

Chapter 4

Reproduction and Development_Animals_Asexual

Reproduction_SLFAB2

ASEXUAL REPRODUCTION

Vegetative or asexual reproduction occurs in response to environmental factors. It is advantageous in stable, favorable environments. It allows animals to colonize a habitat rapidly and in a short amount of time. In burrowing animals or those in isolation, offspring are produced without the need for a mate. However, to reproduce without the use of gametes that have undergone Meiosis, means that no new genetic variation is produced. This lesson will discuss the different modes of asexual reproduction of animals.

In animals, the more common methods of asexual reproduction are fission, budding, fragmentation and regeneration. These are usually observed in invertebrates. In *fission*, the parental body separates into two or more individuals. *Budding* allows a new individual to grow out from the parent's body. The bud may detach or remain together. An example is found in stony corals, around one meter across, made of several thousand connected individuals. Another example is shown by budding in *Hydra* (Figure 4.1).

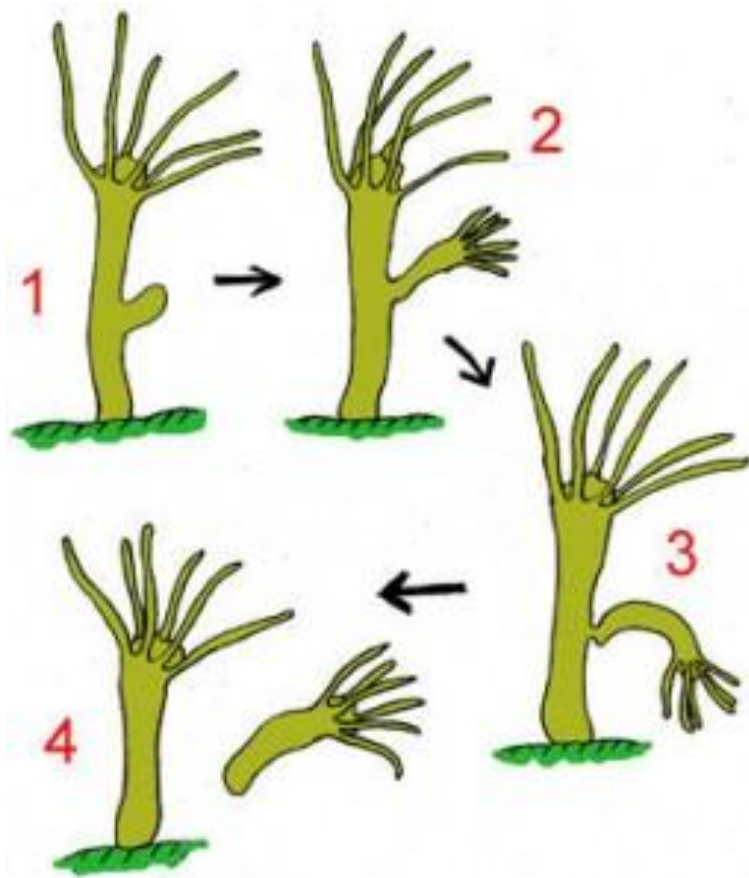


Figure 4.1 Budding in *Hydra*.

Some invertebrates release groups of cells that grow to become new individuals. In sponges, cells of several types migrate together, and form **gemmules**. *Fragmentation* occurs when an animal's body is broken into several pieces, each developing to a new complete individual. Fragmentation is accompanied by *regeneration* (Figure 4.2), when lost body parts are produced again. All these are made possible by mitosis. Cells which

exhibit this phenomenon are equivalent to meristematic cells of plants.

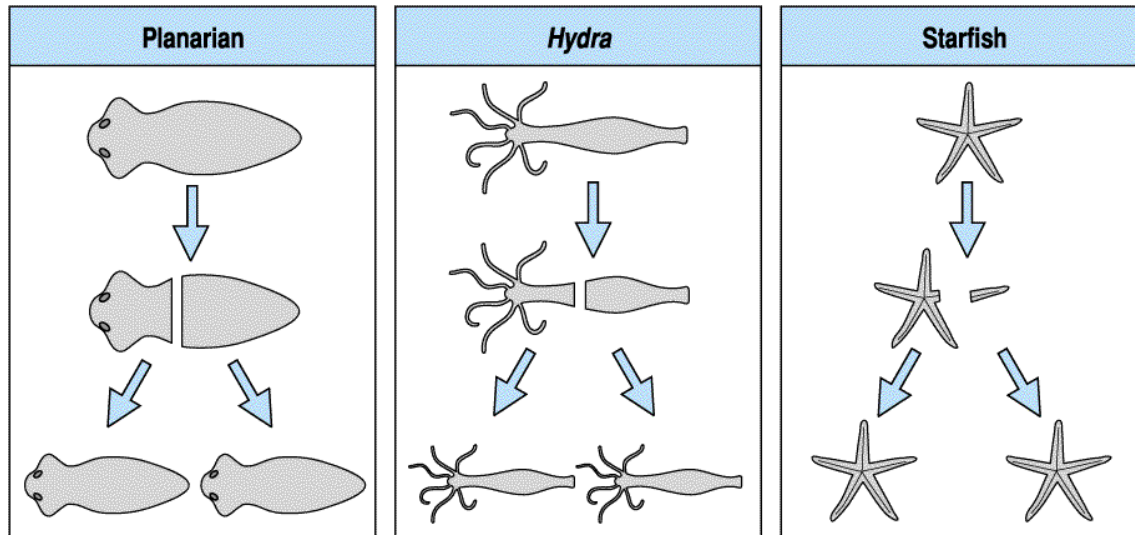


Figure 4.2 Regeneration in some animals.

Humans cannot regenerate lost body parts because if you cut a whole finger or damage an arm with firecrackers, the best that can happen is wound healing. Animals are better off because for example, in a lizard an arm can be regenerated in a matter of weeks. In a starfish a detached arm of a starfish can regenerate into a new individual. The latter scenario which can take a long time, is a form of asexual reproduction while regenerating a starfish arm or a cut lizard limb is not.