

## Feedback Lesson

**Answer the questions below.**

1. Explain the difference between eukaryotic and prokaryotic cells.

**Eukaryotic cells contain a nucleus, prokaryotic cells contain their DNA in plasmids or loops.**

2. Explain the difference between active transport and diffusion.

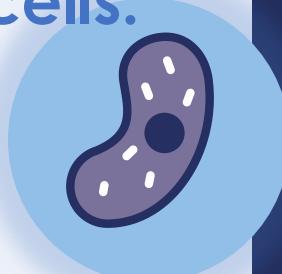
**Diffusion is the net movement of molecules from high concentration to low concentration and is a passive process (does not require energy), whereas active transport is the movement of molecules from low concentration to high concentration and requires energy.**

3. Describe the process of cell division.

**Cells replicate their DNA and subcellular structures before chromosomes are pulled to separate ends of the cell before the cytoplasm and membrane split to form two identical daughter cells.**

4. State the equation to calculate magnification of an image.

$$\text{Magnification} = \frac{\text{Size of image}}{\text{Size of actual object}}$$



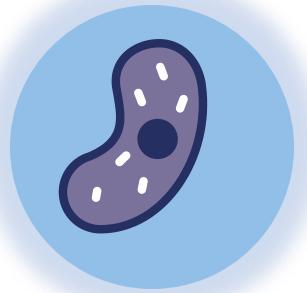
# Feedback Lesson

B3.1.15

Science  
**Mastery**

- B3.1.1 Prior Knowledge Review
- B3.1.2 Eukaryotic and Prokaryotic Cells
- B3.1.3 Aseptic Technique
- B3.1.4 Growth of Bacteria
- B3.1.5 Microscopes
- B3.1.6 Observing Cells
- B3.1.7 Diffusion

- B3.1.8 Diffusion in Living Things
- B3.1.9 Osmosis
- B3.1.10 Osmosis Investigation
- B3.1.11 Active Transport
- B3.1.12 Cell Division
- B3.1.13 Cancer
- B3.1.14 Stem Cells



# This is the fix-it portion of the lesson

The **fix-it** is an opportunity to respond to gaps in knowledge, especially those identified by the previous lesson's exit ticket.

- The teacher should customise this slide as needed, to facilitate
  - **reteach, explanation, demonstration or modelling** of ideas and concepts that students have not yet grasped or have misunderstood.
  - **practise** answering specific questions or of key skills.
  - **redrafting** or **improving** previous work.

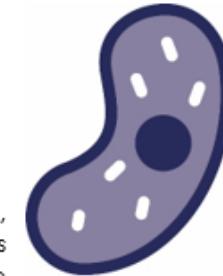
# The Big Idea: Cells are Alive



Science  
Mastery

## Growth and Differentiation

How do bacteria spread? What does a virus look like under a microscope? How do substances move between cells? What causes cancer?



All living things are made of cells, with many working together as tissues, organs and organ systems. The exchange of substances between cells and their environment allows the life processes to occur, fuelled by the organelles within. Differentiated cells allow living things to thrive in a huge variety of habitats.

This is the **second** unit we are studying as part of the big idea: **Cells are Alive**

In this unit, we will learn more about cell structure and specialisation. We will learn to classify cells as eukaryotic or prokaryotic according to some basic features and revisit the function of the main organelles (e.g. nucleus). We will learn how scientists now use electron microscopes to study cells in more detail. We will then learn about the three main methods of cell transport: diffusion, osmosis and active transport. We will study how different cells are adapted for efficient exchange and apply this learning about methods of cell transport to different examples.

Finally, we will study cell specialisation and learn how cells divide by mitosis to allow for growth and repair. We will learn that cancers are a group of diseases that can arise from uncontrolled cell growth. We will also learn how scientists use stem cells to study and treat different diseases.

We will develop our mathematical skills when we practise using the equation for calculating magnification. We will also learn how to use calculations to represent how rapidly bacteria can divide.

We will develop our practical enquiry skills by investigating bacterial growth using agar plates. We will practise using aseptic technique to safely grow bacteria. We will also have another opportunity to use microscopes to investigate cells. Finally, we will investigate how osmosis causes plant tissue to swell.

# Answers

Question	Answer
1	C
2	C
3	A
4	A
5	C
6	B
7	A

8	B
9	A
10a	C
10b	B
11	A
12	B
13	C
14	A

# Answers

1. Osmosis is the diffusion of water from a dilute solution to a concentrated solution through a partially permeable membrane
2. A lifestyle risk factor is a lifestyle choice that can increase the likelihood of a person developing a disease.

# Answers

3.

The **cell cycle** starts with a growth phase where the **cell** grows to double sub-cellular structures such **ribosomes, cell membrane and DNA**.

