SCIENCE

Mr Thurley

SCIENCE

How the new grades compare with the old ones

Old grades	New grades
A*	9
	8
A	7
B	6
	5 STRONG PASS
C	4 STANDARD PASS
D	3
E	2
F	1
G	
U	U

Source: Ofqual

BBC

People also ask

Is Edexcel science easier than AQA?

Is AQA or Edexcel easier? As well as the debate between OCR and AQA, lots of students ask: is Edexcel harder than AQA for GCSE? Although every exam board is technically the same difficulty, **Edexcel often gets the nod for being slightly more approachable than its counterparts**.

Higher

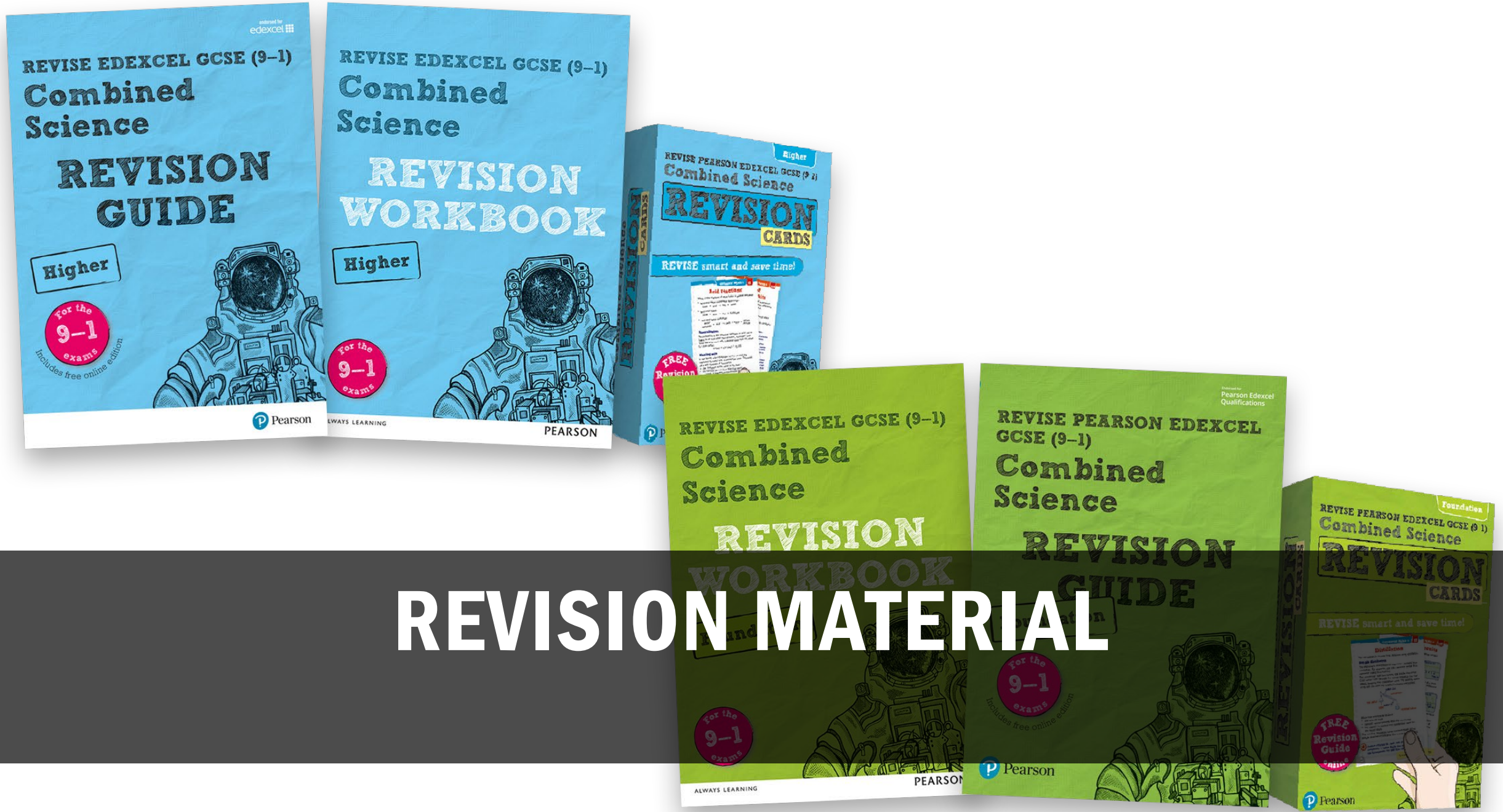
June 2022 - Grade Boundaries		
9-9	266	74%
9-8	249	69%
8-8	232	64%
8-7	215	60%
7-7	198	55%
7-6	180	50%
6-6	162	45%
6-5	144	40%
5-5	126	35%
5-4	108	30%
4-4	90	25%
4-3	81	23%
3-3		
3-2		
2-2		
2-1		
1-1		
U	0	0%

