



Chapter 27 Project

Draw a Tree of Animal Life

Project Goal + Timeline

In this project, we will be reviewing your knowledge of animal diversity by creating a poster of a phylogenetic tree depicting animal diversity. This project should be completed by yourself or in a group within two hours.

Directions

Part 1: Create a Phylogenetic Tree

Create a poster of a phylogenetic tree depicting animal diversity.

Include the following modern animal groups: Arthropoda, Nematoda, Platyhelminthes, Rotifera, Ectoprocta, Brachiopoda, Annelida, Mollusca, Chordata, Echinodermata, Acoela, Cnidaria, Placozoa, Porifera, and Ctenophora. For each modern animal group, add one representative species to that group. Then, add a picture of each representative species. These pictures can be your drawings or internet images. Make sure to cite any internet images.

Also include the following phylogenetic branches, or divergences: Ecdysozoa, Protostomia, Deuterostomia, Lophotrochozoa, Acoelomates, Bilateria, Eumetazoa, Parazoa, Metazoa, and Radiata. For each branch, include a statement answering the following question: “What changed?” Then, briefly explain the new defining characteristics.

Part 2: Use Your Phylogenetic Tree to Answer Questions

Answer the following five questions on a separate piece of paper. Then, cut those out and glue them to the poster. Number each answer 1 through 5, one for each question listed.

But wait, there’s more! For full credit, you must do more than write the answers. Use your phylogenetic tree to *show* your answers. Draw arrows to associate each answer to relevant examples in your tree.

For example, when question #4 asks for animal groups that arise from the Cambrian explosion, do not simply list those animal groups. Instead, draw arrows on your poster pointing out those groups, and then mention them in your answer.

Here are the five questions:

1. How do animal body plans differ and how do these body plans support animal classification?
2. Show the features that characterized the earliest animals and approximately when they appeared.
3. What was the Cambrian explosion and when did it occur?
4. Which animal groups arose after the Cambrian explosion?
5. List the mass extinction events. Choose one of them and include details explaining how the event affected the outcome of evolutionary history and animal diversity.

Part 3: Complete Review Questions

Conclude this project by answering the following questions.

1. What features distinguish kingdom Animalia from other kingdoms?
2. What types of data do scientists use to determine phylogenetic trees?

Project Materials

- Poster board
- Drawing materials (markers, pens, etc.)
- Blank paper
- Pair of scissors
- Tape and/or glue
- *Optional: Computer with internet access and printer for images*

 Student Checklist

- ☐ Create the phylogenetic tree poster
- ☐ Add the answers to the five questions to your poster
- ☐ Complete the review questions