

Multiple Choice Questions (MCQ) topic quiz

Cells

Learner Activity

1 Which of these structures contains RNA but not DNA?

- A nucleus
- B mitochondrion
- C chloroplast
- D ribosome

Your answer

2 Which of the following is a function of the Golgi apparatus?

- A to aid endocytosis
- B to make proteins from amino acids
- C to synthesise ATP
- D to make secretory products

Your answer

3 What is the name given to the structures which penetrate the walls of adjacent plant cells?

- A middle lamellae
- B plasmodesmata
- C pits
- D channels

Your answer

AS and A LEVEL
BIOLOGY A
BIOLOGY B (ADVANCING BIOLOGY)
Learner Activity

4 Cells in culture will absorb amino acids from the surrounding culture medium. If radioactively labelled glycine is provided in the culture medium, in which organelle will radioactivity be found first?

- A ribosomes
- B nucleus
- C lysosomes
- D Golgi apparatus

Your answer

5 What resolution can be achieved with a light microscope?

- A 20 μm
- B 2 μm
- C 0.2 μm
- D 0.02 μm

Your answer

6 Which of the following cell structures does not have an envelope?

- A lysosome
- B nucleus
- C mitochondrion
- D chloroplast

Your answer

7 Intestinal epithelial cells have observable "brush borders" seen on the cells.

What are they?

- A cilia
- B flagella
- C microvilli
- D villi

Your answer

AS and A LEVEL
BIOLOGY A
BIOLOGY B (ADVANCING BIOLOGY)
Learner Activity

8 What are centrioles involved in?

- A** lysosome formation
- B** intracellular digestion
- C** ribosome formation
- D** cell division

Your answer

9 Which one of the following is responsible for the destruction of damaged organelles?

- A** Golgi apparatus
- B** cytoskeleton
- C** smooth ER
- D** lysosome

Your answer

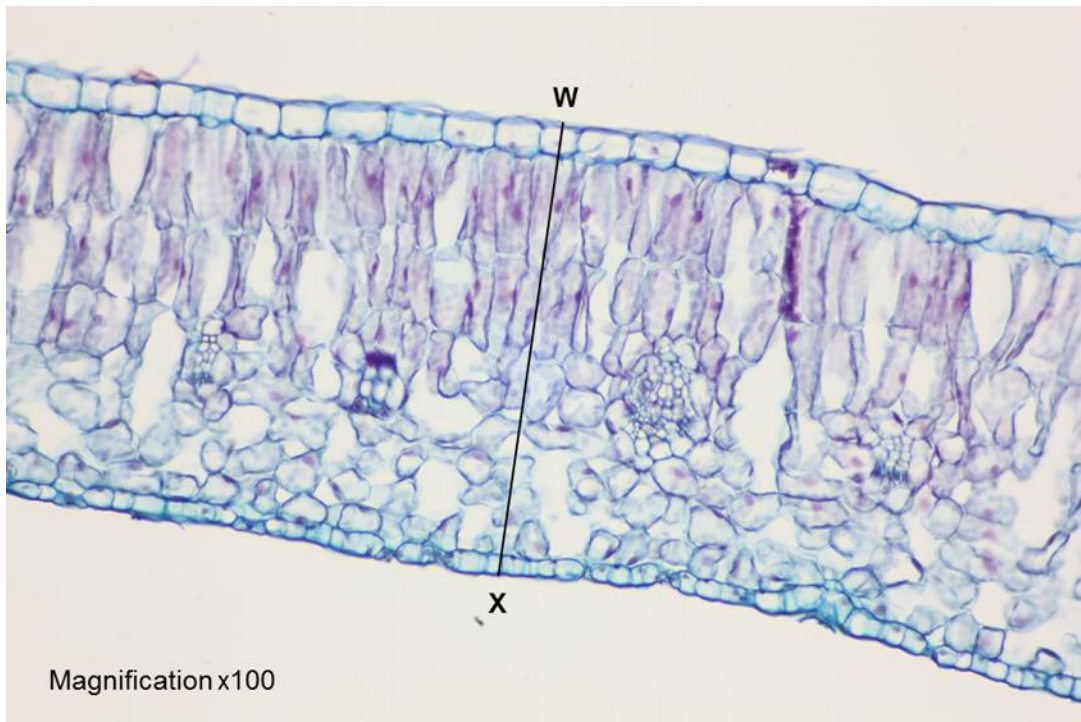
10 Which of the following is concerned with the synthesis and transport of lipids and steroids in the cell?

- A** rough ER
- B** smooth ER
- C** Golgi apparatus
- D** lysosome

Your answer

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Learner Activity

Question 11 and question 12 use the following photomicrograph:



- 11 The photomicrograph shows a transverse section of the lamina of a beech tree leaf taken at low power.

What is the actual width of the leaf measured from point **W** – **X**?

- A** 1.7 mm
- B** 0.6 μm
- C** 16.7 μm
- D** 600 μm

Your answer

- 12 The beech leaf slide was prepared using two stains.

Which two macromolecules have been stained?

