

Sponges: Origins Fact Sheet

The name of the sponge phylum is porifera, which means “pore bearer” in Latin.

Paleontological, morphological and genetic evidence point to the sponges being the oldest phylum in the animal kingdom.

Sponges are predominantly marine, with one freshwater family.

Features of the Phylum

- **Asymmetrical**
Although an individual sponge may look symmetrical, there is no underlying organized symmetry.
- **Organized as an assemblage of different kinds of cells, e.g. collared cells**
A sponge has no tissues, nervous or digestive systems, or organs. All the processes of growth, repair, feeding, and reproduction are at the cellular level.
- **Skeleton made of collagen fibers and frequently mineral spicules**
- **The body a system of canals and chambers**
The sponge's body is a system of canals and chambers through which the sponge pumps a current of water in order to trap food.
- **Both sexual and asexual reproduction**
Sponges were the first animals to reproduce sexually as well as asexually. Most are hermaphrodites, functioning as both sexes simultaneously. Sperm is released into the water and sucked into an individual of the same species where it is delivered to the eggs. Later, a larva is released into the water.

Key words and concepts

Collagen: A type of protein in animal cells that forms strong fibers, found extensively in connective tissue, intracellular matrix, and bone; one of the most abundant proteins in the animal kingdom.

Multicellular organism: An organism composed of many cells, which are to varying degrees integrated and independent.

Spicule: A tiny structure made of silica or calcium carbonate that, when present in large numbers, along with collagen makes up the supporting framework of sponges.

Choanocytes: Collared cells with tail-like flagella that continually whip producing a current that draws water past their collars where food gets captured. The continuous motion of thousands of choanocytes creates the pumping that circulates water through the sponge's body.

Cell-to cell communication: Cell to cell communication is an important step in the creation of multicellular animals. Sponges were the first multicellular animals with cell-to-cell communication, but their cells still function mostly independently. In other more complex multicellular animals, cells communicate with one another in order to carry out all the processes of life.