Notley High
School and Sixth Form
Enjoy, Enrich, Achieve, Aspire.

6 January 2025

Dear Parent/Carer and Students

Following the Year 11 mocks, there are a number of topics across the three sciences that need to be revised more thoroughly. To address these, students will be set a revision PowerPoint on Satchel One approximately every two weeks that they should revise and be able to recall the facts and knowledge from (the first one is attached). At the start of each of their Science lessons, the 'Do Now' task will be a slide of questions related to the revision they should be doing at home. The marks from these will be recorded by your child's teacher. The independent revision part of this exercise is incredibly important, as we have identified these areas as needing development; parents and carers can support by testing the students using the information on the PowerPoint. Any revision materials made for these will be incredibly useful to use for the actual examinations in the summer.

In addition to this structured revision, all students can be working on developing their science knowledge independently using the following resources:

1. Notley High School SharePoint – Science – KS4. Here there are 5 folders that are useful to the students.
    a. Biology/Chemistry/Physics. In each of these folders is information on the Required Practical's, including guides and videos (students can get asked questions on these practical's so must be able to understand how to set them up and take measurements) and also a Topics folder.

       The topics folders are separated into Paper 1 and Paper 2 topics. Each subfolder has a knowledge PowerPoint for that topic, with embedded questions and answers, as well as more challenging 'Grasp It' questions and answers and knowledge mats for an overall summary. Chemistry and Physics also have information on the formulas/equations needed (all students will get the Physics Equation Sheet in the actual exam but it is important to recognise which one to use in different situations).

    b. A checklist folder which has all the checklists for both Combined and Separate Sciences.

    c. A Required Practical folder which has some good links to required practical's resources from Paper 1.

2. Students can use Seneca learning for accessible online revision – teachers may choose to set homework/revision using Seneca but the resources are available at any time.

3. Past papers and mark schemes which can be found using the links below:

    Combined Science: AQA | Resources | Past Papers & AQA Mark Schemes

    Biology: AQA | Resources | Past Papers & AQA Mark Schemes

    Chemistry: AQA | Resources | Past Papers & AQA Mark Schemes

    Physics: AQA | Resources | Past Papers & AQA Mark Schemes

We hope that the above gives the students some additional support as they prepare themselves for the summer examinations in Science. For the students to achieve their potential, it is important that the thorough preparation and revision starts now and we appreciate all the support parents and carers can give outside of the school day.

Yours sincerely

SHowells.

Mrs S Howells

Cell structure Lesson 1-6 – QuestionIT

1. Where is the genetic material in a prokaryotic cell?

2. Where is the genetic material in a eukaryotic cell?

3. Copy and complete the table.

Prefix	Multiple	Standard form
centi (cm)		$\times 10^{-2}$
	1 mm = 0.001 m	$\times 10^{-3}$
micro (µm)	1 µm = 0.000 001 m	
nano (nm)		$\times 10^{-9}$

4. Why do scientists use prefixes?

Cell structure – AnswerIT

1. Where is the genetic material in a prokaryotic cell?

In a bacterial DNA loop and there may be one or more plasmid rings.

2. Where is the genetic material in a eukaryotic cell?

The DNA is in chromosomes enclosed in a nucleus.

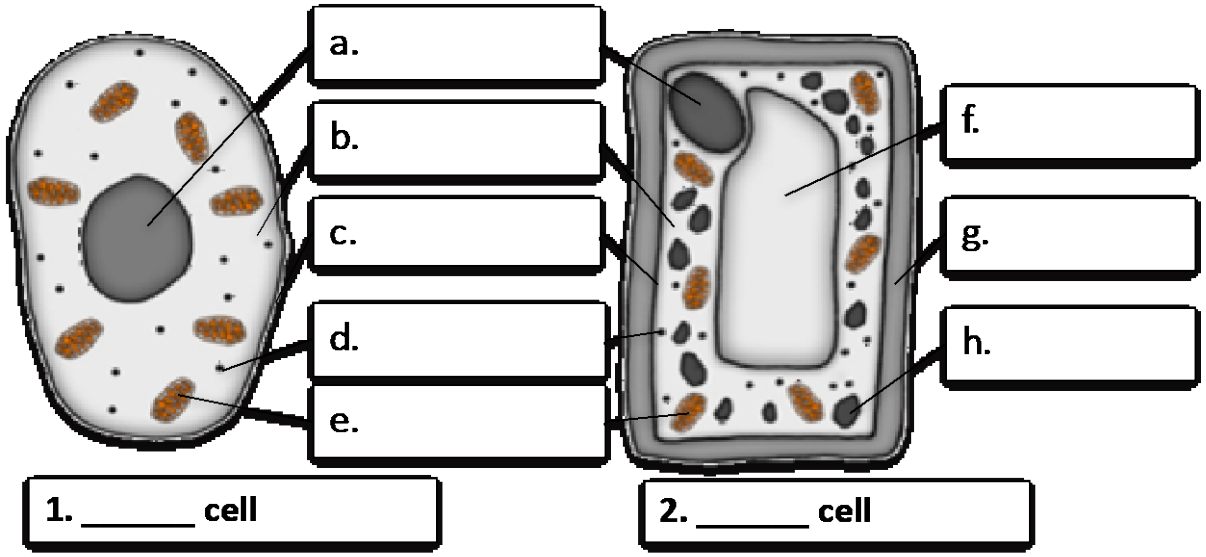
3. Copy and complete the table.