- A** cellulose and starch
- B** lignin and nucleic acid
- C** cellulose and nucleic acid
- D** starch and lignin

Your answer

AS and A LEVEL
BIOLOGY A
BIOLOGY B (ADVANCING BIOLOGY)
Learner Activity

13 When mitochondria are extracted from cells, they are usually kept in a 0.25 mol dm⁻³ sucrose solution.
What is the purpose of the sucrose solution?

- A** it is used as a solvent
- B** it maintains a constant pH by acting as a buffer
- C** it acts as a source of food for respiration
- D** it prevents the mitochondria from changing structure

Your answer

14 A prokaryotic cell can be distinguished from a eukaryotic cell.
Which of the options, **A – D**, would only be found in a eukaryotic cell?

- A** a nucleus
- B** a cell surface membrane
- C** ribosomes
- D** DNA

Your answer

15 Which one of the following has the lowest surface area to volume ratio?

- A** a virus
- B** a phagocyte
- C** a red blood cell
- D** a bacterium

Your answer

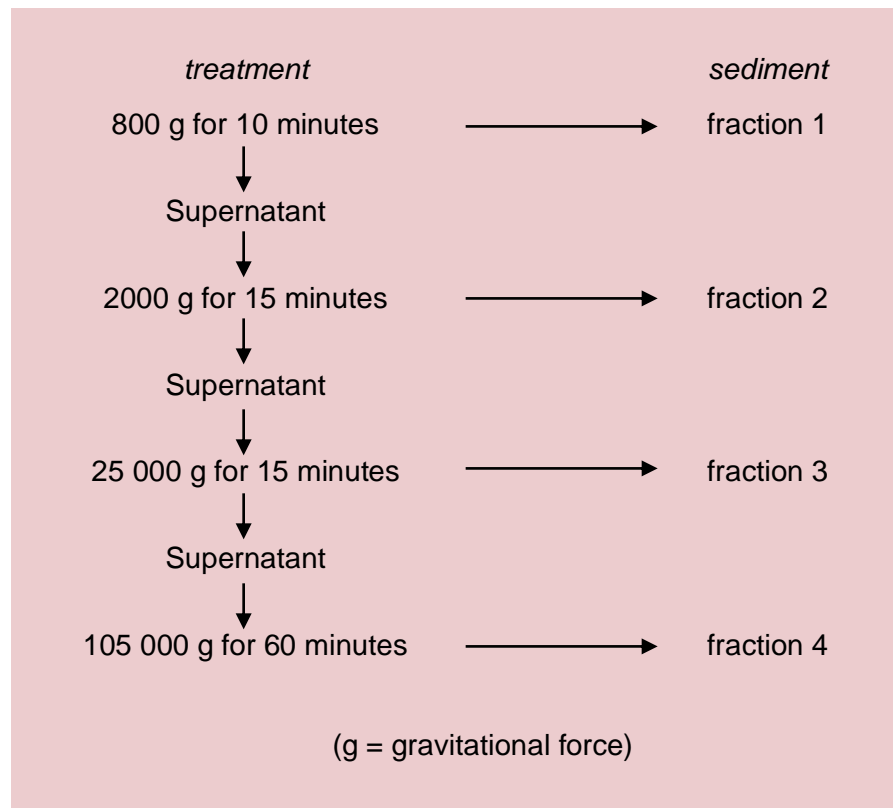
16 Which one of these organelles always contains DNA?

- A** ribosome
- B** Golgi body
- C** mitochondrion
- D** lysosome

Your answer

AS and A LEVEL
BIOLOGY A
BIOLOGY B (ADVANCING BIOLOGY)
Learner Activity

- 17 Some fresh rat liver was homogenised and the suspension subjected to differential centrifugation. The procedure used is shown in the diagram below.



Which row, **A – D**, represents the order in which the organelles were removed from the suspension?

	Fraction 1	Fraction 2	Fraction 3	Fraction 4
A	mitochondria	lysosomes	nuclei	ribosomes
B	mitochondria	nuclei	lysosomes	ribosomes
C	nuclei	mitochondria	lysosomes	ribosomes
D	nuclei	ribosomes	mitochondria	lysosomes

Your answer

AS and A LEVEL
BIOLOGY A
BIOLOGY B (ADVANCING BIOLOGY)
Learner Activity

- 18 Some organelles are bounded by a single membrane whilst others have two membranes. Which of the options, **A – D**, is correct?

	Single membrane		Two membranes	
A	tonoplast	lysosome	nucleus	chloroplast
B	chloroplast	lysosome	nucleus	tonoplast
C	nucleus	chloroplast	lysosome	tonoplast
D	tonoplast	chloroplast	nucleus	lysosome

Your answer

- 19 Which of the following would be found in an animal cell undergoing mitosis but **not** in a plant cell undergoing mitosis?

- A** chromosome
- B** centriole
- C** spindle
- D** chromatid

Your answer

- 20 Which of the following is absent from prokaryotic cells?

- A** plasmids
- B** cell wall
- C** rough endoplasmic reticulum
- D** ribosomes

Your answer