Praxis Elementary Education – Three Subject Bundle (5901) Practice Exam (Sample)

Study Guide

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Questions

1. What do we call a complete trip around the sun made by the Earth?

A. Orbit

B. Rotation

C. Revolution

D. Cycle

2. Which of these values would be the perimeter of a square with each side measuring 4 units?

A. 8 units

B. 12 units

C. 16 units

D. 20 units

3. What type of lens is thicker in the center and thinner at the edges, causing light rays to converge?

A. Concave lens

B. Convex lens

C. Flat lens

D. Plano-convex lens

4. What is the formula for calculating speed?

A. d/t

B. v=d/t

C. p=d*v

D. t=d*v

5. Which of the following is a property of a substance?

A. Time

B. Color

C. Distance

D. Speed

6. What is the term for a natural substance that has a defined chemical composition and crystalline structure?

A. Mineral

B. Rock

C. Soil

D. Element

7. Which of the following invertebrates are characterized by having jointed legs?

A. Arthropods

B. Mollusks

C. Worms

D. Echinoderms

8. What is the temperature at which a substance changes from a liquid to a gas called?

A. Melting Point

B. Boiling Point

C. Freezing Point

D. Condensation Point

9. Which mountain range crosses through Washington?

A. Rockies

B. Appalachians

C. Cascades

D. Sierras

10. What is the distance between one wave crest and the next called?

A. Amplitude

B. Frequency

C. Wavelength

D. Period

Answers

1. C
2. C
3. B
4. A
5. B
6. A
7. A
8. B
9. C
10. C

Explanations

1. What do we call a complete trip around the sun made by the Earth?

A. Orbit

B. Rotation

C. Revolution

D. Cycle

The term that refers to a complete trip around the sun made by the Earth is "revolution." In the context of astronomy, a revolution describes the Earth's elliptical path as it journeys around the sun, which takes approximately one year to complete. This movement is fundamental to understanding the seasons and the length of the year, as it is this orbit that leads to variations in sunlight and climate experienced on Earth. In contrast, the concept of an orbit generally describes the gravitational path one object takes around another, but does not emphasize the completion of a full year. Rotation refers to the spinning of the Earth on its axis, which results in the cycle of day and night, rather than its travel around the sun. The term cycle may imply a repeated process, but it lacks the specificity needed to accurately describe the Earth's journey around the sun. Thus, "revolution" is the most accurate choice to explain this astronomical phenomenon.

2. Which of these values would be the perimeter of a square with each side measuring 4 units?

A. 8 units

B. 12 units

C. 16 units

D. 20 units

The perimeter of a square is calculated by adding together the lengths of all four sides. Since a square has equal side lengths, the formula for the perimeter can be simplified to multiplying the length of one side by 4. In this case, if each side measures 4 units, you would compute the perimeter as follows: Perimeter = 4 (units per side) × 4 (sides) = 16 units. This calculation clearly shows that the correct answer represents the total distance around the square, which is 16 units. Understanding this formula helps clarify how the dimensions of shapes contribute to their overall measurements, making it an essential concept in geometry.

3. What type of lens is thicker in the center and thinner at the edges, causing light rays to converge?

A. Concave lens

B. Convex lens

C. Flat lens

D. Plano-convex lens

A convex lens is characterized by being thicker in the center and thinner at the edges. This shape causes light rays to converge as they pass through the lens. When parallel light rays strike a convex lens, they are bent inward towards a focal point on the opposite side of the lens, which is a key feature utilized in various optical devices like glasses, cameras, and magnifying glasses. In contrast, a concave lens is thicker at the edges and thinner in the center, causing it to diverge light rays instead of converging them. A flat lens does not alter the path of light rays significantly, and a plano-convex lens has one flat surface and one convex surface, which can focus light but does not change the fundamental characteristic of being a convex lens. Hence, the defining feature of the convex lens as one that converges light makes it the correct choice.

4. What is the formula for calculating speed?

A. d/t

B. v=d/t

C. p=d*v

D. t=d*v

The formula for calculating speed is expressed as distance divided by time, which can be simply written as d/t. This means that if you know the total distance traveled and the time it took to travel that distance, you can determine the speed. For example, if a car travels 100 kilometers in 2 hours, you would divide 100 by 2 to find that its speed is 50 kilometers per hour. This formula captures the basic relationship between distance, speed, and time, laying the foundation for understanding motion in physics. While other options introduce additional components or variables related to physics, they either expand upon or complicate the basic formula for speed. The correct choice succinctly provides the straightforward calculation needed to find speed.

