



## Chapter 22 Project

### Scientific Poster: Prokaryotes

#### Project Goal + Timeline

In this project, we will be reviewing your knowledge of prokaryotes by creating a poster presentation focused on a specific topic related to prokaryotes. After creating your poster, you'll prepare a short presentation and attend a session to talk with interested students and teachers. This project should be completed within a group of two to four students in a two-hour time frame.

#### Directions

##### Part 1: Plan Your Poster

To help with planning, review the topics you've learned throughout the chapter and pick an area of focus. Maybe you'd like to explore the evolution of prokaryotes and how they've changed the Earth throughout its history, the diversity of prokaryotes and their adaptations to extreme environments, or the role of prokaryotes in public or ecosystem health. Pick a topic that interests you!

The poster you create should be a succinct, clear, and self-explanatory presentation that focuses on a topic. Include a section that introduces your topic. Then, include three to five brief sections that explore or explain subtopics of your general topic. Your poster should present this information in a concise and visual way, so make sure to include figures and images to communicate your central ideas. Check out the example poster structure in Part 4 for one way to structure a poster.

As you plan out your poster, make sure to complete the following:

- Determine the message that you want to communicate with your audience.
- Determine a rough outline of the text and figures on your poster.
- Decide your method for building your poster. You may choose to print out the text and images and paste them onto posterboard. Alternatively, you may develop your poster in a presentation software and then print it out.

##### Part 2: Create Your Poster

First, prepare the text. Write the text of your poster in a word processing software before printing or copying it to a poster design software. Make sure to write a title that succinctly describes the subject and conclusion of the poster. Then, develop a background/introduction that provides just enough information for another student to understand your topic. Whenever possible, use diagrams to communicate information visually. Also, include several summary sections. Ideally, each section will be composed of a title, text, a figure, and a brief figure legend. Reduce text as much as possible to make your poster more approachable and clear. If you consult any outside resources, prepare a reference list.

Then, prepare the figures you'll include in your poster. Make sure your figures have a clear connection to the content and are being used to either illustrate or further explain the ideas conveyed on your poster. You may choose to prepare any specialized figures in a graphing software or illustration software. If you use any figures from the internet, make sure to include a citation for the image. Make sure to design your figures so that they can be read from at least two feet away.

Now, you're ready to prepare the layout.

- Ensure that your poster is the correct size (48 inches wide x 36 inches tall).
- Choose a foreground color, background color, font, and font sizes that enhance clarity and visibility. At least a 16 pt. type for most fonts is recommended for the smallest text sections.

- Make sure the title is written in a larger font size so that it is clearly visible. Add your name and the names of your group members directly beneath the title in a smaller font size.
- Make sure all figures have a brief explanatory caption and a citation, if needed.
- Ensure that your poster is completely free of errors, typos, and grammatical mistakes.

### Part 3: Present Your Poster

Prepare and rehearse a short, three-to-five-minute oral presentation. Your presentation should start with a hook—some gripping information that will pique a listener’s interest. Then, you should take the listener through your poster, explaining each section. Do not get bogged down in the details, but rather focus on the big picture and major takeaways. Listeners who want to know more can always read the text!

When you present your poster, be available to take interested listeners through your topic, but also make sure you find the time to walk around, view other students’ posters, and listen to their presentations.

### Part 4: Example Poster

**Poster Title:** Prokaryotes, the Founding Inhabitants of Earth

**Introduction:** Introduce the early history of prokaryotes and their role very early in Earth’s existence (oxygenation of the atmosphere). Include an image of cyanobacteria. Explain that prokaryotes have played a critical role in the evolution and maintenance of life on Earth.

#### Poster Sections

1. **The Prokaryotic Cell:** Discuss prokaryotic structure and include a diagram of a prokaryotic cell.
2. **Prokaryotic Evolution:** Discuss relationships among bacteria, archaea, and eukaryotes. Add an image of the three domains of living organisms.
3. **Prokaryotic Metabolism:** Describe different ways prokaryotes metabolize and draw connections to the impact of prokaryotic metabolism on Earth’s processes throughout geologic history. Include a figure showing carbon and energy sources in prokaryotes.
4. **Role of Prokaryotes in Ecosystems:** Discuss contributions of prokaryotes to contemporary ecosystems. Include a figure of the roles of prokaryotes in carbon and nitrogen cycles.

**Conclusion:** Summarize the information on poster and relate back to the introduction, emphasizing the impact of prokaryotes in making the Earth habitable.

## Project Materials

- Poster board or poster creation software
- Computer
- Printer

### Student Checklist

- ☐ Plan your poster
- ☐ Design your poster
- ☐ Create your poster
- ☐ Present your poster to other students