Foundation

June 2022 - Grade Boundaries		
9-9		
9-8		
8-8		
8-7		
7-7		
7-6		
6-6		
6-5		
5-5	203	56%
5-4	183	51%
4-4	164	46%
4-3	141	39%
3-3	118	33%
3-2	96	27%
2-2	74	21%
2-1	52	14%
1-1	30	8%
U	0	0%

ASSESSMENT GUIDANCE

- 6 exams – 2x Biology, 2x Chemistry, 2x Physics
- Each paper is 1 hour and 10 minutes.
- Each paper is out of 60 marks. (16.67% of qualification).
- Each paper consists of six questions.
- The paper will include multiple-choice, short answer questions, calculations and extended open-response questions.



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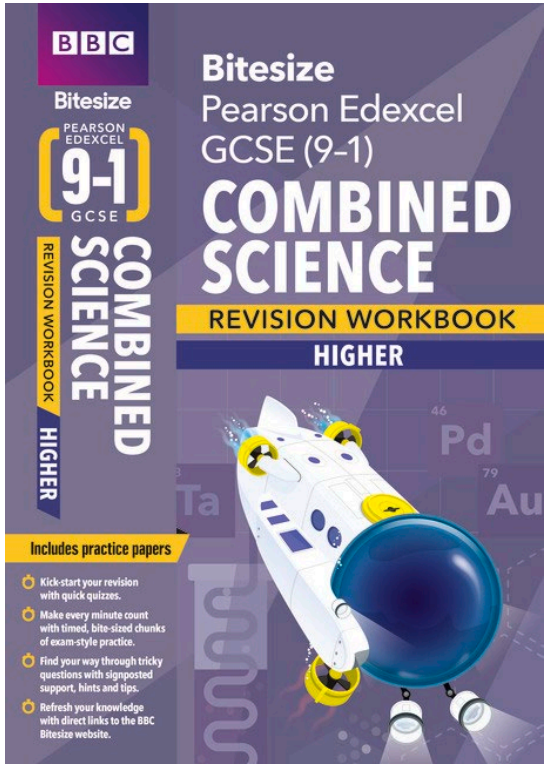

