

Name: _____ Date: _____

Wrangle Molecular Shapes: Pre-K Organic Chemistry Challenge

Snap together carbon chains and build 3D fuel models to see how sticky atoms change into bouncy power.

1. If you are building a 'tail' for a fatty acid molecule and want to make it superwiggly, which carbon-carbon connection should you use to create a 'kink' or bend in the chain?

- A. A straight single bond
- B. A rigid cis-double bond
- C. An ionic magnet pull
- D. A frozen ice bridge

2. Imagine you are an engineer building a 'Polythene' bridge. To make the bridge strong instead of soft, you must stack the long carbon chains ____.

- A. in messy tangles
- B. in straight, neat rows
- C. inside water bubbles
- D. with giant gaps

3. True or False: A carbon atom is like a Lego brick with four hands that can hold onto four different friends at the same time.

- A. True
- B. False

4. You found a 'Ring of Fire' molecule called Cyclohexane! If you want to change its shape without breaking any bonds, which 'chair' or 'boat' movement are you performing?

- A. A nuclear explosion
- B. A conformational flip
- C. A color-changing dye
- D. A freezing process

5. To make a smell like a 'stinky sock' turn into a smell like a 'sweet pineapple,' you should perform a reaction called ____.

- A. Esterification
- B. Melting
- C. Puddling
- D. Stretching

6. True or False: If you have two molecules with the exact same atoms, they must always behave exactly the same way.

- A. True
- B. False

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7. If you are designing a secret 'Bio-Plastic' that disappears in water, you should build a polymer chain using which 'water-loving' group?

- A. An oily wax shield
- B. A Hydroxyl (-OH) group
- C. A rock-hard carbon diamond
- D. A heavy metal anchor

8. When carbon atoms share electrons to hold hands very tightly, they create a strong ___ bond.

- A. Covalent
- B. Magic
- C. Gravity
- D. Static

9. True or False: 'Saturated' fats are like a bus full of passengers where every single seat (hydrogen spot) is taken.

- A. True
- B. False

10. Look at these two molecules: one is a circle and one is a line. If they have the same atoms, why does the circle one take longer to 'boil' and fly away into the air?

- A. It is heavier
- B. It has stronger intermolecular 'stickiness' due to its shape
- C. It is afraid of the clouds
- D. It is the color blue