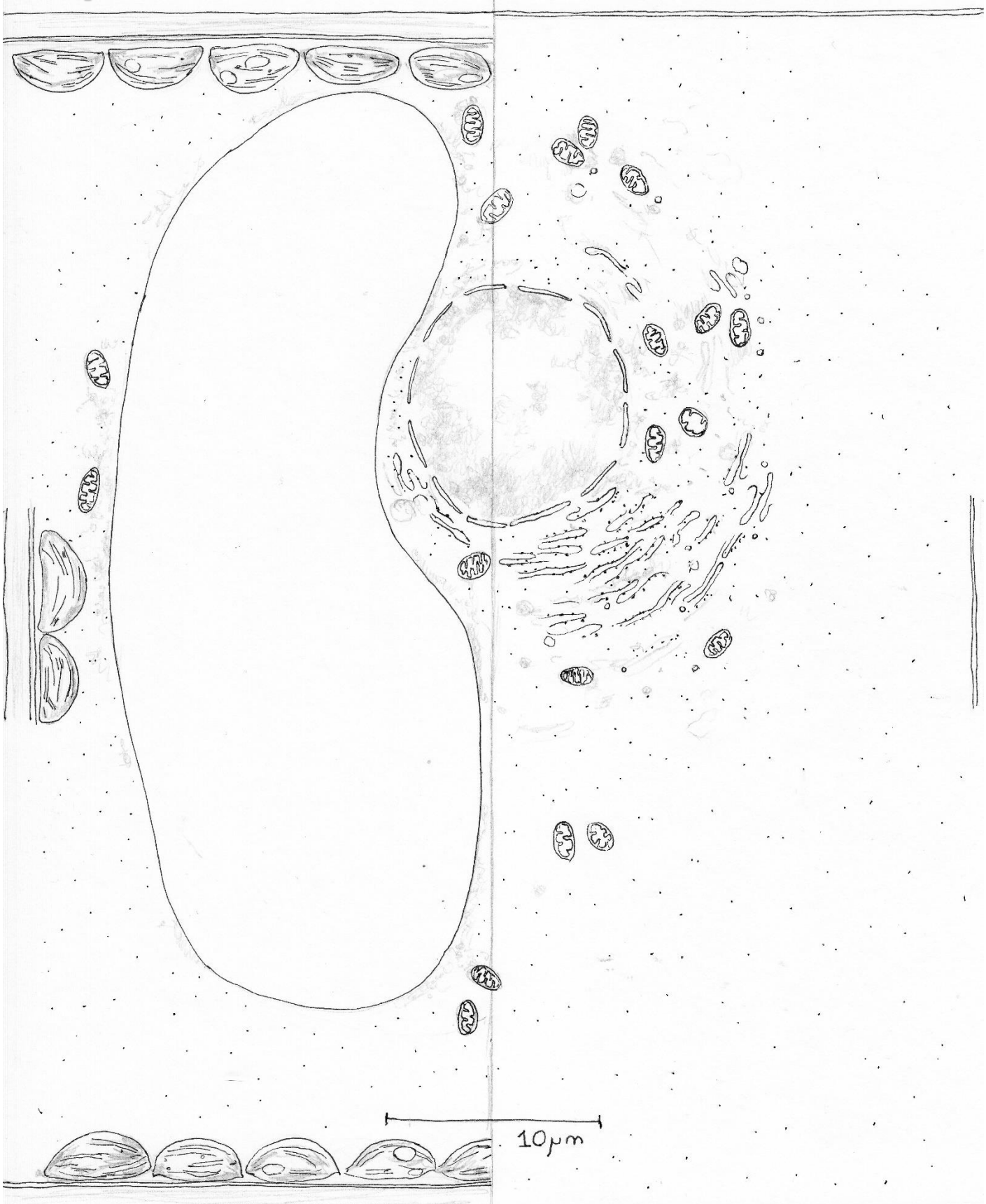
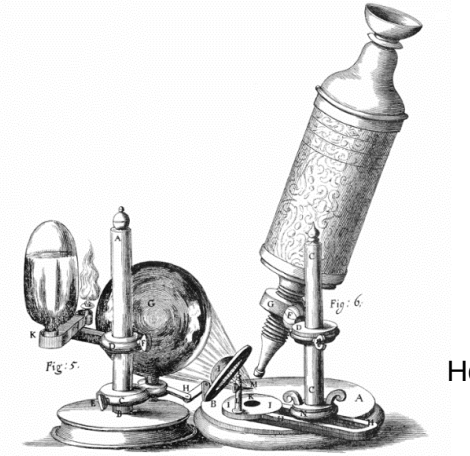
Origami cell – half plant and half animal