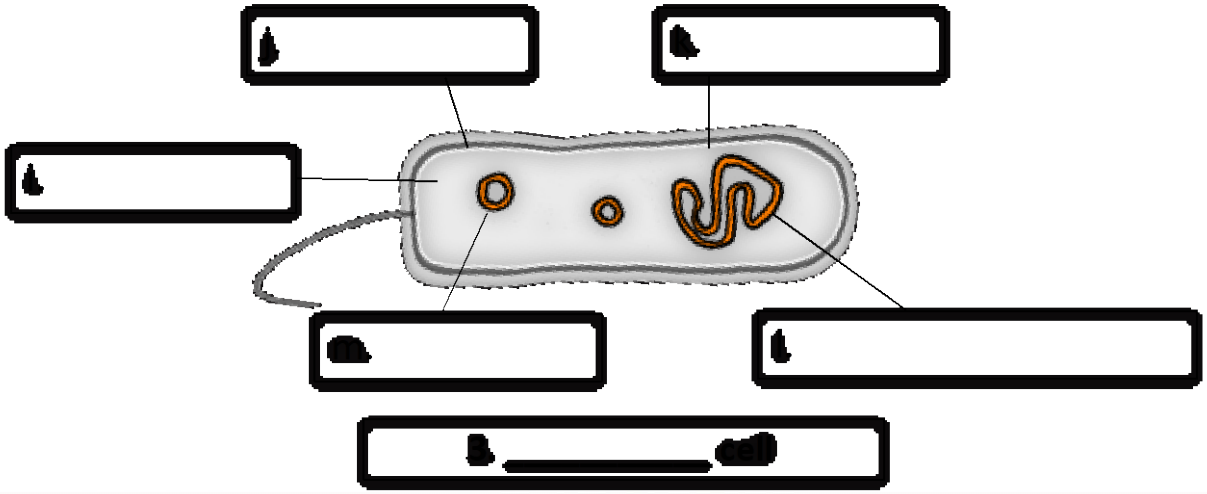
Prefix	Multiple	Standard form
centi (cm)	**1 cm = 0.01 m**	x 10^{-2}
milli (mm)	1 mm = 0.001 m	x 10^{-3}
micro (µm)	1 µm = 0.000 001 m	**x 10^{-6}**
nano (nm)	**1 nm = 0.000 000 001 m**	x 10^{-9}

