

# Topic 1: Cell Biology

## Cell Structure

### Eukaryotes and Prokaryotes

All living things are made of cells, which can either be prokaryotic or eukaryotic.

Animal and plant cells are eukaryotic. They have a:

- Cytoplasm
- Cell membrane
- Nucleus containing DNA.

Bacterial cells are prokaryotic and are much smaller. They have a:

- Cytoplasm
- Cell wall
- Cell membrane
- Single circular strand of DNA and plasmids (small rings of DNA found in the cytoplasm)

The structures mentioned above (e.g., cell membrane) are examples of organelles - structures in a cell that have different functions.

Cells are extremely small, and we can use orders of magnitude to understand how much bigger or smaller one is from another:

If an object is 10 times bigger than another, then we say it is  $10^1$  times bigger.

If an object is 1000 times bigger than another, then we say it is  $10^3$  times bigger.

If an object is 10 times smaller than another, then we say it is  $10^{-1}$  times smaller.