Planetarium and Star Show

Overview Greetings and welcome to the study of astronomy! This first lesson is simply to get you excited and interested in astronomy so you can decide what it is that you want to learn about astronomy later on.

What to Learn We're going to cover a lot in this presentation, including: the Sun, an average star, is the central and largest body in the solar system and is composed primarily of hydrogen and helium.

The solar system includes the Earth, Moon, Sun, eight other planets and their satellites, and smaller objects such as asteroids and comets. The structure and composition of the universe can be learned from the study of stars and galaxies. Galaxies are clusters of billions of stars, and may have different shapes. The Sun is one of many stars in our own Milky Way galaxy. Stars may differ in size, temperature, and color.

Materials

- Popcorn
- Pencil

Experiment

Before watching the video, print out your worksheet so you can jot things down as you listen. Then grab your pencil (and a handful of popcorn) and fill it in as you go along, or simply enjoy the show and fill it out at the end.

Planetarium Star Show Table

Planet	Interesting Fact You Didn't Know 'Til Now

Reading

Astrophysics is the branch of astronomy that deals with the physics of the universe. Astronomers study celestial objects (things like stars, planets, moons, asteroids, comets, galaxies, and so forth) that exist outside Earth's atmosphere. It's the one field of study that combines the most science, engineering and technology areas in one fell swoop. Astronomy is also one of the oldest sciences on the planet.

Early astronomers tracked the movement of the stars so accurately that in most cases, we've only made minor adjustments to their data. Although Galileo wasn't the first person to look through a telescope, he was the first to point it at the stars. Originally, astronomy was used for celestial navigation and was involved with the making of calendars, but nowadays it's mostly classified in the field called astrophysics.

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Exercises:

1. What happened to Pluto?

2. How does the Sun make energy?

3. Which planet is your favorite and why?

4. How many moons around Jupiter and Saturn can you see with binoculars?

5. What's the difference between a galaxy and a black hole?
6. How many Earths can fit inside the Sun?

Answers to Exercises: Planetarium and Star Show

1. What happened to Pluto? (Pluto was reclassified as a dwarf planet. Beyond Neptune, the Kuiper Belt holds the chunks of ice and dust, like comets and asteroids as well as larger objects like dwarf planets Eris and Pluto.)

2. How does the Sun make energy? (The nuclear reactions deep in the core transform 600 million tons per second of hydrogen into helium by smacking protons together, called nuclear fusion.)

3. Which planet is your favorite and why? (Refer to student responses.)

4. How many moons around Jupiter and Saturn can you see with binoculars? (Four each.)

5. What's the difference between a galaxy and a black hole? (Galaxies are stars that are pulled and held together by gravity. Black holes are the leftover remnants of a supernova explosion that require an escape velocity greater than the speed of light.)

6. How many Earths can fit inside the Sun? (1.3 million)