4. Why do scientists use prefixes?

To make very small numbers more manageable

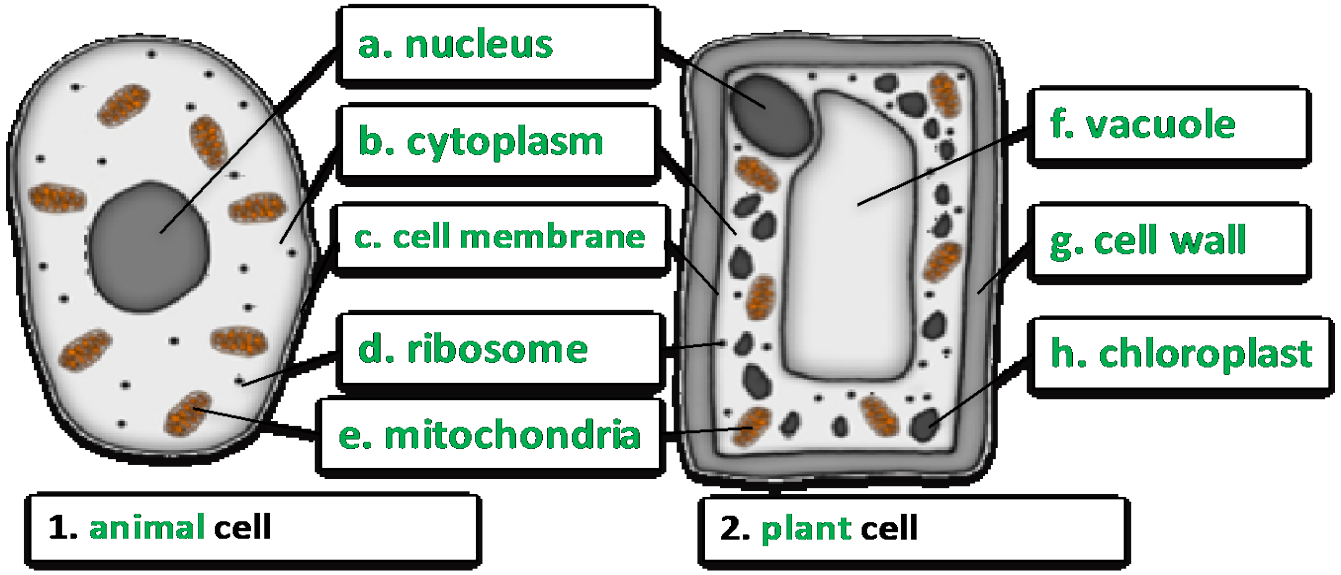
5. Name the structures **A to L** on the diagrams below and label cells 1, 2 and 3.

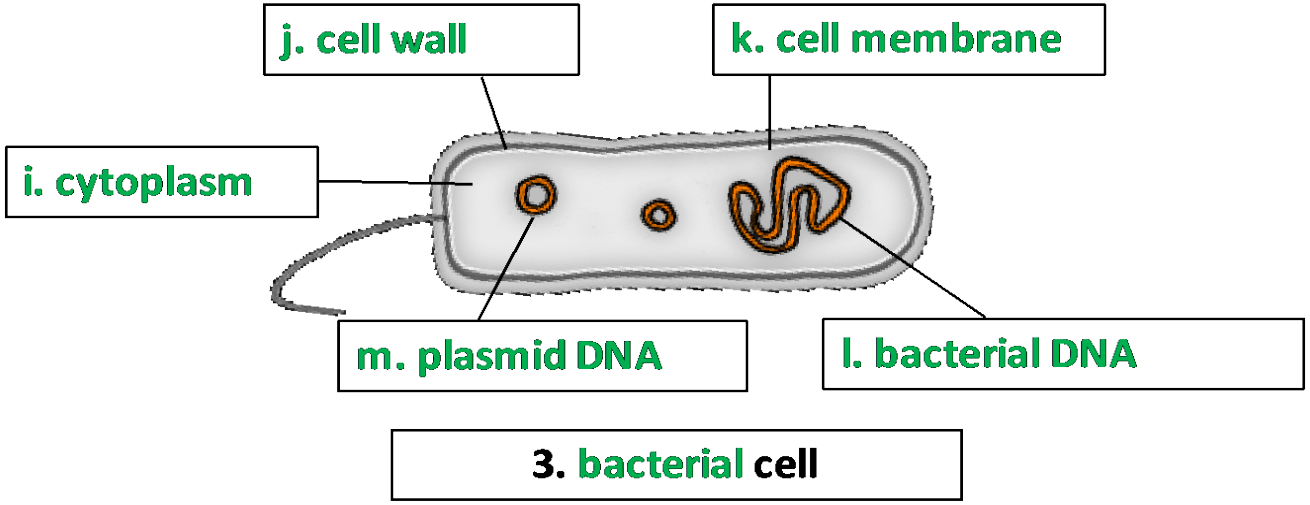




Cell structure – AnswerIT

5. Name the structures **A to L** on the diagrams below and label cells 1, 2 and 3.





Cell structure part 1 – QuestionIT

6. Copy and complete the table and tick the correct column for each one.

Cell part	Function	Animal	Plant	Bacteria
	Contains genetic material, which controls the activities of the cell			
Cytoplasm				
	Controls the movement of substances into and out of the cell			
	Most energy is released by respiration here			
Ribosomes	Protein synthesis happens here			
	Strengthens the cell – made of cellulose			
Chloroplasts				
	Filled with cell sap to help keep the cell turgid			
	Loop of DNA NOT found in a nucleus			
Plasmid (DNA)				

