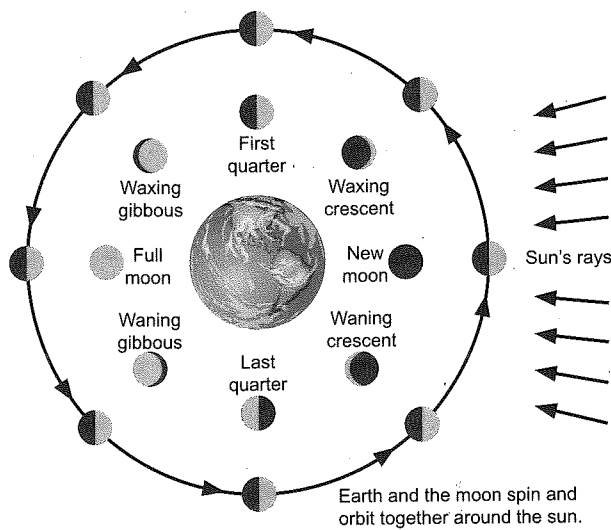


★ Spotlighted Item: **FILL-IN-THE-BLANK**

DIRECTIONS: Study the diagram and information. Then complete each statement by filling in the box or boxes.

PHASES OF THE MOON



The moon does not look the same in the sky from night to night. Sometimes, it is a bright, round disk. Other times, it is a half circle or a crescent. These are phases of the moon, the different shapes the moon appears to take throughout the 29.5-day lunar month. The moon does not make its own light but reflects the light of the sun. As it revolves around Earth, half of the moon is always lit. Yet because the moon is always moving around Earth, we see different parts of its lighted side at different times of the month. During a full moon, we see its whole disk, and during a first-quarter moon, we see only half of it.

UNIT 3

7. People on Earth see lunar phases because of the moon's around Earth.
8. A is the phase of the moon that occurs when the moon is between Earth and the sun.
9. During half of the lunar month, the phases are "waxing." During the other half, the phases are "waning."

When the phases are waxing, the moon appears to be growing . It appears to be growing during waning phases.

DIRECTIONS: Read the passage and question, and choose the **best** answer.

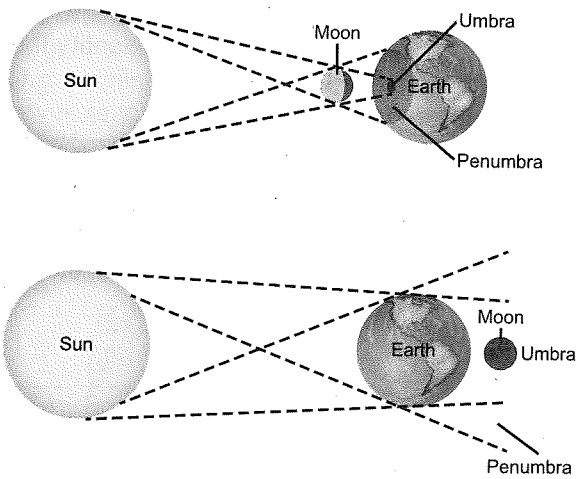
COMETS

Comets are balls of frozen gases and dust orbiting the sun in elongated elliptical orbits. A comet's orbit approaches the sun at one end and swings to the outer parts of the solar system at the other end. When a comet nears the sun, it heats up and forms a glowing atmosphere that streams out behind it in a "tail." The famous Halley's Comet has an orbit period of 76 years and last came into Earth's vicinity in 1986.

10. Which statement describes a pattern followed by Halley's Comet?
 - A. It follows an elliptical orbit around Earth.
 - B. It forms a tail when it is very far from the sun.
 - C. It completes an orbit every 76 years.
 - D. It follows the path of all other comets in the solar system.

DIRECTIONS: Study the diagram and information, read the question, and choose the **best** answer.

