Multicellular Organisms

- Multicellular – made of **more than one cell**.
- All **plants and animals** and some **fungi and protists** are multicellular.
- Each kingdom in the domain **Eukaryota** has multicellular organisms.
- Multicellular organisms depend on **specialized cells**.
- Through the process of **cell differentiation**, cells become specialized to perform specific jobs (e.g. nerve cells, blood cells, skin cells).

Examples of specialized cells:

- The collar cells of a sponge – pump water into the sponge’s body, providing its nutrients.
- Gas bladder of a giant kelp – keep the organism upright so that it can receive sunlight
- Aerial roots of the banyan tree – collect more nutrients and provide extra support
- Human taste cells on tongue – allow a person to differentiate a variety of tastes

Advantages of multicellular organisms:

- Can perform more functions than unicellular organisms
- Can be larger

Disadvantages of multicellular organisms:

- Larger size of multicellular organisms means that they need more food, need more structural support (skeleton).
- Some of the structures formed by specialized cells are dependent upon other structures. If one structure within the organism is unable to function, other structures may not be able to function either.

Levels of Organization:

Groups of **cells** with similar functions form **tissues**. Groups of **tissues** with similar functions form **organs**. Groups of **organs** with related functions form **organ systems**. And several **organ systems** work together within a single **organism**.