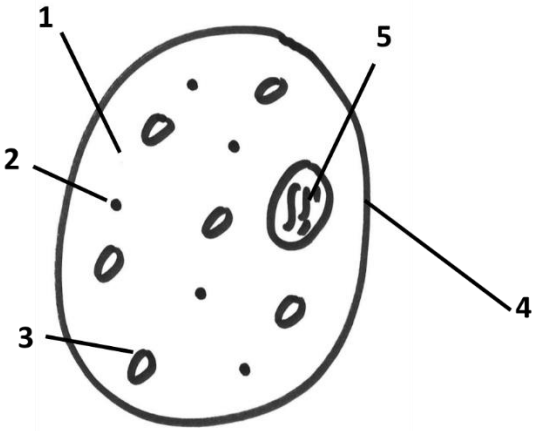
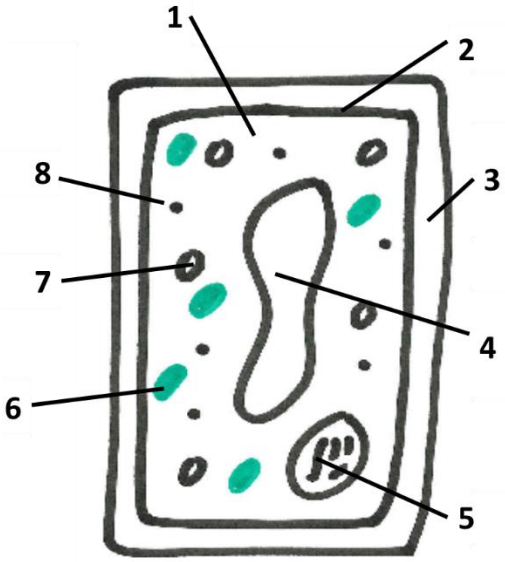
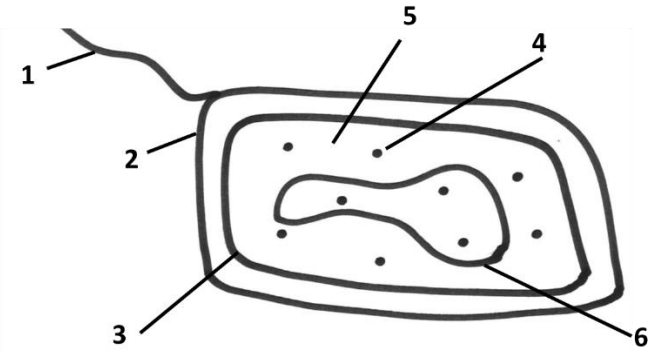
B1 Cells Fact Sheet	
Animal and plant cells	
1. Are **animal and plant cells** <u>eukaryotic</u> or <u>prokaryotic</u>? Why?	• Eukaryotic • They have a nucleus
2. Name the type of cell below	**Animal cell**
3. Identify the parts of the cell (5)  	**1. Cytoplasm** **2. Ribosome** **3. Mitochondria** **4. Cell membrane** **5. Nucleus**
4. Name the type of cell below	**Plant cell**
5. Identify the parts of the cell (8)  	**1. Cytoplasm** **2. Cell membrane** **3. Cell wall** **4. Vacuole** **5. Nucleus** **6. Chloroplast** **7. Mitochondria** **8. Ribosome**
6. State the function of the cell membrane	**Controls the passage of substances into and out of cells**
7. State the function of the nucleus	**Controls the activities of the cell**
8. State the function of the cytoplasm	Where most chemical reactions take place
9. State the function of the mitochondria	**Aerobic respiration (which releases energy)**

10.State the function of the ribosomes	**Make (synthesise) protein**
11.State the function of the chloroplast	**Photosynthesis**
12.State the function of the vacuole	Filled with cell sap
13.State the function of the cell wall and say what it's made of in plants(2)	• Strengthens the cell • Made of cellulose in plants
Bacteria cells	
1. Are **bacteria cells** <u>eukaryotic</u> or <u>prokaryotic</u>? Why?	• Prokaryotic • They don't have a nucleus
2. Are bacteria larger or smaller than plant/ animal cells?	Smaller
3. Name the type of cell below	**A bacterial cell**
4. Identify the parts of the cell (6)  	**1. Tail/ flagellum** **2. Cell wall** **3. Cell membrane** **4. Ribosome** **5. Cytoplasm** **6. DNA**
Specialised cells	
1. State the function of a sperm cell	**Fertilise the egg/ make a baby**
2. Describe how sperm cells are specialised (4)	• Tail to swim to the egg • 1 set of chromosomes for the baby • Lots of mitochondria to release energy to move • Lots of ribosomes to make enzymes to digest outer layer of egg
3. State the function of a muscle cell	Contract to cause movement
4. Describe how muscle cells are specialised (2)	• Lots of mitochondria to release energy for contraction • Lots of ribosomes (muscles are made of protein)
5. State the function of a nerve cell	Transmit electrical impulses
6. Describe how nerve cells are specialised (2)	• Long to transmit impulses over a long distance • Lots of mitochondria for energy to send impulses

