Name: _____ Date: _____ Class: _____

Natural Fluorescence and Bioluminescence

Part 1: Diagram – Central Dogma (DNA → RNA → Protein)
Draw and label the process showing how a gene becomes a protein. Be sure to include:

- DNA
- mRNA
- Ribosome
- Amino acids
- Final protein (e.g., GFP or luciferase)

Part 2: Compare and Contrast – Fluorescence vs. Bioluminescence
Complete the chart below:

Feature	Biofluorescence	Bioluminescence
Light Source		
Energy Source		
Requires UV/External Light?		
Protein Example		

Organism Example		

Part 3: Application Questions
Answer the following questions in complete sentences:

1. How are proteins like GFP and luciferase created by organisms?

2. Why are these glowing traits considered inherited characteristics?

3. What advantage might glowing proteins provide to an organism in the wild?

4. How could a scientist use GFP in research or medicine?

Part 4: Case Study – Coral vs. Firefly
Use what you've learned to compare how and why these two organisms glow.

Coral:

- What kind of glow does it produce?

- What triggers the glow?

- Where in the body is the glow likely located?

- Why might this trait help the coral?

Firefly:

- What kind of glow does it produce?

- What chemical or protein is involved?

- What is the glow used for?

- Is the glow turned on all the time or only at certain times?

Reflection:
What do fluorescence and bioluminescence tell us about the role of genes in creating useful traits?