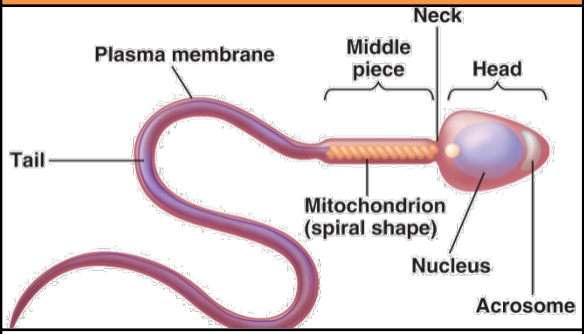
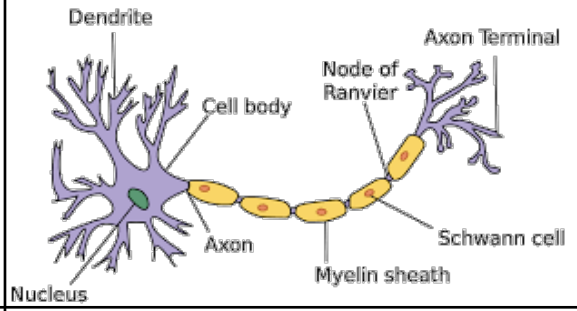
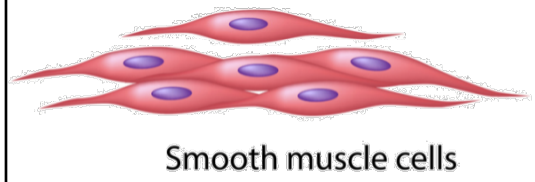
Cell structure – AnswerIT

6. Copy and complete the table and tick the correct column for each one.

Cell part	Function	Animal	Plant	Bacteria
Nucleus	Contains genetic material, which controls the activities of the cell	✓	✓	
Cytoplasm	Most chemical processes take place here, controlled by enzymes	✓	✓	✓
Cell membrane	Controls the movement of substances into and out of the cell	✓	✓	✓
Mitochondria	Most energy is released by respiration here	✓	✓	
Ribosomes	Protein synthesis happens here	✓	✓	
Cell wall	Strengthens the cell – made of cellulose		✓	✓
Chloroplasts	Contain chlorophyll, absorbs light energy for photosynthesis		✓	
Permanent vacuole	Filled with cell sap to help keep the cell turgid		✓	
Bacterial DNA	Loop of DNA NOT found in a nucleus			✓
Plasmid (DNA)	Small ring of DNA often used as a vector in genetic modification			✓

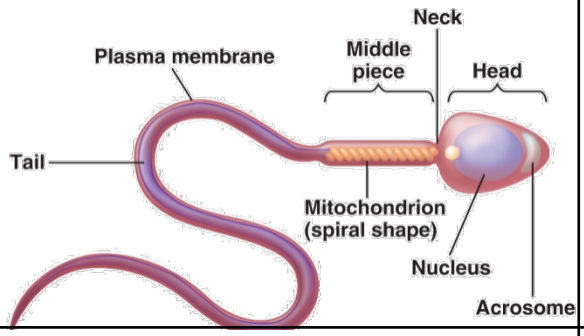
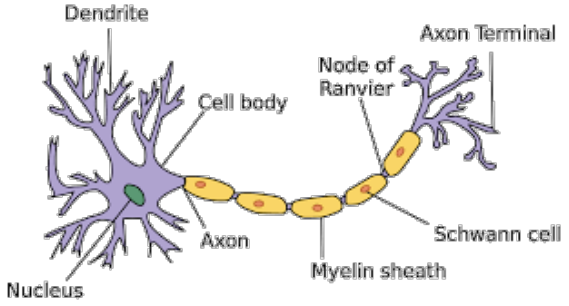
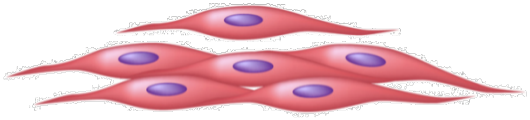
Cell structure part 2 – QuestionIT

