

Chapter 1 – Cells

Online resources: Click on Chapter 1 at the site below.

<http://www.nelson.com/bcscienceprobe8/student/weblinks.html>

Chapter 1.1

_____ is another word used to describe living things.

2. What are the characteristics of living things?

_____ are the basic unit of all living things.

4. What are the two main ideas of cell theory?

5. Why is cell theory so powerful?

Chapter 1.2

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Chapter 1.3

1. The _____ is the control centre of the cell. It directs all of the its _____. When plant or animal cells are surrounded by a _____ they are called _____ cells. In some one-celled _____ the membrane is missing. Those cells are called _____.

_____ are found inside the nucleus, and contain _____ which is _____ information that gets passed on to other _____ cells.

3. Acting like a gatekeeper, the _____ controls the movement of _____ like nutrients and waste in and out of the cell. It is made of a _____ of fat molecules.

_____ is a watery _____ that contains everything inside the cell membrane and outside the _____. It allows quick _____ of materials and stores _____.

4. A _____ is used to store water and nutrients like _____ and _____.

5. Make your own sketch of the typical animal cell on p.11.

6. Name and describe two structures that some cells have to help them move.

7. How do plant cells differ from animal cells?

8. How is the vacuole of a plant cell different than the vacuole in an animal cell?

9. The _____ protects and supports the plant cell. Sometimes there is a _____ cell wall and sometimes there is a _____ cell wall for extra support and strength. Small _____ allow gases and other substances to pass through.

10. The food factories of a plant cell are the _____. Inside each are many molecules of a green chemical called _____. Using light from the Sun, _____, and water, plant cells make their own _____.

Chapter 1.4

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Chapter 1.5

1. How are advances in cell biology linked to advances in optics?
2. Who made some of the best early microscopes? When?
3. How does the compound light microscope improve on the single lens microscope? What is the practical magnification limit of a light microscope?

_____ electron microscopes are capable of _____ magnification by using a beam of _____ instead of light.

5. Describe the two major limitations of the transmission electron microscope.
6. What advantage does the scanning electron microscope have over the transmission electron microscope? What disadvantage does it have?

Chapter 1.6

1. Tiny structures in the working area (cytoplasm) of the cell are called _____. Many are so tiny that they can only be seen with a _____ microscope.
2. Often called the power plants of cells, _____ are circular or _____ organelles. Through the process of _____ the mitochondria release energy. This is done by combining _____ molecules with _____ molecules to form carbon dioxide and _____.

_____ appear as small, fuzzy dots even when viewed with a transmission electron microscope. Their function is to produce _____ by taking information from the _____ and molecules from the _____. The proteins are used in cell growth, _____, and _____.

4. The _____ is a series of folded _____. It occurs in two forms: in one, _____ endoplasmic reticulum, many _____ are attached, while in the _____ version none are. The smooth form is where the body produces _____.
5. Looking like a stack of flattened _____ the _____ stores proteins and puts them into packages called _____. The proteins are carried to the surface of the cell by the vesicles where they are _____ to the outside.

_____ are created by the Golgi apparatus to patrol and clean the _____. They do this because they contain special _____ that can break down large _____ into smaller molecules that the cell can reuse as _____ for new larger molecules. They play an important role in destroying harmful _____ and _____ that invade the cell.

Chapter 1.7

1. What is the difference between *permeable*, *impermeable*, and *selectively permeable* membranes?
2. The movement of molecules from an area of _____ to an area of lower concentration is called _____.
3. Explain how diffusion helps move substances into and out of cells.

Chapter 1.8

1. The diffusion of water through a _____ membrane is called _____. Water moves from an area of _____ concentration to an area of _____ concentration.
2. A _____ is a substance that is dissolved in another substance known as the _____. Salts and _____ are common solutes, while _____ is a typical solvent.

3. What happens to the size and shape of a cell if the concentration of solute molecules outside the cell is greater than the concentration of solute molecules inside the cell? What might be the result?

_____ is caused by water filling the _____ and cytoplasm, causing them to _____ and press against the _____. This pressure _____ more water from entering the cell. Plants _____ because of turgor pressure.

Chapter 1.9

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Chapter 1.10

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Chapter 1.11

Read this section for career interest only. You won't be tested on what you read.

Key Terms (Vocabulary) in this Chapter

Write a concise definition of each word or phrase.

cell theory

cell membrane

cell wall

cellular respiration

chloroplasts

chromosomes

cilia

cytoplasm

diffusion

endoplasmic reticulum

eukaryotic cells

field of view

flagellum

Golgi apparatus

lysosomes

mitochondria

nucleus

organelles

organisms

osmosis

prokaryotic cells

ribosomes

selectively permeable

turgor pressure

vacuole