Experiments

An experiment is a procedure that is controlled by a scientist to test an idea. For example, a scientist may want to conduct an experiment in order to know which particular manner of speaking is easiest to understand. A) To find the answer, she may make recordings of the voices of four different speakers. B) Then, the scientist can play *them* to different listeners. The listeners can tell the experimenter which accent is easiest to understand. C) From these observations, the scientist can try to answer questions about what makes a person's voice easy to comprehend. D) This scientific *evidence* can lead to solutions to questions.

1. Look at the four letters that indicates where the following sentence could be added to the passage:

   The speakers will probably have different voice qualities - for example, different accents.

   Where would the sentence best fit? Choose the letter where the sentence should be added to the passage.

   a. Line 4
   b. Line 5
   c. Line 7
   d. Line 9

2. As used in the passage , what does "them" refer to?
   a. The scientists
   b. The listeners
   c. The vidence
   d. The voice recordings

3. The word "evidence" in the passage is closest in meaning to
   a. data
   b. lie
   c. assumption
   d. theory

4. How did you choose the answer for question 2 above ? Explain the clues you used to match " them " and your choice .

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Rocket Fuel

There are two basic kinds of fuels used in rockets: liquid fuels and solid fuels. Each has certain advantages and disadvantages. For example, an advantage of liquid fuels is that they can give a rocket more thrust than solid fuels. Liquid fuel *thrusters* can also be turned on and off during flight. However, the disadvantages of liquid fuels are that they require complex systems of pipes and pumps inside the rocket. It also takes longer for liquid fuels to build up enough thrust to launch a rocket than it takes solid fuels. So one advantage of solid fuels is a faster launch time. However, a big disadvantage to solid fuels is that burning cannot be stopped after it has begun.

1. Directions: Complete the table by matching the phrases below. Select the appropriate phrases from the answer choices and match them to the destinations to which they relate . TWO of the answer choices will NOT be used.

Liquid Fuel	**Solid Fuel**
_____	_____
_____	_____
_____	

   a. Less needed per flight
   b. Needs a complex system
   c. Faster launch time
   d. Provides thrust for a rocket
   e. Gives more thrust
   f. Can be turned off
   g. Cannot be turned off

2. What can be inferred from the passage about solid rocket fuels ?
   a. They make the inside of a rocket very hot while they are burning.
   b. They do not require complex systems of pipes or pumps.
   c. They cost less than liquid fuels.
   d. They burn for a very short time during a launch.

3. The word "thrusters" in the passage is closest in meaning to
   a. devices
   b. fuels
   c. solids
   d. parts

4. In question 1 , how did you know some of the answer choices were WRONG ? Explain or show how you knew they were wrong.

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Particle Theory

Scientists use a concept called particle theory to explain the properties and actions of matter. Particle theory provides a model of what is happening on a tiny scale inside all forms of matter. To begin , matter is another word for substance. Matter can be anything, like water or wood, for instance. Scientists say that all matter is composed of very small particles called elements, and elements are formed of tiny atoms. Being familiar with particle theory is important in understanding how different forms of matter are made and how they interact with the world around them.

One important distinction in particle theory concerns the difference between a molecule and a compound. A) A molecule is formed when two or more atoms join together through a chemical reaction. B) A compound is also the joining of two or more atoms. C) However, a compound must be composed of different kinds of atoms. A molecule could be composed of the same kinds of atoms. For that reason, all compounds are molecules. D)

Here is an example. Molecular oxygen (O_2) is a molecule. It is formed by the union of two atoms of oxygen. On the other hand, water (H_2O) is considered to be a compound. That is because it is made of two different elements: hydrogen and oxygen. Most materials in the world around. us are composed of these compound molecules.

There is one more important aspect of particle theory. The particles that make up molecules and compounds do not sit still. In fact, the particles are always moving, and there are spaces between them. In this way, pieces of molecules can move from one molecule to another. When rearrange their particles, new molecules are formed. This explains how matter can change from liquid (like water) to a solid (like ice). The more energy inside a material, the faster its molecules move.

When heat is added to a pot of water, for example, the water molecules begin to move more and more quickly. Once they gain enough energy, they move quickly enough to escape into the air around the water, thus becoming a gas. When water is cooled, its molecules lose their energy and slow down. When the molecules slow down enough, the water becomes solid ice.

1. Based on the information in paragraph 2 , it can be inferred that
   a. atoms are smaller than atoms
   b. atoms are smaller than molecules
   c. compounds are larger than molecules
   d. atoms are larger than compounds

2. Look at the four letters that indicates where the following sentence could be added in paragraph 2:

   However, not all molecules are compounds.

   Where would the sentence best fit? Choose the letter where the sentence should be added to the passage.
   a. Paragraph 2 , Line 2

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b. Paragraph 2 , Line 3
c. Paragraph 2 , Line 4
d. Paragraph 2 , Line 7

3. The word " concerns " in paragraph 2 could best be replaced by
   a. Seperates
   b. Worries
   c. Interests
   d. Is related to

4. The word " compound " in paragraph 2 is closest in meaning to
   a. two or more parts together
   b. intensifiers
   c. two or more parts reacting
   d. distinction

5. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage they express ideas that are not presented in the passage or are minor ideas in the passage

   First sentence: Particle Theory helps explain the called varied composition of matter.

   a. It states that all matter is composed of particles elernents (
   b. Wood, water, and ice arem all forms of matter
   c. Water (H_2O) is a compound , while oxygen (O_2) is a molecule .
   d. A molecule is formed from atoms , and a compound is a type of molecule formed by different atoms .
   e. The atoms in matter are constantly moving from one molecule to another .
   f. The molecules in a solid compound (like ice) move more quickly than the molecules in a liquid compound (like water).

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