Bioluminescent Dinoflagellate Handout

Introduction
Dinoflagellates are small, single-celled organisms that are abundant in aquatic systems. The cell has membrane-bound organelles including a nucleus which contains their genetic information, DNA. They are able to swim using their tail-like flagella. Many dinoflagellates produce their own nutrients (autotrophic) while some obtain their nutrients by consuming other organisms (heterotrophic). Dinoflagellates are among the most important producers in aquatic food webs.

Activity
While dinoflagellates are infamous for their toxins, we will explore the dinoflagellates that are able to bioluminescence, or produce light through chemical reactions. Your instructor will assign your group a bioluminescent dinoflagellate that you will research, discuss, and write a story about.

1. The scientific name of your bioluminescent dinoflagellate: _______________________

2. Find articles about your bioluminescent dinoflagellate using resources such as:
   - Encyclopedia of Life (http://eol.org/)
   - MicrobeWiki (https://microbewiki.kenyon.edu/)
   - Tree of Life Web Project (http://tolweb.org)

3. Gather information on your bioluminescent dinoflagellate including:
   - Basic cell structure and function:

   - Nutrition of the organism:

   - Interactions with other organisms and environment:

   - Bioluminescence for survival or reproduction:

   - Importance of the organism:

4. List your sources of information:
5. Complete the information map on your bioluminescent dinoflagellate by drawing the basic cell and labeling its flagella, drawing how it obtains its nutrients, drawing its interactions with other organisms and the environment, and drawing how it uses its bioluminescence for survival or reproduction.
6. Write a story about the day in the life of your dinoflagellate. In your story, be sure to consider each of the following:

- What does the organism look like? How does it work?
- How the organism obtains its food?
- Who does the organism seek out? Who does the organism avoid?
- How does the organism use its bioluminescence?
- How is the organism important?

Feel free to get creative and have fun! 😊