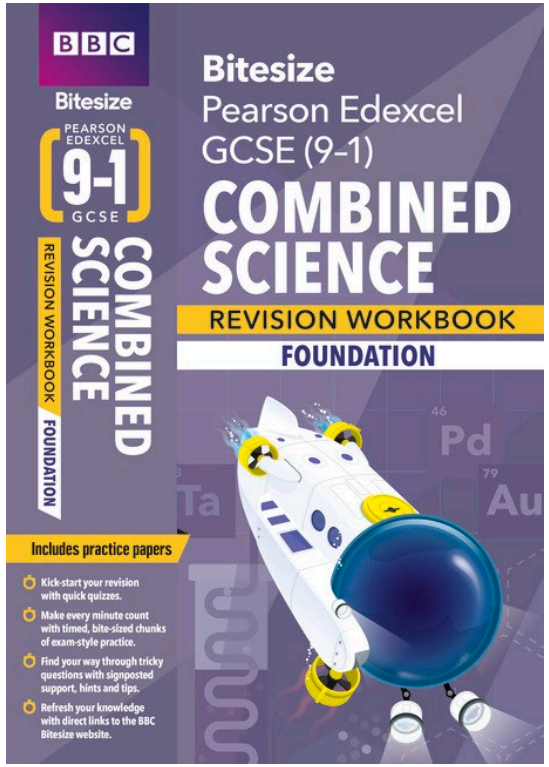

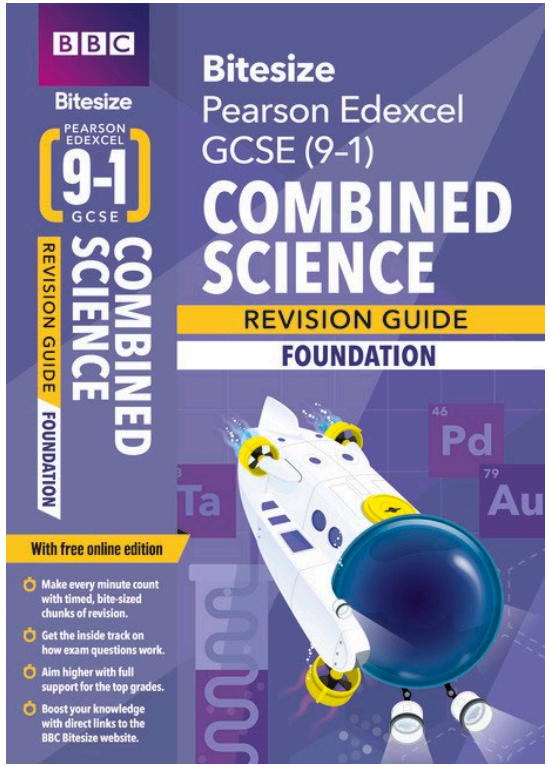

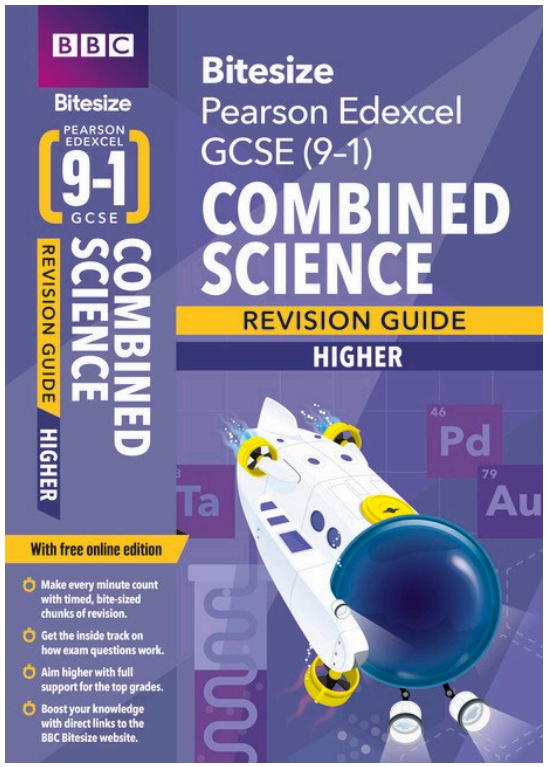

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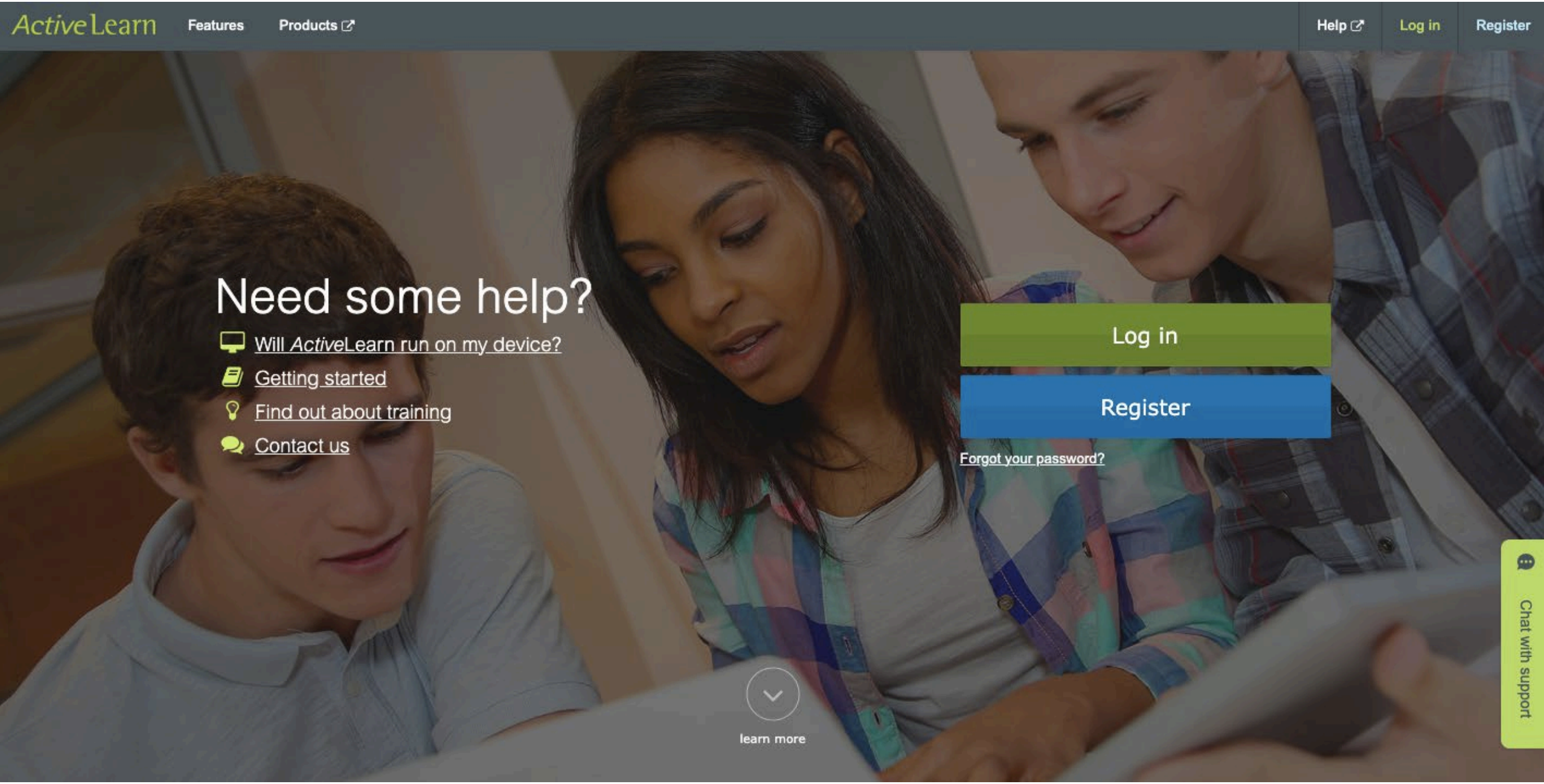
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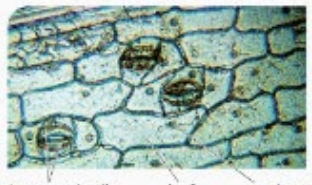
CB1b Plant and animal cells

Specification reference: B1.1; B1.4; B1.6

Progression questions

