, Moon and Planets
Planetary orbits around the sun
Earth's orbit around the Sun and the Moons orbit around the Earth
The ecliptic and paths of the Sun, Moon and Planets through Constellations
We discuss how the planets formed on a path called the zodiac or ecliptic, and line up across the sky.
Earth's tilt and the effect on our seasons
Position of the Sun and Earth in the Milky Way Galaxy.

Planets and Exoplanets Missions – the Latest Discoveries

We also present basic information about all the planets in the solar system, based on the latest planetary missions, such as Cassini to Saturn, Juno to Jupiter, Curiosity and Insight to Mars, Venus Explorer, Messenger to Mercury, New Horizons to Pluto and the Kuiper Belt.

Plus we also explore basic Information about Exoplanets.