Name: _____ **Date:** _____

Answer Key: Tiny Architects: The 1st Grade Carbon Lego Challenge

Young scientists build imaginary models and predict how carbon 'glue' holds the natural world together through hands-on structural analysis.

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1. Carbon is like a tiny LEGO brick with four 'bumps.' If you wanted to build a long bridge, how would Carbon atoms connect?

Answer: B) They hold hands to make a long chain

Carbon atoms are famous for their ability to bond or 'hold hands' with each other to form very long, stable chains.

2. If a molecule is shaped like a necklace that connects back to the start, we call it a ____.

Answer: B) Ring

In organic chemistry, when carbon atoms connect in a circle, scientists call that shape a ring.

3. True or False: Carbon is the most important 'building block' found inside your own body.

Answer: A) True

Carbon is the foundation of life; it is found in your muscles, skin, and even your DNA.

4. Imagine you have a 'Carbon Crayon.' Which of these living things is made of carbon 'ink'?

Answer: A) A buzzing honeybee

Organic chemistry focuses on living things, like insects, plants, and people, which are all carbon-based.

5. Organic chemists are like ____ because they study how to put tiny pieces together to make something new.

Answer: C) Architects

The term 'architect' fits because organic chemistry is all about the structure and building of complex molecules.

6. True or False: A diamond and the graphite in your pencil are both made of Carbon atoms, just arranged differently.

Answer: A) True

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Even though they look different, they are both pure carbon; the atoms are just stacked in different patterns.

7. If you add a special 'Oxygen' hat to a carbon chain, the molecule changes. What does this tell us about Carbon?

Answer: C) Carbon is a friendly teammate to other atoms

Carbon is versatile and readily bonds with other elements like oxygen, nitrogen, and hydrogen to create different substances.

8. When we burn wood in a campfire, the carbon is reacting with oxygen to create ___.

Answer: B) Energy and heat

Combustion is a chemical reaction where organic materials (like wood) release energy in the form of heat and light.

9. True or False: Scientists can use carbon to create new materials like super-strong plastics.

Answer: A) True

Plastics are synthetic organic polymers made by linking carbon chains together in a lab.

10. Which of these is a 'superpower' of the Carbon atom?

Answer: B) It can make millions of different shapes

Carbon's greatest strength is its ability to form an almost infinite variety of complex structures, from chains to cages.