- How are animal cells different to plant cells?
- What do the sub-cellular structures in eukaryotic cells do?
- How can we estimate the sizes of cells and their parts?



two guard cells (form a stoma in the surface of a leaf) — leaf surface cell — nucleus

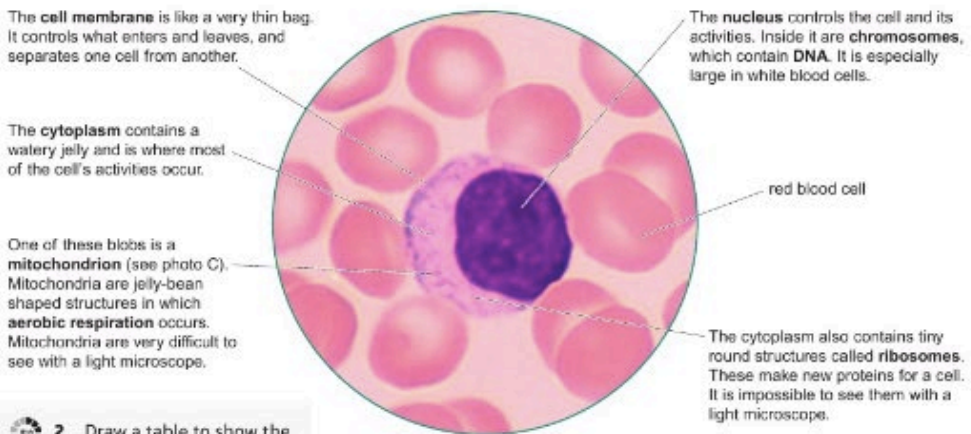
A This micrograph ('microscope picture') was taken using Brown's original microscope, of the same cells in which he discovered nuclei (magnification ×67).

