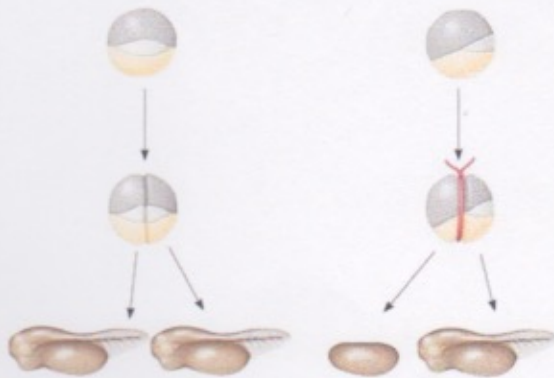


~~Concept 47.2 Morphogenesis in animals involves specific changes in cell shape, position, and adhesion~~

39. What is *morphogenesis*? (Reread the overview if you have forgotten.)
40. As stated in the concept heading, what are three things involved in morphogenesis?

Concept 47.3 The developmental fate of cells depends on their history and on inductive signals

41. Although all cells in an organism have the same genome, explain two ways in which gene expression is altered during development.
- Determination allows cells to become committed to a certain fate, while differentiation then allows for the resulting specialization of structure and function.
42. What does it mean to say that a cell is *totipotent*?
- This means that the cell could develop into any of the different cell types of its species.
43. Explain why two normal embryos result when the two blastomeres on the left are separated, but not when the two blastomeres on the right are separated.



The gray crescent allows for normal development, so the blastomere that received none of the light gray area didn't develop normally.  
(No dorsal structure w/o gray crescent)

44. *Induction* is an interaction among cells that influences their fate, usually by causing changes in gene expression. What did Speman and Mangold find to be the *organizer* that induced a series of events that result in the formation of a notochord and neural tube?

They found that the dorsal lip of the blastopore functions as an organizer of the embryo's body plan.

*Testing Your Knowledge: Self-Quiz Answers*

Now you should be ready to test your knowledge. Place your answers here:

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_ 6. \_\_\_\_\_ 7. \_\_\_\_\_