

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Answer Key: Interdisciplinary Investigator: A 4th Grade Branches of Science Quest

Can you determine which expert to call for a melting glacier or a failing satellite? Analyze complex scenarios to categorize scientific fields.

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**1. An oceanographer is studying how the saltiness of the Atlantic Ocean changes when massive icebergs melt. This scientist is combining which two major branches of science?**

**Answer:** B) Earth Science and Chemistry

Studying the ocean's structure (salinity) is a part of Earth Science, while analyzing the chemical makeup of the water (salt concentration) involves Chemistry.

**2. If an engineer is designing a new high-speed train that uses magnets to float above the tracks, they are primarily applying the laws of \_\_\_\_.**

**Answer:** C) Physics

Physics is the study of matter, energy, and forces like magnetism and motion, which are required to make a 'maglev' train work.

**3. True or False: A scientist who spends their career studying the ancient soil and rock layers on the planet Mars is working in both Earth Science and Astronomy.**

**Answer:** A) True

This is true because they are using geological techniques (Earth Science) to study a celestial body in space (Astronomy).

**4. A team of researchers is investigating why a specific type of honeybee is disappearing in the Midwest. They look at the bees' health and the pesticides used on local farms. Which branch is their focus?**

**Answer:** B) Environmental Science

Environmental Science looks at the complex interactions between living things (bees) and the impact of human activity (pesticides).

**5. A paleobotanist finds a fossilized leaf from millions of years ago. To understand how the plant lived, they use \_\_\_\_, but to understand the rock it was found in, they use Earth Science.**

**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Answer:** A) Biology

Biology is the study of life. Even though the leaf is now a fossil, studying its biological structures requires knowledge of plant life.

**6. Which of these scenarios would require a Chemist's expertise to evaluate a potential solution?**

**Answer:** B) Creating a new plastic that dissolves safely in water.

Chemistry involves investigating the composition of matter and creating new substances through chemical reactions.

**7. True or False: Because the Sun is a star, the study of how solar flares affect Earth's power grids is only considered Physics and has nothing to do with Astronomy.**

**Answer:** B) False

This is false. Studying the Sun and its activity is a core part of Astronomy, even if it also involves the Physics of electricity.

**8. Imagine a bridge collapses because the steel beams became brittle in the cold. To prevent this in the future, which two types of scientists should work together?**

**Answer:** C) Chemists and Physicists

Physicists study the forces on the bridge, and Chemists study the properties of the steel (matter) and how it reacts to temperature.

**9. A scientist studying the digestive system of a deep-sea giant squid is working in the branch of \_\_\_\_.**

**Answer:** C) Biology

Investigating how a living organism functions, including its internal organs and processes, is the definition of Biology.

**10. True or False: Environmental Science is unique because it often combines data from Biology, Chemistry, and Earth Science to solve problems.**

**Answer:** A) True

Environmental Science is highly interdisciplinary; it requires understanding life, chemical pollutants, and the Earth's natural systems all at once.