

# Build a Cladogram Lab

## Understanding Animal Kingdom through a Cladogram

**Background:** A Cladogram is branching, treelike diagram. The endpoints of the branches represent specific species of organisms. It is used to illustrate phylogenetic relationships and show points at which various species have diverged from common ancestral forms.

You are a scientist trying to determine the relationship between the organisms below. Using your knowledge of the characteristics of the organisms, create a Cladogram that represents how these animals are related. Cut out each of the animals illustrated below and glue them on the Cladogram template at the appropriate position to create your Cladogram.

Be sure all of your animals are arranged at the top of the Cladogram and the distinguishing characteristics where species have diverged are represented on the Cladogram at the appropriate branches. Consider the following characteristics when designing your Cladogram. The terms in bold should be included on your Cladogram.

### Directions:

1. Place the **single-celled ancestor** on the Cladogram in the appropriate position.
2. Divide the animal pictures provided into two groups depending on if they are **Vertebrates or Invertebrates based on the presence or absence of backbones/vertebrae**.
3. Among the invertebrates sort the animals based on the **body complexity**.
4. Place the captions - **tissues and multicellularity** in the appropriate positions on the Cladogram.
5. Among the invertebrates sort the animals based **symmetry- radial, bilateral or asymmetry**.
6. Next arrange and glue the invertebrates on the Cladogram template based on the symmetry and complexity shown by them.
7. Arrange and glue the chordates on the Cladogram
8. Indicate the points in the Cladogram at which the characteristics – “**radial symmetry, bilateral symmetry, backbones**” appear at the circles with the captions provided.