SOLAR AND LUNAR ECLIPSES

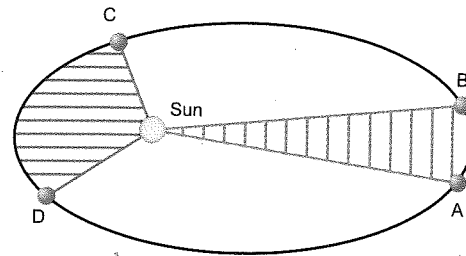


An eclipse happens when one body in space blocks the light of another by passing in front of it. The shadow cast on the surface of an object when an eclipse occurs has different parts. The central part of the shadow is the umbra, and the outer part is the penumbra. There are solar eclipses and lunar eclipses. When a solar eclipse occurs, the moon moves between the sun and Earth. The moon looks like a large, dark ball, with the halo of the sun's corona around it. Only people in the part of Earth that is in the umbra see a total eclipse. People in the larger penumbra see a partial eclipse, in which the moon covers just a portion of the sun. During a lunar eclipse, Earth is between the sun and the moon, and people on Earth see the moon in a dim reddish light. People in one whole hemisphere of Earth can view a total lunar eclipse because they—and the whole moon disk—are within Earth's umbra.

11. Which pattern of movement is responsible for solar eclipses?
- Earth's rotation on its axis
 - the moon's revolution around Earth
 - the moon's rotation on its axis
 - the production of energy in the core of the sun

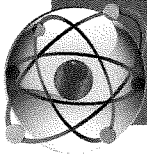
DIRECTIONS: Study the diagram and information, read the question, and choose the **best** answer.

KEPLER'S LAWS OF PLANETARY MOTION



Johannes Kepler was a German mathematician who lived during the 1500s and 1600s. He used observation and mathematics to identify laws that govern the movement of objects in our solar system. These laws are known as Kepler's laws of planetary motion, and the diagram depicts his second law. We now know that objects throughout the universe obey these patterns. The following list explains Kepler's Laws:

- Planets move around the sun in an ellipse, with the sun at the focus.
Explanation: Every planet in our solar system has an orbit shaped like an ellipse, or oval.
 - The line connecting the sun to a planet sweeps out equal areas in equal times.
Explanation: Planets move faster in their orbits when they are nearest to the sun.
 - The square of the orbital period of a planet is proportional to the cube of the mean distance from the sun.
Explanation: The farther away from the sun a planet is, the slower it moves in orbit around the sun.
12. Kepler discovered universal patterns related to
- the distances of planets from stars.
 - the ways in which planets form.
 - the movement of orbiting bodies.
 - the relationship of mass to motion.



1 Learn the Skill

A **pattern** is something that occurs repeatedly. For instance, a pattern can be found in the structure of an object made up of repeated elements. A pattern can be found in an action that happens over and over again. **Understanding patterns in science** is particularly important because it allows you to recognize different types of patterns when they occur and to make predictions and explanations based on them.

2 Practice the Skill

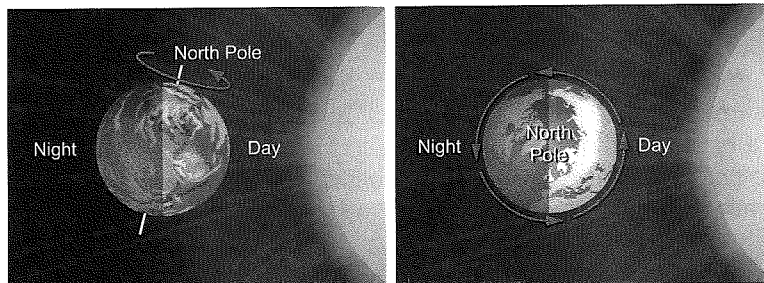
By practicing the skill of understanding patterns in science, you will improve your study and test-taking abilities, especially as they relate to the GED® Science Test. Study the information and diagrams below. Then answer the question that follows.

EARTH'S DAILY PATTERN

One of nature's most recognizable patterns is the daily change from day to night and back again. Earth rotates, or spins, on its axis once every 24 hours. As a result, half of Earth is always facing the sun. This half of the planet has day. Meanwhile, the other half of Earth is facing away. That half of the planet has night. The diagrams illustrate the rotation of Earth from two points of view.

a Day and night is a pattern caused by a type of planetary movement. In the diagrams, that movement is indicated by arrows.

b The diagrams also identify the effect of this movement, an Earth that is half in darkness and half in daylight.



