TOPIC: EARTH AND SPACE

ECLIPSES

FACTS/TIPS

- A celestial body is any naturally occurring body in space e.g. moon, stars, and planets.
- An eclipse occurs when one celestial body blocks sunlight from reflecting onto another celestial body.
- There are two kinds of eclipses: - Solar eclipse
  - Lunar eclipse

A solar eclipse

- A solar eclipse occurs when the moon blocks the sun’s light from reflecting onto the Earth.
- That means during the day, the moon moves over the sun and it gets dark. Isn’t it strange that it gets dark in the middle of the day? This total eclipse happens about every year and a half somewhere on Earth.
A lunar eclipse

- A lunar eclipse occurs when the Earth blocks the sun’s light from reflecting onto the moon.
- During a lunar eclipse, Earth comes between the Sun and the Moon, blocking the sunlight from falling on the Moon.
- A lunar eclipse can occur only when the moon is full. A lunar eclipse can be seen from Earth at night.
- A total lunar eclipse occurs when the Moon and Sun are on opposite sides of Earth.
- A partial lunar eclipse happens when only part of Earth’s shadow covers the Moon.
The Moon and Tides

- Tides are long-period waves that roll around the planet as the ocean is "pulled" back and forth by the gravitational pull of the

**WHAT IS THE DIFFERENCE BETWEEN A SOLAR AND LUNAR ECLIPSE**

**Solar**
- Sun is blocked
- Happens during the day
- Moon’s in the middle
- Happens during a new moon
- Covers only a small area so few see it

**Lunar**
- Moon is in the shadow
- Happens at night
- Earth’s in the middle
- Happens during a full moon
- Can be seen by everyone that can see the moon
moon and the sun as these bodies interact with the Earth in their monthly and yearly orbits.
- The gravitational pull of the moon on Earth causes high tide and low tide.
- There are two types of tides based on the arrangement of the sun, the Earth and the moon.

**Spring Tide**

- A spring tide occurs when the sun, earth and moon are in a straight line.
- Spring tides occur twice each lunar month all year long without regard to the season.
- During full or new moons—which occur when the Earth, sun, and moon are nearly in alignment—average tidal ranges are slightly larger. This occurs twice each month.
- The moon appears new (dark) when it is directly between the Earth and the sun. The moon appears full when the Earth is between the moon and the sun. In both cases, the gravitational pull of the sun is "added" to the gravitational pull of the moon on Earth, causing the oceans to bulge a bit more than usual. This means that high tides are a little higher and low tides are a little lower than average.

**Neap Tide**

- Neap tide occurs when the sun, earth and moon form a 90-degree angle.
- Seven days after a spring tide, the sun and moon are at right angles to each other. When this happens, the bulge of the ocean caused by the sun partially cancels out the bulge of the ocean caused by the moon.
- This produces moderate tides known as **neap tides** meaning that high tides are a little lower and low tides are a little higher than average.
- Neap tides occur during the first and third quarter moon when the moon appears "half full."

**ON YOUR OWN**
1. What is earth's main source of light?

2. List the different celestial bodies.

3. What is a solar eclipse?

4. Explain what is a lunar eclipse.

5. Draw two simple diagrams to represent:
   a. Solar eclipse
   b. Lunar eclipse.
6. Discuss two differences between solar and lunar eclipses.

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7. Why is it called a lunar eclipse?

________________________________________________________________________
1. The diagram above shows ____________________________________________
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2. Label the diagram correctly.

3. What position would the moon have to be in for a solar eclipse to occur?
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4. Describe how spring tides occur
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   ____________________________________________
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