

## Chapter 47: Animal Development

1. Describe the steps of fertilization in the formation of a zygote.

14. The early mitotic divisions of the zygote to form a ball of cells are called *cleavages*. What is unique about *cleavage*?

15. How do the early cleavages set the stage for subsequent developmental events?

16. On the figure below, label and describe each of the following: *fertilization envelope*, *zygote*, *blastomere*, *blastula*, and *blastocoel*.



24. The early cleavages are followed by *gastrulation*. Visualize punching in a partially inflated ball with your fist. This would result in a layer of the ball being pushed to the inside. In essence, this is what occurs in *gastrulation*. These layers establish the future embryonic *germ layers*. So remember this: *gastrulation* establishes the *germ layers*. What are the three *germ layers* of the embryo?

25. You should know at least two derivatives of each germ layer. Refer to p. 247 in your Review Book, and select three tissues to learn from each layer. Use this chart to help organize your learning.

Ectoderm	Mesoderm	Endoderm

39. What is *morphogenesis*? (Reread the overview if you have forgotten.)

40. What is apoptosis and how does it play a role in development?

41. Although all cells in an organism have the same genome, explain two ways in which gene expression is altered during development.

42. What does it mean to say that a cell is *totipotent*?