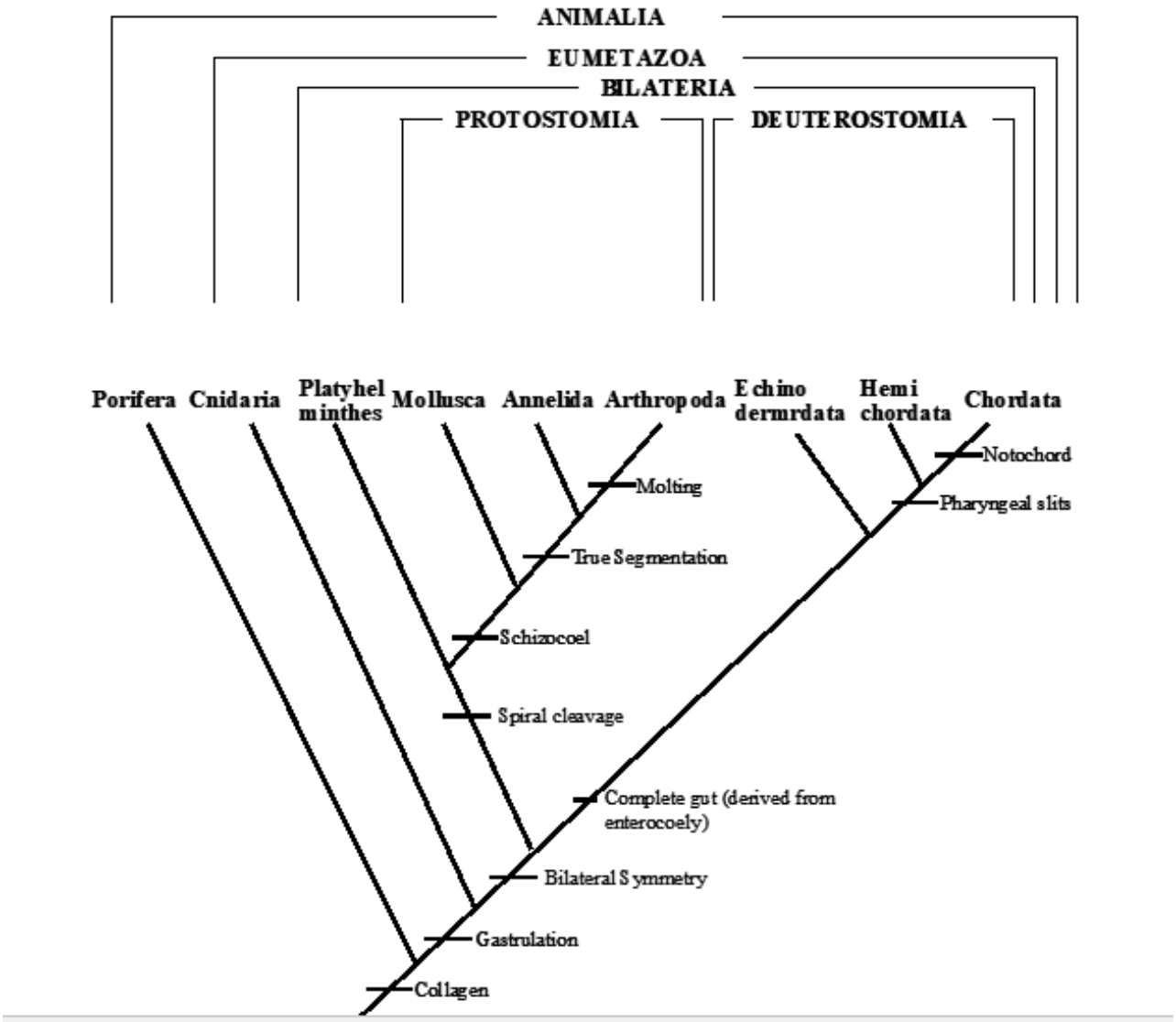
Evolving Trees [13]

This exercise introduces the basic methods of phylogenetic analysis. You will make an hypothesis about evolutionary relationships of groups of organisms and become familiar with the methods using the basic principles of taxonomy and classification for building evolutionary trees.

Part I

Using the cladogram below, (Figure 1, Modified from Gergus and Schuett, 1997), complete the attached chart by determining which taxa (groups) have the characters listed in the left column. **With this exercise, you will be working backwards utilizing the steps for building a cladogram.**

Figure 1. Cladogram.



Use the cladogram to complete the following chart. [10]

	Porifera	Cnidaria	Platyhelminthes	Mollusca	Annelida	Arthropoda	Echinodermata	Hemichordata	Chordata
Notochord									
Pharyngeal slits									
Complete gut									
Molting									
True Segmentation									
Schizocoel									
Spiral cleavage									
Bilateral Symmetry									
Gastrulation									
Collagen									

Questions

1.Describe how the pattern in the chart reflects the pattern of the cladogram. [1]

2- Reference a **specific branch** (list the names of the organisms)of the cladogram that illustrates divergent evolution. Name the ancestral species to this branch. [2]