5. Which of the following is a property of a substance?

A. Time

B. Color

C. Distance

D. Speed

The property of a substance refers to a characteristic that can describe its physical or chemical nature. Color is a direct observation of a substance that helps identify it and differentiate it from other materials. It is a fundamental property that can affect how a substance interacts with light and can have implications for its use and functionality in various contexts. In contrast, time, distance, and speed are measurements or quantities that describe interactions or changes, rather than intrinsic characteristics of a substance. Time measures duration, distance measures space, and speed describes how fast an object is moving. None of these describe inherent qualities of a material itself, which is why color is the correct choice as a property of a substance.

6. What is the term for a natural substance that has a defined chemical composition and crystalline structure?

A. Mineral

B. Rock

C. Soil

D. Element

The correct term for a natural substance that has a defined chemical composition and crystalline structure is mineral. Minerals are naturally occurring inorganic solids that have a specific chemical formula and a crystal lattice structure, which gives them distinct properties such as hardness, color, and luster. This definition encompasses the key aspects of minerals, including their natural origin and organized atomic arrangement. In contrast, rocks are aggregates of one or more minerals or mineraloids, meaning they do not have a uniform chemical composition or crystalline structure themselves. Soil is a complex mixture composed of minerals, organic matter, water, and air, and it does not meet the criteria of having a defined chemical composition and crystalline structure. Elements are pure substances consisting of only one type of atom and do not possess the crystalline structure characteristic of minerals.

7. Which of the following invertebrates are characterized by having jointed legs?

A. Arthropods

B. Mollusks

C. Worms

D. Echinoderms

Arthropods are indeed characterized by having jointed legs, which is one of the defining features of this large and diverse phylum. Arthropods include various species such as insects, arachnids (like spiders and scorpions), and crustaceans (such as crabs and lobsters). The jointed legs provide arthropods with a range of movement and adaptability, enabling them to thrive in various environments. This segmentation and jointed structure are key adaptations that contribute to their success as a group. In contrast, other invertebrate groups listed do not share this characteristic. Mollusks, for example, typically have soft bodies with a muscular foot and may have shells, but they lack jointed limbs. Worms, which belong to the phyla Annelida (segmented worms) or Nematoda (roundworms), are elongated and do not possess jointed appendages, relying instead on body contraction for movement. Echinoderms, such as starfish and sea urchins, have a unique water vascular system and radial symmetry, and they are characterized by their tube feet rather than jointed legs. Therefore, the defining trait of jointed legs distinctly categorizes arthropods within the animal kingdom.

8. What is the temperature at which a substance changes from a liquid to a gas called?

A. Melting Point

B. Boiling Point

C. Freezing Point

D. Condensation Point

The temperature at which a substance changes from a liquid to a gas is known as the boiling point. At this specific temperature, the vapor pressure of the liquid equals the external pressure surrounding the liquid, allowing it to overcome intermolecular forces and transition into the gas phase. In contrast, the melting point is when a solid turns into a liquid, while the freezing point refers to the temperature at which a liquid becomes a solid. The condensation point is related to the phase transition from gas to liquid and does not pertain to the conversion from liquid to gas. Understanding these definitions clarifies the significance of the boiling point in phase changes of matter.

9. Which mountain range crosses through Washington?

A. Rockies

B. Appalachians

C. Cascades

D. Sierras

The correct answer is the Cascades, which is a significant mountain range that runs through the state of Washington. This range is well-known for its volcanic activity, including notable peaks like Mount Rainier and Mount St. Helens. The Cascades are central to Washington's geography and climate, influencing weather patterns and providing diverse ecosystems. The Rockies, while expansive, are primarily located to the east of Washington and stretch through states like Montana, Wyoming, and Colorado. The Appalachians are situated much farther to the east and do not extend into Washington at all. The Sierras, known for their stunning beauty and national parks, are primarily found in California and do not cross into Washington. Understanding the geography of the United States can help clarify the distinct locations of these mountain ranges.

10. What is the distance between one wave crest and the next called?

A. Amplitude

B. Frequency

C. Wavelength

D. Period

The distance between one wave crest and the next is referred to as wavelength. Wavelength is a fundamental property of waves that measures the length of one complete cycle of the wave, which is determined by the distance from one peak (or crest) to the next peak (or crest). This measurement is critical in various fields, such as physics and engineering, as it helps in understanding wave behavior in different mediums. Understanding wavelength is essential in many applications, such as in sound and light waves, where different wavelengths correspond to different frequencies and energies. For instance, shorter wavelengths typically correspond to higher frequencies and energy, while longer wavelengths correspond to lower frequencies and energy. This relationship is foundational to concepts such as color in light and pitch in sound.