

Lunar Eclipse

Vocabulary:

lunar eclipse,
asteroids, totality,
umbra, penumbra

Sneaky Preview!

True or False??

Planets have shadows. T. F.

You can see stuff that is in a shadow. T. F.

You be the scientist!

What do you know about your own shadow? Use the scientific method to learn more!

Question:

From head to toe, is my shadow equally dark in all places? Are the edges sharp or fuzzy?

Hypothesis: (write your guess here)

Procedure:

(1) Go outside on a sunny day. (2) Sketch your shadow on a piece of paper.

Materials: paper, pencil, sun

Observations:

Would you like to see giant craters blasted by **asteroids**, vast seas of hardened lava and eerie abandoned spaceships? Take a tour of our Moon. This week is a great time to do it. The magic and mystery of the Moon will be easy to see when the shiny ball glides into the shadow of the Earth.

Earth has a shadow? Of course! That darkness you experience every night is Earth's shadow. It begins on the ground and stretches more than a million miles into space.

Earth's giant shadow will creep across the bright full Moon on Wednesday night, October 27th. When sunlight on the Moon is blocked by Earth's shadow, astronomers call it a **lunar eclipse**. It begins at 8:14 PM. Starting then, you can watch Earth's shadow slide slowly across the Moon. By 9:23 PM the Moon will be completely covered. This is called **totality**.

Are you ready to be surprised? The totally eclipsed Moon will not be totally dark! That's what makes totality cool. Earth's atmosphere bends some sunlight into Earth's shadow and onto the Moon. Our dusty atmosphere reddens the sunlight so that the Moon's usual pearl white color will change to a blood red.

Earth's shadow is shaped like a cone. The center of the shadow, called the **umbra** (like "umbrella"), is dark and red. The outside edge of the shadow is light and pale. This is called the **penumbra**. Totality is when the Moon is inside the umbra.

At totality, you will be in for some great Moon watching. Can you find the huge crater Tycho? This is where an asteroid hit the Moon. Tycho's rays are long and beautiful. The rays are rocky-lava that splashed out of the crater when the asteroid hit.

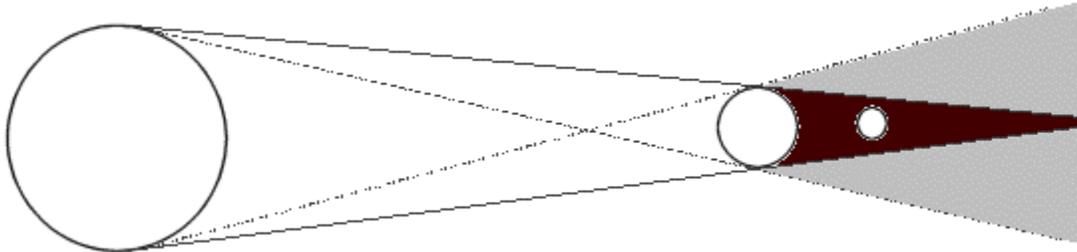
Also, look for the Sea of Tranquility. Astronauts Neil Armstrong and Buzz Aldrin landed there in July 1969. The Sea of Tranquility is not a sea filled with water. It is filled with cold hardened lava and moon dust. Neil and Buzz made footprints in the moon dust when they walked around, exploring. The footprints are still there today. So is part of their spaceship, the Eagle, which they left behind when they returned to Earth.

When you explore the moon during the lunar eclipse, you're using the same tools as people of long ago. They had nothing but their eyes and their brains. Use your eyes and brains as you watch the shadow slide over the Moon. Are there any clues about the shape of our planet from the shadow? Join the great astronomers in pondering our world.

ANATOMY OF AN ECLIPSE!

Using the information from the story, label the diagram.

Word Bank: Earth, Moon, Sun, umbra, penumbra

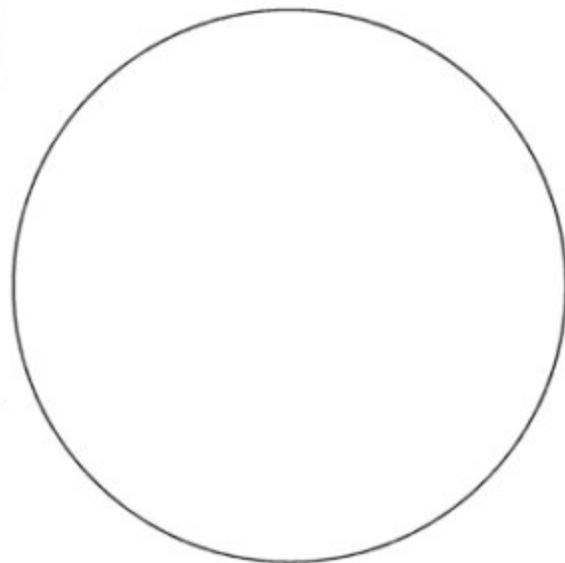


MAPPING THE MOON:

Directions: Study the moon picture and then draw your own moon map. Start by lightly drawing an outline of the dark areas. These are lunar seas. They are flat and filled with rock-hard lava. Label the Sea of Tranquility where Apollo 11 astronauts landed in July 1969. Now draw the crater Tycho and its rays. This is where an asteroid hit the Moon about 100 million years ago.



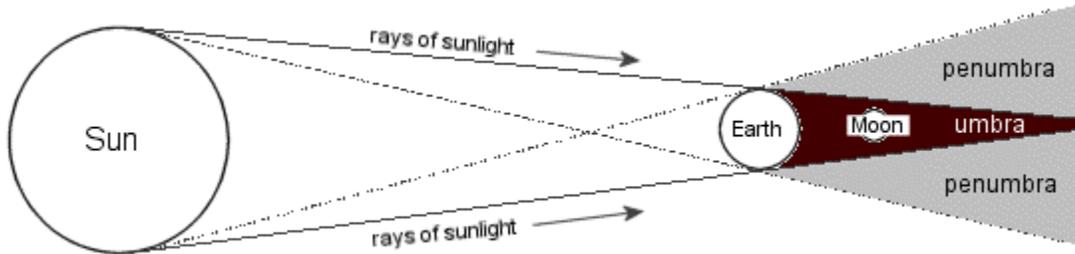
Sketch →
the Moon



ANATOMY OF AN ECLIPSE! ANSWERS

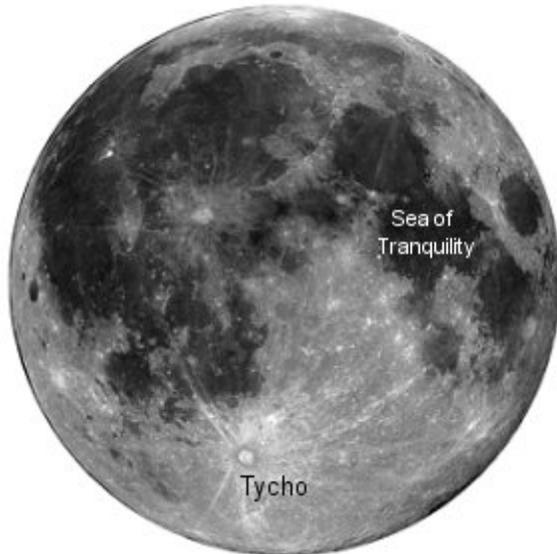
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