Kingdom Animalia

There is great variation among animal species as you can see on the picture below. Despite this variation, there are a number of traits that are shared by all animals.

Basic animal traits

Animals are **multicellular eukaryotes**.

All animals are **heterotrophs.** They eat other living things because they can't make their own food.

All animals also have **specialized cells** that can do different jobs more efficiently than non-specialized cells.

Most animals have **higher levels of organization** as well. They may have specialized tissues, organs, and even organ systems. Having higher levels of organization allows animals to perform many **complex functions**.

With their specialized cells and higher levels of organization, animals can do several things that other eukaryotes cannot.

Animals can **detect and quickly respond to a variety of stimuli**. They have specialized nerve cells that can detect light, sound, touch, or other stimuli. Most animals also have a nervous system that can direct the body to respond to the stimuli.

All animals can **move**, at least during some stage of their life cycle. Specialized muscle and nerve tissues work together to allow movement. Being able to move lets animals actively search for food and mates. It also helps them escape from predators and other dangers.

Virtually all animals **have internal digestion of food**. Animals consume other organisms and may use special tissues and organs to digest them. (Other heterotrophs, such as fungi, absorb nutrients directly from the environment.)

Seven essential functions in animals

Feeding: eating food

Respiration: taking in O2 and giving off CO2through cellular respiration

Internal movement: carrying substances from one part of the body to another

Excretion: eliminating metabolic waste products

Response: reacting to environmental stimuli

Movement: changing the position or orientation of body part or entire body

Reproduction: producing offspring

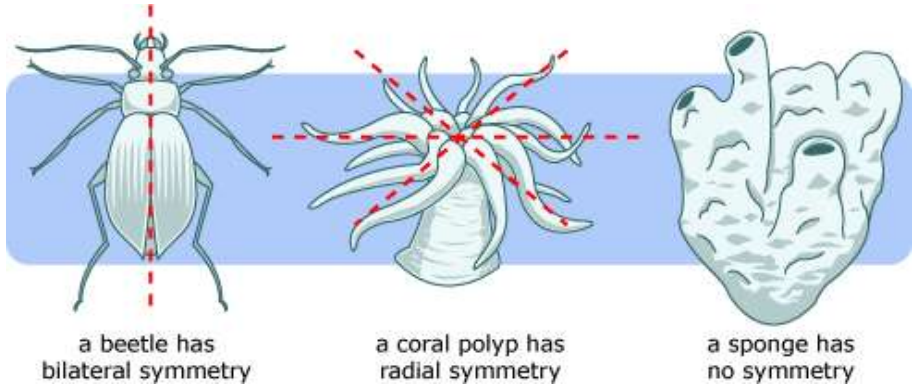
Animalia

Symmetry

There are two types of symmetry: radial and bilateral.

Radial symmetry is demonstrated by the coral polyp. It can be divided into identical halves along any diameter, just like a circular pie. Radial symmetry was the first type of symmetry to evolve. Animals with radial symmetry, such as cnidarians, have no sense of left or right. This makes controlled movement in these directions impossible.

Bilateral symmetry is demonstrated by the beetle. It can be divided into identical halves just down the middle from top to bottom. Bilateral symmetry could come about only after animals evolved a distinctive head region where nerve tissue was concentrated. The concentration of nerve tissue in the head region was the first step in the evolution of a brain. Animals with bilateral symmetry can tell left from right. This gives them better control over the direction of their movements.



Three basic trends in animal evolution

The **level of organization** becomes higher as animals become more complex; functions are carried out on the level of organs and organ systems rather than that of cell and tissue

Most complex animal exhibit **bilateral symmetry**, whereas some of the simplest animals exhibit radial symmetry.

Cephalisation tends to improve as the animals become more complex; brain and anterior sense organs are generally most highly developed in more complex animals.