As microscopes improved, scientists saw more details inside cells. In 1828, Robert Brown (1773–1858) examined cells from the surface of a leaf and noticed that each cell contained a small, round blob. He called this the **nucleus** (meaning 'inner part' in Latin).

1 Photo A is at a magnification of 67. State what this means.

Brown wrote a **scientific paper** about his discovery. Matthias Schleiden (1804–1881) read the paper and thought that the nucleus must be the most important part of a plant cell. He mentioned this idea to Theodor Schwann (1810–1882), who then wondered if he could find cells with nuclei in animals. He did. And so the idea of cells being the basic building blocks of all life was born.

A cell with a nucleus is described as **eukaryotic**. We have now discovered many other sub-cellular ('smaller than a cell') structures in eukaryotic cells and worked out what they do.



B The labelled central cell is a human white blood cell, which has been stained to make its features show up clearly (magnification ×2500).

2 Draw a table to show the parts of an animal cell and the function of each part.

3 Estimate the diameter of the labelled red blood cell in photo B. Show your working.

The circular area you see in a light microscope is the **field of view**. If we know its diameter, we can estimate sizes. The diameter of the field of view in photo B is 36 µm. We can imagine that three white blood cells will roughly fit across the field of view. So the cell's diameter is about $\frac{36}{3} = 12$ µm.

Electron micrographs

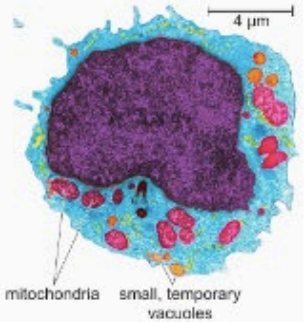
Photo C shows many parts inside a white blood cell that you cannot see with a light microscope. However, you still cannot see ribosomes because they are only about 25 nm in diameter.

4 **a** Look at photo C. What part has been coloured purple?

b Use the magnification to estimate the width of the cell.

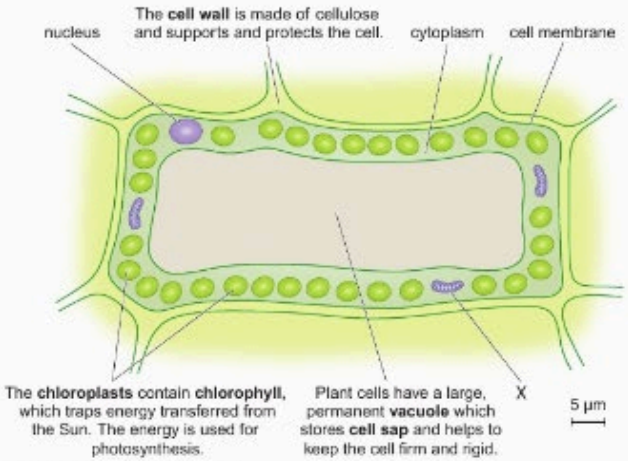
5 State the diameter of a ribosome in micrometres.

Scale bars are often shown on micrographs and these are also used to estimate sizes. The scale bar on photo C shows how long 4 µm is at this magnification. About three of these bars could fit across the cell at its widest point; the cell is about 3 × 4 = 12 µm wide.



C electron micrograph of a white blood cell (magnification ×4200)

Plant cells may have some additional structures compared with animal cells, as shown in diagram D.



D a cell from inside a plant leaf

7 Look at diagram D. What is part X?

8 Cells on leaf *surfaces* contain vacuoles and carry out aerobic respiration but are not green. Suggest what part they lack. Explain your reasoning.

Exam-style question

Describe the function of chloroplasts in a leaf palisade cell. *(3 marks)*

Did you know?

The pigment in human skin is made in sub-cellular structures called melanosomes.

6 Use the scale bar on photo C to estimate the:

a width of the nucleus at its widest point

b length of the longest mitochondrion (coloured red).

