

Name: _____ Date: _____

Answer Key: Blast Off with Carbon: 6th Grade Organic Chemistry Quiz

Imagine you're an astronaut searching for life; you'll need to identify carbon chains and recognize the flexible bonds that build every living cell.

1. Carbon is often called the 'Lego brick' of life because it can bond with up to how many other atoms at once?

Answer: B) 4

Carbon has four valence electrons, allowing it to form four covalent bonds with other atoms, creating complex structures.

2. True or False: Organic chemistry is the study of molecules that almost always contain the element carbon.

Answer: A) True

Organic chemistry is defined as the branch of chemistry that deals specifically with carbon-based compounds.

3. Molecules made of ONLY carbon and hydrogen atoms, like the wax in a candle, are called _____.

Answer: B) Hydrocarbons

The name 'hydrocarbon' comes directly from the two elements that make them up: hydrogen and carbon.

4. Which of these is a common 'shape' that carbon atoms form when they link together in large organic molecules?

Answer: B) Long Chains

Carbon atoms easily bond to one another to form long, stable chains which serve as the backbone for many organic substances.

5. When an organic molecule like propane reacts with oxygen to release heat and light, the process is called _____.

Answer: C) Combustion

Combustion is the chemical term for burning, where a fuel (organic compound) reacts with oxygen.

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6. True or False: Synthetic materials like plastic are actually made of organic molecules.

Answer: A) True

Even though plastics are man-made, they are built from long chains of carbon atoms, making them organic compounds.

7. If you find a molecule with a 'ring' of carbon atoms, which of these substances might you be looking at?

Answer: C) Aromatic compounds (like scents in flowers)

Many organic molecules, especially those with strong scents (aromatics), are structured in carbon rings.

8. Organic chemistry is essential for doctors because _____ are organic molecules used to treat illnesses.

Answer: B) Pharmaceuticals (medicines)

Most medicines are complex organic molecules designed to interact with the carbon-based systems in our bodies.

9. What is the primary reason carbon is the foundation of life rather than other elements like metals?

Answer: B) It can form stable, diverse structures

Carbon's ability to form stable chains and rings with many different elements allows for the complexity needed for life.

10. True or False: Every single molecule that contains carbon is definitely a living thing.

Answer: B) False

While all living things contain carbon, many non-living things (like gasoline or plastic) are also made of carbon molecules.