1. Name animal cells A, B and C and describe their structure and function.

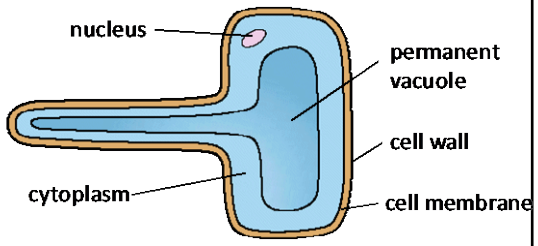
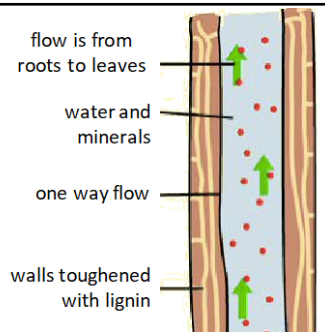
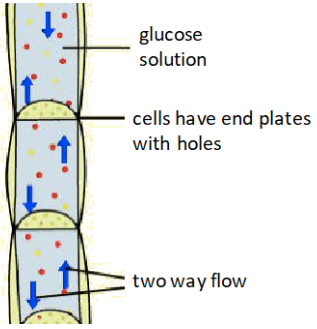
Name of animal cell	Diagram	Structure and function
A.		
B.		
C.	 Smooth muscle cells	

Cell structure – AnswerIT

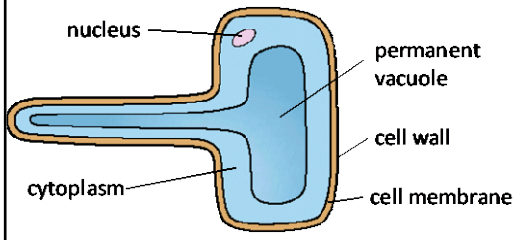
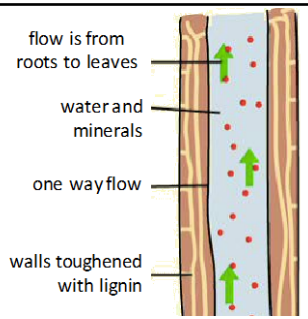
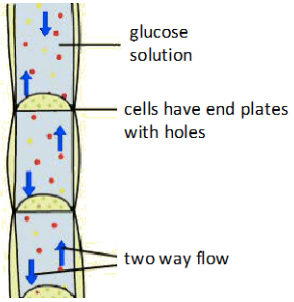
1. Name animal cells A, B and C and describe their structure and function.

Name of animal cell	Diagram	Structure and function
A. Sperm		**Function is to fertilise an egg.** • Streamlined with a long tail to swim to the egg. • Acrosome in the head containing enzymes to digest the egg cell membrane. • Large number of mitochondria in the mid section to release energy for movement.
B. Nerve		**Function is to carry electrical signals.** • Long to carry signals long distances. • Branched connections to connect to other nerve cells and form a network around the body. • Insulating sheath to enhance transmission of electrical signals.
C. Muscle	 Smooth muscle cells	**Function is to contract to allow movement.** • Contain a large number of mitochondria to release energy from respiration for movement. • Long so that there is enough space to contract.

2. Name plant cells A, B and C and describe their structure and function.

Name of plant cell	Diagram	Structure and function
A.		
B.		
C.		

2. Name plant cells A,B and C and describe their structure and function.

Name of plant cell	Diagram	Structure and function
A. Root hair		**Function is to absorb water and minerals from the soil.** • Hair like projections to increase the surface area. (Note that root hair cells have no chloroplasts this is because they do not need them as they are in the soil)
B. Xylem		**Function is to carry water and minerals in plants.** • Form hollow xylem tubes made of dead tissue. • Long cells with walls toughened by lignin. • Water and minerals flow from the roots towards the leaves only in one direction in a process called **TRANSPIRATION**.
C. Phloem		**Function is to carry glucose around the plant.** • Form phloem tubes made of living tissue. • Cells have end plates with holes in them. • Glucose in solution moves from the leaves to growth and storage tissues in a process called **TRANSLOCATION**.

Cell structure – QuestionIT

3. What does cell differentiation mean?

4. In what stage of an animal's life cycle do most cells differentiate?

5. In mature animals when do cells still need to differentiate?

6. In what stage of their life cycle do plant cells differentiate?

3. What does cell differentiation mean?

When a cell changes to become specialised.

4. In what stage of an animal's life cycle do most cells differentiate?

In the early stages.

5. In mature animals when do cells still need to differentiate?

For repair and replacement of cells.

6. In what stage of their life cycle do plant cells differentiate?

They differentiate throughout their lifecycle.