Checkpoint

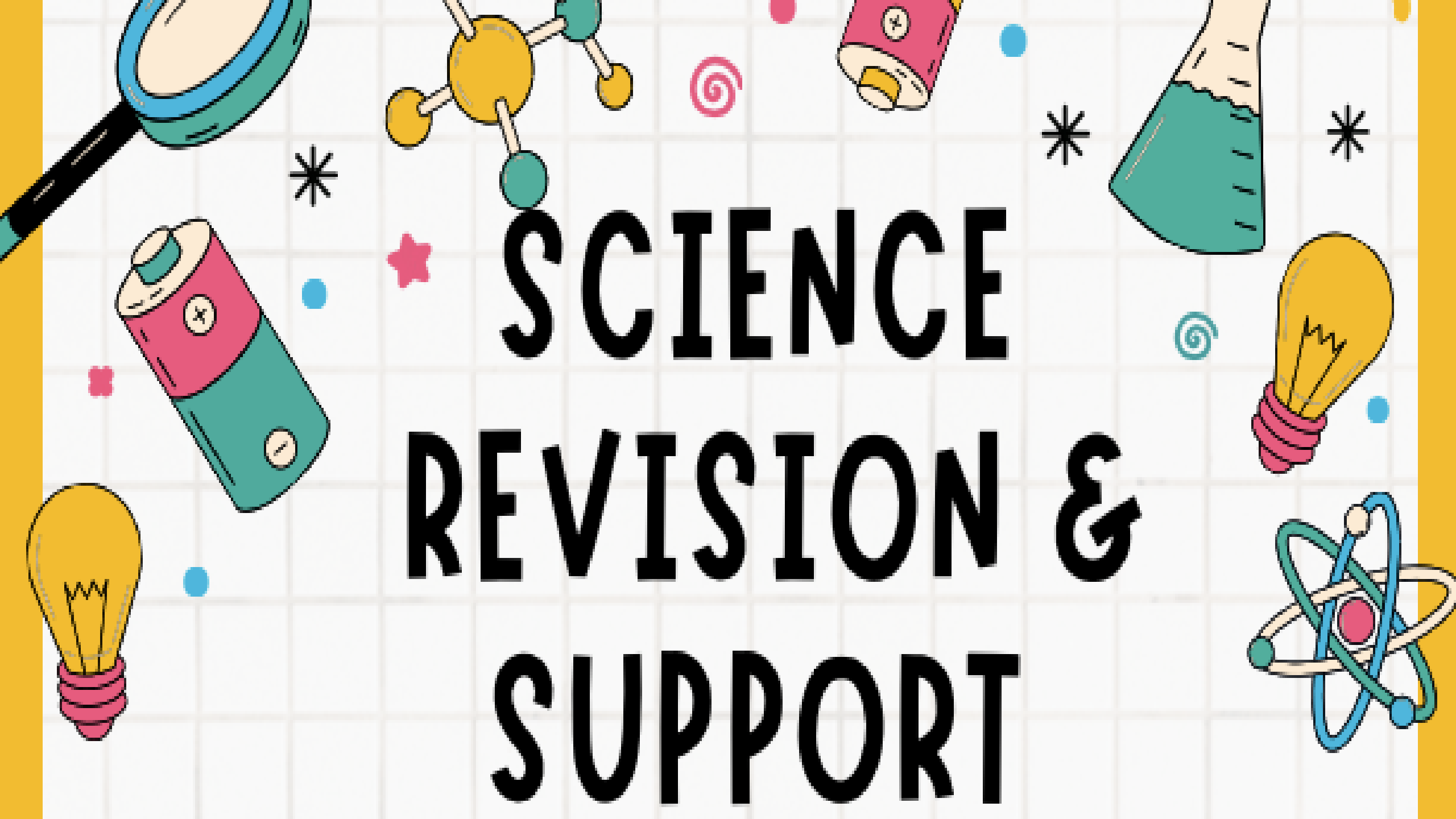
How confidently can you answer the Progression questions?

Strengthen

S1 Draw a plant cell and label its parts, describing what each part does.