During mitosis **DNA, arranged into chromosomes, is pulled to separate ends of the cell ready for division.**

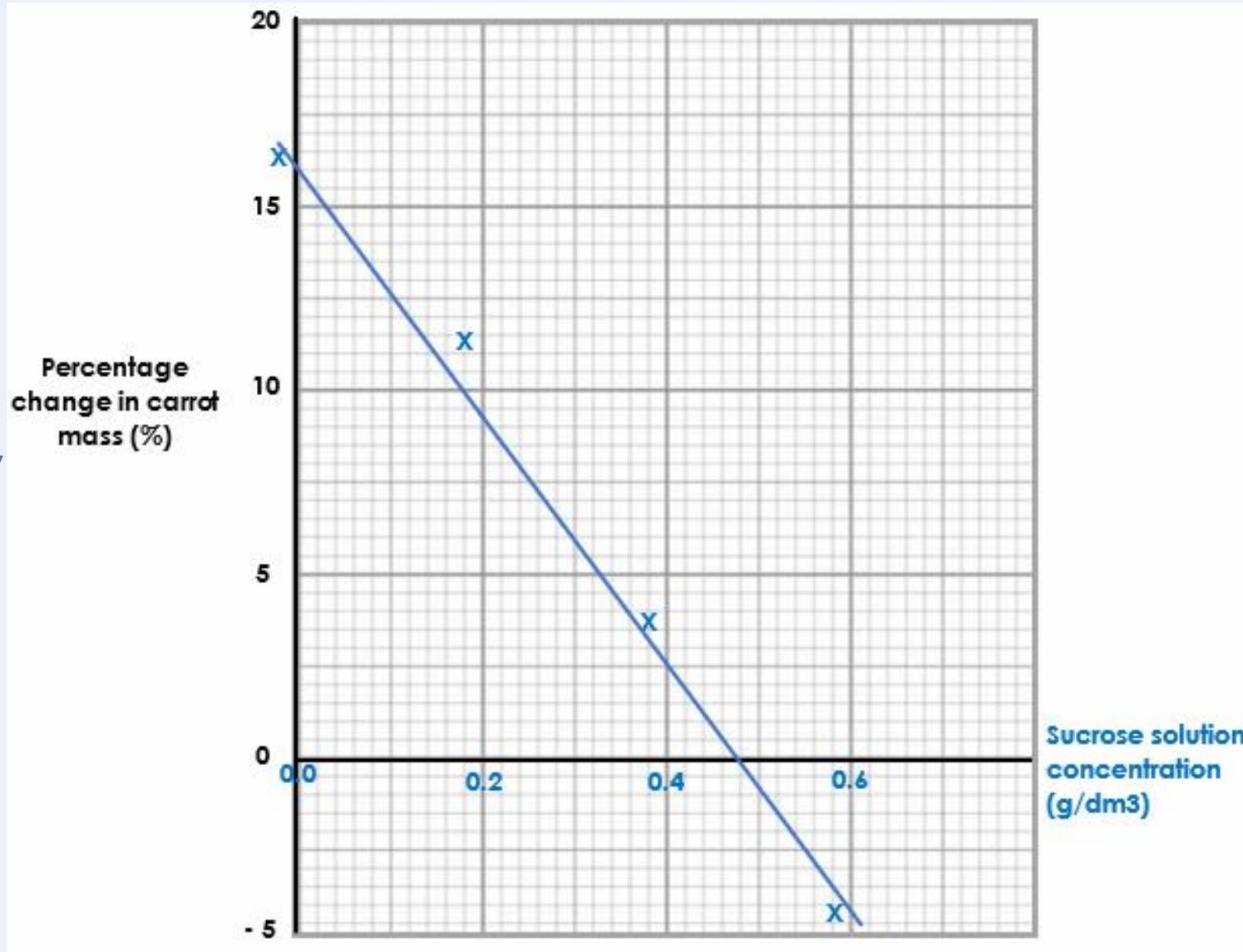
The final part of the **cell cycle** is when the **cell membrane splits to produce two identical cells.**

# Answers

4.

## Success criteria:

- x-axis scale regularly spaced
- x-axis correctly labelled
- 4 points plotted correctly
- Line of best fit (straight line that aims to go through all the points)



## Answer the questions below.

1. Plant and animals cells...
  - A. Can only be seen under an electron microscope
  - B. Are examples of eukaryotic cells
  - C. Both contain a nucleus, cytoplasm and a cell wall
2. Diffusion is...
  - A. The movement of water molecules from high concentration to low concentration
  - B. The movement of molecules from low concentration to high concentration, requiring energy
  - C. The net movement of molecules from high concentration to low concentration
3. Cell division...
  - A. Is used in asexual reproduction
  - B. Always causes cancer
  - C. Produces 2 new cells with half the genetic information

## Lesson B3.1.15

What was good about this lesson?

What can we do to improve this lesson?

[Send us your feedback by clicking this link. Thank you!](#)