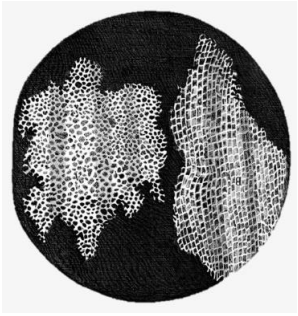


Colour in and fold up

The Royal College of Pathologists
Pathology: the science behind the cure

Cells are the basic unit of life. They were first observed by Robert Hooke in 1665 when he looked down a microscope at a piece of cork. *Find out more..*





Hooke observed little rooms called 'cells'

Structures inside a eukaryotic cell…

Animal	Plant
Cell membrane	Cell membrane
Cytoplasm	Cytoplasm
Nucleus	Nucleus
Mitochondria	Mitochondria
Ribosomes	Ribosomes
Vacuole	Vacuole
	Chloroplasts
	Cell wall

Identify structures inside your origami cell. Half shows a human cheek cell while half shows a plant palisade cell. This paper is made of cell walls from plants!

What can go wrong? A cell could catch a virus, or mutations in its DNA could cause it to grow and divide out of control (cancer). *Find out more.*

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Cell membrane – flexible outer layer of cell which controls which substances can enter or leave.

Cytoplasm – liquid inside where chemical reactions happen using enzymes.

Nucleus – contains genetic material (DNA) which controls the cell's activities.

Mitochondria – where respiration happens to release energy from glucose.

Ribosomes – where proteins are made.

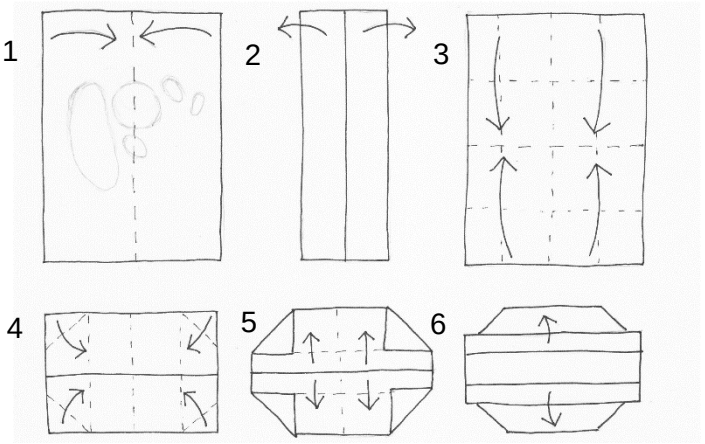
Vacuole – membrane-bound organelle; in animals and plants it breaks down waste; in plants it also helps maintain water balance.

Chloroplasts – contain chlorophyl where photosynthesis happens.

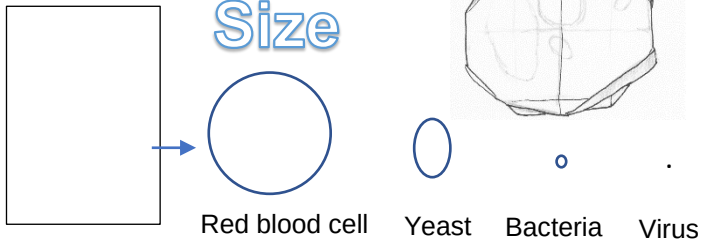
Cell wall – made of cellulose to strengthen the cell and support the plant.

Colour me in…

At a tiny scale most cells look like glass, so dyes are used to pick out structures. Exceptions are chloroplasts which are green and red blood cells. *Find out more.*



Size



Drawings to scale to the folded origami cell

The plant/animal cell would measure around 70 µm (close to the width of a hair). **Origami challenge**: cut out the rectangle above, colour it red and fold to make a red blood cell in scale (7µm) to the large origami cell. A yeast cell is half as small again (3-4 µm) while prokaryotic cells are 0.5-1 µm. Viruses such as the coronavirus are around a 1/10th of a µm (100nm).

Which side of your cell is animal and which side is plant?