1. What pattern creates night and day?

- A. continual nuclear fusion in the sun's core
- B. the rotation of Earth on its axis
- C. the apparent daily movement of the sun across the sky
- D. the revolution of Earth around the sun

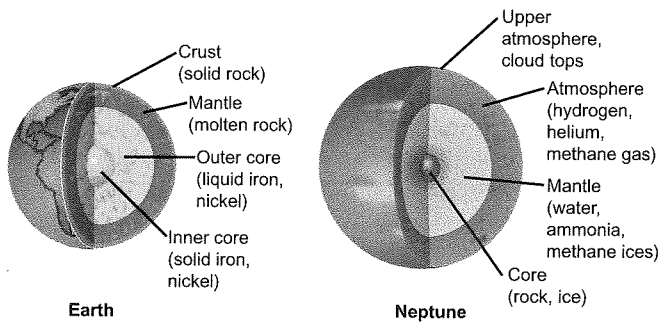
MAKING ASSUMPTIONS

Understanding patterns in science allows you to make assumptions about objects and events and their causes and effects.

3 Apply the Skill

DIRECTIONS: Study the illustration and information, read each question, and choose the **best** answer.

INNER AND OUTER PLANETS



Our solar system has eight planets. The four inner planets—Mercury, Venus, Earth, and Mars—are relatively smaller, rocky bodies. The four outer planets—Jupiter, Saturn, Uranus, and Neptune—are giant bodies made mostly of frozen gases.

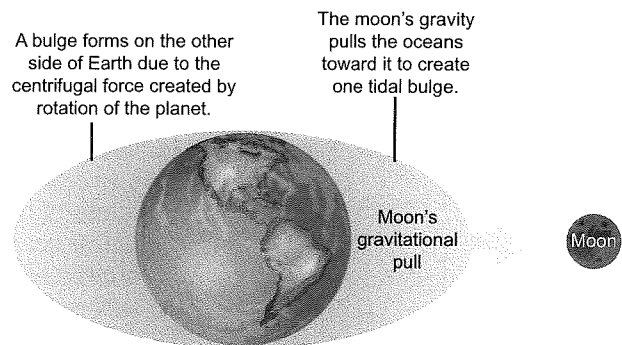
The difference in composition in the inner and outer planets is due to how far the planets were from the sun when they formed. The planets formed from the remnants present in each part of the solar system after the sun's formation. These materials differed with distance from the sun. In the warmer areas closer to the sun, dense particles high in substances such as iron and silicate minerals (compounds of oxygen and silicon) coalesced and solidified to form the rocky planets. In the colder outer parts of the solar system, lighter substances such as ammonia and methane solidified into ice to form large parts of the outer planets.

2. What is the **most** important factor in explaining why the inner planets and outer planets formed differently?
- A. the difference in temperature between the inner and outer parts of the solar system
 - B. the size of the Milky Way galaxy when the solar system developed
 - C. the fact that the inner planets had more time to develop than the outer planets
 - D. the decrease in temperature from the outer part of the solar system to the inner part

3. Which statement describes the difference in the structural patterns of the inner and outer planets?
- A. The planet's core makes up a larger percentage of the outer planets.
 - B. The inner planets have very little rock.
 - C. The outer planets are smaller than the inner planets.
 - D. The outer planets are made of less dense material overall than the inner planets.

DIRECTIONS: Study the diagram and information, read the question, and choose the **best** answer.

HOW TIDES FORM



The tide is the daily rise and fall of the ocean along Earth's coasts. Tides are caused primarily by the gravitational pull of the moon on Earth's oceans. In most places, two high tides and two low tides occur each day. The highest high tides are called spring tides. The lowest low tides are known as neap tides.

4. Based on the diagram and passage, what accounts for the pattern of two high tides and two low tides across most of Earth each day?
- A. As Earth rotates, lunar gravity causes two bulges of water that bring high tides while lower water levels in between bring low tides.
 - B. The amount of water in the ocean increases during high tides and decreases during low tides.
 - C. Coastal areas with high elevation have high tides, and coastal areas with low elevation have low tides.
 - D. As the sun rises, its gravity creates high tides, and as it sets, there are low tides.