

1 Cell structure – Part 1 —Answers

Answers

1.1 actual size = $\frac{30}{1500} = 0.02$ mm.

1.2 Magnification is how many times bigger the image is than the object; resolution is the smallest distance between two points that still lets you see them as separate (it sets the real limit on detail).

1.3 (a) holds the DNA and controls the cell; (b) carry out respiration to release energy (ATP); (c) make proteins (join amino acids).

1.4 A cell that keeps its DNA inside a nucleus (and has membrane-bound organelles).

1.5 The electron microscope —electrons have a much shorter wavelength than light, so it resolves much smaller detail.

1.6 Magnifying only makes the image bigger; it does not improve resolution. A light microscope's resolution is limited by the wavelength of light, which is too large to separate structures as tiny as ribosomes —so they stay a blur no matter how much you magnify.