Microscopes	
1. Name 2 types of microscope	• **Light microscope** • **Electron microscope**
2. What does magnification of an image mean?	How much bigger it is
3. What does resolution of an image mean?	How clear the picture is
4. Which microscope has a higher magnification and resolving power?	Electron microscope
5. Which type of microscope lets us see more detail inside a cell?	Electron microscope
6. How many µm are there in a mm?	1000
Genes, chromosomes, DNA	
1. Where are chromosomes found in a cell?	**In the nucleus**
2. What is a chromosome?	**1 piece of DNA**
3. What is a gene?	**Small section of 1 chromosome**
4. How many genes are there on 1 chromosome?	**Lots and lots and lots and lots!**
5. How many sets of chromosomes are there in most body cells?	**2**
6. How many sets of chromosomes are there in egg/ sperm cells?	**1**
Mitosis	
1. What happens in the first stage of the cell cycle? (3)	• The cell grows • More ribosomes and mitochondria are made • The DNA replicates
2. What happens in the second stage of the cell cycle? (2)	• MITOSIS –one set of chromosomes is pulled to each end of the cell • The nucleus divides
3. What happens in the third stage of the cell cycle? (2)	• The cytoplasm <u>and</u> cell membranes divide • To form two <u>identical</u> cells
4. How many cells are produced at the end of mitosis?	**2**
5. What can you say about the cells produced by mitosis?	**They are <u>identical</u> to each other**
6. Why is mitosis important for multicellular organisms? (3)	• **To grow** • **To replace dead cells** • **To repair tissues**

Stem cells and therapeutic cloning	
1. What do we call an undifferentiated cell which can change into any other type of cell?	**Stem cell**
2. What happens when a cell differentiates?	It becomes specialised to do a specific function
3. Why do cells differentiate during the development of multicellular organisms?	To become specialised so that they can carry out different functions
4. Name the 2 places where human stem cells are found	• **Embryos** • **Adult bone marrow**
5. Name 2 conditions human stem cells could be used to treat (2)	• **Paralysis** • **Diabetes**
6. When do <u>most</u> types of animal cells differentiate?	At an early stage of life
7. What is made in therapeutic cloning?	An embryo with the same genes as the patient (a clone)
8. Why do we do therapeutic cloning?	To get stem cells (from the embryo) that will not be rejected by the patient's body
9. State a possible risk of using stem cells	Virus infections
Diffusion	
1. How do dissolved substances move into and out of cells across a cell membrane?	**Diffusion**
2. Define 'diffusion' (2)	1. The net / overall movement of **particles** 2. from an area of higher concentration to an area of lower concentration.
3. Describe 3 ways to **increase** the rate of diffusion (3)	• Increase the temperature • Increase the surface area • Increase the difference in concentration
4. Name a gas that diffuses into the blood in the lungs	**Oxygen**
5. Name a gas the diffuses out of the blood in the lungs	**Carbon dioxide**
6. Name 2 waste products which diffuse out of cells	• Carbon dioxide • Urea

Surface area to volume ratio	
1. As organisms get larger the surface area to volume ratio gets…	smaller
2. Why don't single celled organisms need exchange surfaces?	They have a large surface area to volume ratio
3. Why do multicellular organisms need exchange surfaces and transport systems?	• Small surface area to volume ratio • Diffusion is too slow to meet the needs • E.g. too slow to get oxygen/ remove carbon dioxide
4. List 4 ways to increase the effectiveness of an exchange surface (4) (see unit 2 for more details)	• Large surface area • Short diffusion path • Efficient blood supply (animals) • Ventilate (animals)
5. Name the organs fish use to get oxygen and remove carbon dioxide	**Gills**
6. How are gills adapted for efficient gas exchange? (4)	• Large surface area • Blood is very close to the edge of the gills, so is close to the water • Efficient blood supply • They ventilate their gills (keep moving fresh water over them) to keep the concentration difference very high
Osmosis	
1. Name the process by which water moves into or out of cells	**Osmosis**
2. Define partially permeable membrane	Membrane which only lets certain molecules through
3. Define osmosis (3)	• **Movement of water** • Across a partially permeable membrane • From a dilute to a concentrated solution
Active transport	
1. Define active transport	• Movement of particles • From a dilute to a concentrated solution • Using energy from respiration
2. Give an example of active transport in plants	Absorbing mineral ions from the soil
3. Give an example of active transport in animals	Absorbing sugar in the small intestine