

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

## Level Up: The Carbon Crafting Quest for 7th Grade

Students build and break down complex organic molecules through model-based analysis to reinforce their understanding of atomic bonding and isomerism.

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**1. In the game of molecular construction, carbon is known as the 'building block of life' because it can form how many covalent bonds with other atoms?**

- A. Two bonds
- B. Four bonds
- C. Six bonds
- D. Eight bonds

**2. True or False: Isomers are molecules that have the same chemical formula but different physical arrangements of atoms.**

- A. True
- B. False

**3. When modeling a molecule of \_\_\_\_\_ (C<sub>8</sub>H<sub>18</sub>), a component of gasoline, you would draw a long chain of eight carbon atoms saturated with hydrogen.**

- A. Octane
- B. Pentane
- C. Hexane
- D. Heptane

**4. If a scientist adds a functional group containing oxygen and hydrogen (-OH) to a hydrocarbon chain, what category of organic compound is created?**

- A. Polymer
- B. Hydrocarbon
- C. Alcohol
- D. Crystalline Solid

**5. Organic molecules that consist of very long, repeating chains of smaller units (monomers) are called \_\_\_\_\_.**

- A. Isotopes
- B. Polymers
- C. Electrolytes
- D. Enzymes

**6. True or False: All organic compounds must contain at least one metallic element like Iron (Fe) or Copper (Cu).**

- A. True

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B. False

**7. In the process of fractional distillation, how are different hydrocarbons separated from crude oil?**

- A. By their different colors
- B. By their magnetic properties
- C. By their different boiling points
- D. By their ability to dissolve in salt water

**8. The simplest organic molecules, containing only carbon and hydrogen, are collectively known as \_\_\_\_\_.**

- A. Carbohydrates
- B. Hydrocarbons
- C. Amino Acids
- D. Oxides

**9. Which of these is a real-world application of synthetic organic chemistry that helps protect people from infections?**

- A. Creating steel for skyscrapers
- B. Developing antibiotics and medicines
- C. Mining for gold and silver
- D. Purifying oxygen for SCUBA tanks

**10. True or False: Carbon atoms can bond to each other to form closed geometric rings.**

- A. True
- B. False