Extend

E1 An 'organelle' is a structure inside a cell with a specific function. Compare the organelles found in plant and animal cells.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A Level Chemistry Drop In
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Monday 15:15-16:00
KS4 Biology
Room 40


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KS4 Chemistry
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Wednesday 15:15 - 16:00
Year 12 Biology Drop In
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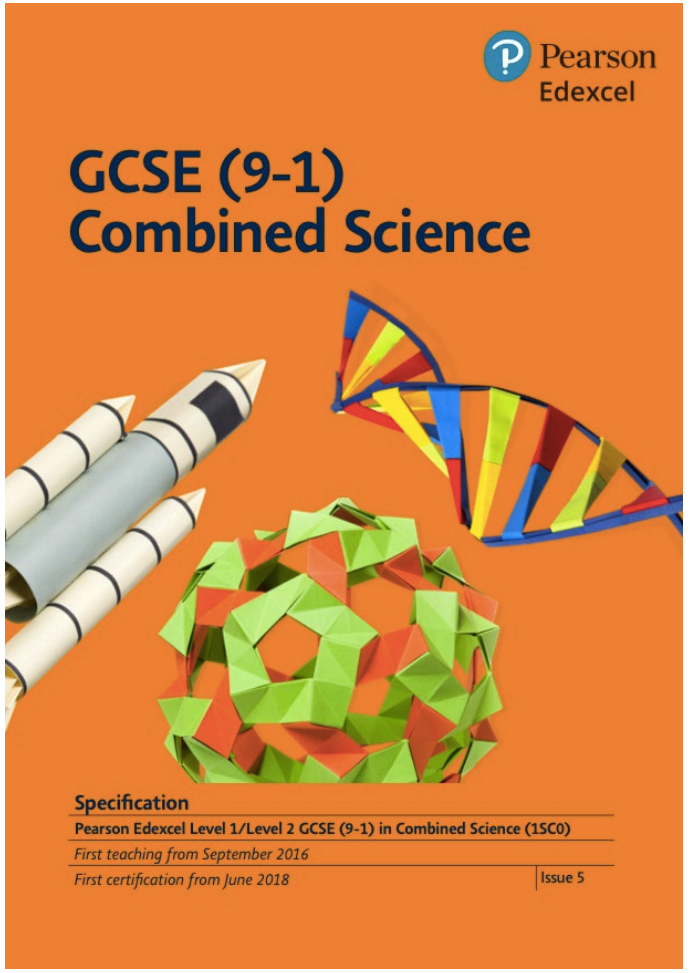
Wednesday 15:15 - 16:00
KS4 Physics
Room 34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Specification
Pearson Edexcel Level 1/Level 2 GCSE (9-1) in Combined Science (1SC0)
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First certification from June 2018
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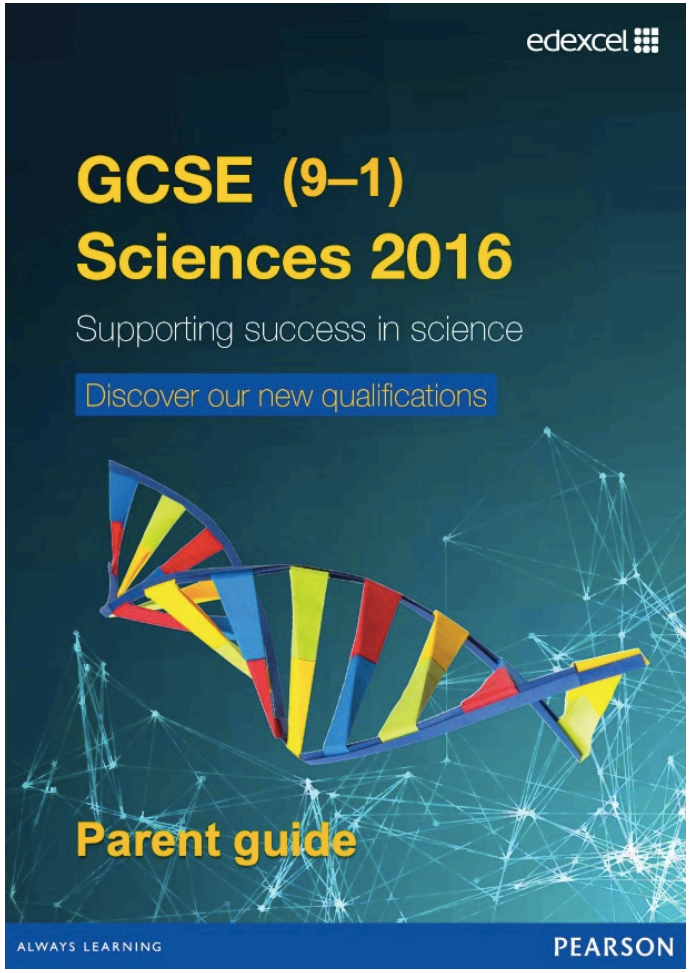
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