Date _____ Class _____ Name_____

40 - BIOLUMINESCENCE

PURPOSE

To determine the effects of temperature and pH on a reaction involving an enzyme for bioluminescence

TO THE TEACHER

The materials for this lab can be ordered from Carolina Biological Supply Company - the BioKit is called Firefly Bioluminescence Kit number 20-3421. Allow 2 class periods for this activity.

MATERIALS

* Bioluminescence Kit
* ice
* desk lamp with a 60 or 100 watt light bulb
* cellophane tape

PROCEDURE

Read the directions carefully before beginning the lab. Follow the directions in the student guides of the BioKit. Answer the questions in the guide.

CONCLUSION:

1. Very few land organisms are bioluminescence. What percent of marine animals can produce light? _____

2. In what areas of the water is luminescence most common? _____

3. What is the enzyme responsible for bioluminescence? _____

4. What is the function of ATP? _____

5. ATP is used to convert _____ energy to _____ energy.

6. Where did the ATP come from for the reaction in Part 2? _____

7. Do all living things contain ATP? _____

8. What is the effect of raising the temperature on this chemical reaction? _____

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9. What is the effect of too high or too low pH on the reaction? _____

10. What adaptations did you observe in the organisms from the bottom sample which would enable them to survive in the benthos? _____

11. What was the relationship of the number of organism to the depth of the sample? _____

_____

12. Under more sophisticated conditions, the chemical luciferin can be obtained without any ATP which might have been in the lantern extract to begin with. Can you guess how scientist can determine if life exists on the moon from testing soil samples? _____

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