Nature vs. Chemistry: The Science of Bioluminescence

Name: ANSWER KEY Date: _____

Vocabulary Words: Match the definition to each word.

1. The process by which living things produce light through chemical reactions is called **bioluminescence**.
2. The chemicals that mix together to make light in many glowing organisms are **luciferin** & **luciferase**.
3. Fireflies use **oxygen** as a key ingredient to help them turn their light on and off.
4. The deep-sea fish that uses a glowing "light bulb" to attract prey is called the **anglerfish**.
5. Compared to glow sticks, natural bioluminescence is more **efficient** because it produces almost no heat.

Word Bank: luciferin, efficient, oxygen, anglerfish, luciferase, bioluminescence

Multiple Choice: Choose the correct answer from the choices for each question.

1. What is the main purpose of the anglerfish's glowing light?
   - A) To keep warm
   - B) To attract prey
   - C) To scare predators
   - D) To see in the dark

2. Which part of fireflies helps them control when their light turns on and off?
   - A) Their eyes
   - B) Their wings
   - C) Layers in their bodies and oxygen
   - D) Their legs

3. What did scientists name the two chemicals that help create bioluminescence?
   - A) Water and salt
   - B) Oxygen and nitrogen
   - C) Luciferin and luciferase
   - D) Hydrogen and helium

4. In which decade did researchers finally discover how bioluminescence works?
   - A) 1950s
   - B) 1960s
   - C) 1970s
   - D) 1980s

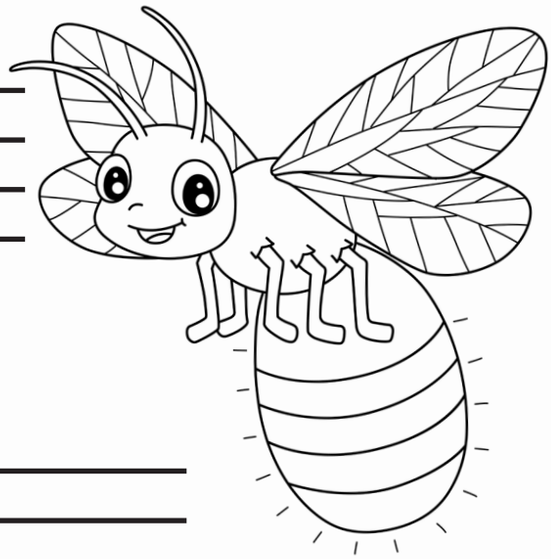
Discussion & Reflection: Answer the following questions in complete sentences

1. How does a firefly create and control its light?

A firefly creates its light by mixing chemicals in its body with oxygen. It controls the light by allowing oxygen to flow in and out, turning the light on and off.

2. Why is natural bioluminescence considered more efficient than artificial glow sticks?

Natural bioluminescence is more efficient because it produces almost no heat and almost all light, while glow sticks only use about 30% of their energy for light.



3. This shows me that God is (Circle the word):

Wise Powerful Caring Creative All of the above

Explain your choice: