

MODUL 1



Cell Biology and Organisation

Biologi Sel dan Organisasi Sel

2.1

CELL STRUCTURE AND FUNCTION STRUKTUR DAN FUNGSI SEL

Objective Questions

Soalan Objektif

- 1 Diagram below shows a structure of chloroplast.
Rajah di bawah menunjukkan struktur kloroplas.



Which of the parts labelled A, B, C and D contains chlorophyll?

Manakah bahagian berlabel A, B, C dan D yang mengandungi klorofil?

- 2 Diagram below shows an organelle of a cell.
Rajah di bawah menunjukkan suatu organel dalam sel.



Which of the following processes occurs in this organelle?

Antara proses berikut yang manakah berlaku dalam organel ini?

- A Synthesis of protein
Sintesis protein
- B Synthesis of enzyme
Sintesis enzim
- C Formation of glucose
Pembentukan glukosa
- D Generation of energy
Penjanaan tenaga

- 3 During metamorphosis of a tadpole into a frog, which of the following organelles helps in the digestion of its tail?

Semasa metamorfosis berudu kepada katak, organel manakah yang membantu pencernaan ekornya?

- A Vesicle
Vesikel
- B Lysosome
Lisosom
- C Golgi apparatus
Jasad Golgi
- D Smooth endoplasmic reticulum
Jalinan endoplasma licin

- 4 Which of the following cellular components can only be found in plant cells?

Antara komponen sel berikut, yang manakah hanya boleh ditemui dalam sel tumbuhan?

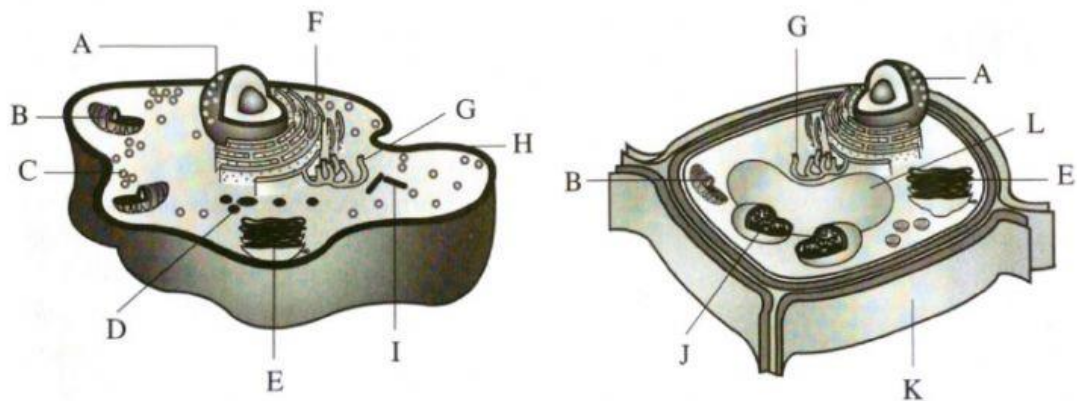
- A Centriole
Sentriol
- B Nucleus
Nukleus
- C Chloroplast
Kloroplas
- D Mitochondrion
Mitokondria

Structured Questions

Soalan Struktur

- 1 Name the components in the plant and animal cells below.

Namakan komponen-komponen dalam sel tumbuhan dan sel haiwan di bawah.

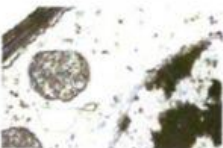
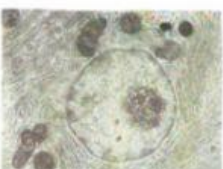
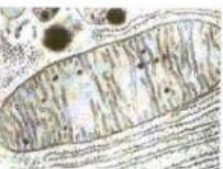


A:	G:
B:	H:
C:	I:
D:	J:
E:	K:
F:	L:

- 2 Complete the table below with the characteristics and functions of each component found in animal and plant cells.

Lengkapkan jadual di bawah dengan ciri dan fungsi bagi setiap komponen yang dijumpai dalam sel haiwan dan sel tumbuhan.

Components of cell <i>Komponen dalam sel</i>	Functions <i>Fungsi</i>
(a) Cell wall <i>Dinding sel</i> 	- Maintains cell _____ . <i>Mengekalkan _____ sel.</i> - Prevents the cell from _____ . <i>Menghalang sel daripada _____ .</i>

(b) Plasma membrane <i>Membran plasma</i> 	Controls the _____ and _____ of substances into and from the cells. <i>Mengawal _____ dan _____ bahan-bahan ke dalam sel dan dari sel.</i>
(c) Cytoplasm <i>Sitoplasma</i> 	Medium for _____ reaction. <i>Medium untuk tindak balas _____.</i>
(d) Nucleus <i>Nukleus</i> 	- Carries _____ information that determines the _____ of a cell. <i>Membawa maklumat _____ bagi menentukan _____ suatu sel.</i> _____ all the activities which take place in the cell. <i>_____ kesemua aktiviti yang berlaku dalam sel.</i>
(e) Mitochondrion <i>Mitokondria</i> 	- Site of cell _____ . <i>Tapak _____ sel.</i> - Supplies _____ in the form of _____ to the cells. <i>Membekalkan _____ dalam bentuk _____ kepada sel-sel.</i>

3 State the differences between plant cell and animal cell.

Nyatakan perbezaan antara sel tumbuhan dengan sel haiwan.

Animal cell <i>Sel haiwan</i>		Plant cell <i>Sel tumbuhan</i>
	Cell wall <i>Dinding sel</i>	
	Vacuole <i>Vakuol</i>	
	Centrioles <i>Sentriol</i>	
	Shape <i>Bentuk</i>	
	Chloroplast <i>Kloroplas</i>	

Objective Questions

Soalan Objektif

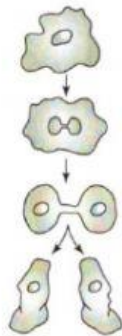
- 1 Which of the following organisms is **not** a unicellular organism?

Antara organisma berikut, yang manakah bukan organisma unisel?

- A Hydra
Hidra
B Euglena
Euglena
C Amoeba
Amoeba
D Paramecium
Paramesium

- 2 Diagram below shows a process carried out by an *Amoeba* sp.

Rajah di bawah menunjukkan proses yang dijalankan oleh Amoeba sp.



What is the process shown above?

Apakah proses yang ditunjukkan di atas?

- A Meiosis
Meiosis
B Regeneration
Penjanaan semula
C Binary fission
Belahan dedua
D Osmoregulation
Pengosmokawalaturan

- 3 Diagram below shows a gaseous exchange in an unicellular organism.

Rajah di bawah menunjukkan pertukaran gas dalam organism unisel.



What is the process involved in the gaseous exchange as shown above?

Apakah proses yang terlibat dalam pertukaran gas seperti yang ditunjukkan di atas?

- A Osmosis
Osmosis
B Simple diffusion
Resapan ringkas
C Passive transport
Pengangkutan pasif
D Active transport
Pengangkutan aktif

- 4 In an activity, a student places the *Amoeba* sp. in sea water. Predict what happens to the *Amoeba* sp.

Dalam suatu aktiviti, seorang pelajar meletakkan Amoeba sp dalam air laut. Ramalkan apa yang berlaku kepada Amoeba sp.tersebut.

- A *Amoeba* sp. bursts
Amoeba sp. pecah
B *Amoeba* sp. shrinks
Amoeba sp. mengecut
C *Amoeba* sp. expands
Amoeba sp. mengembang
D *Amoeba* sp. denatures
Amoeba sp. ternyahasli

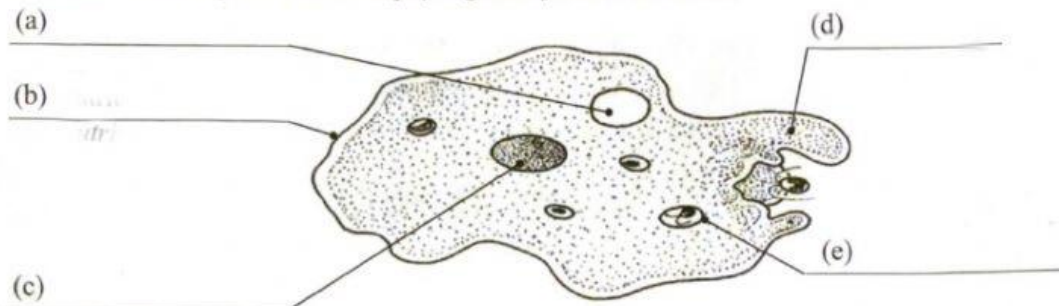
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2	
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Structured Questions

Soalan Struktur

1 Label the structure in *Amoeba sp.* shown below.

Labelkan struktur pada *Amoeba sp.* yang ditunjukkan di bawah.



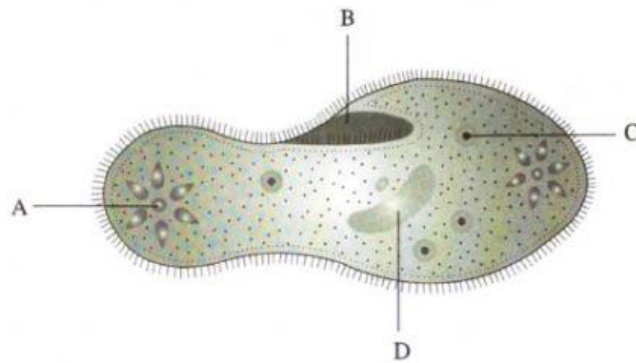
2 Complete the table below.

Lengkapkan jadual di bawah.

Living processes <i>Proses hidup</i>	Explanations <i>Penerangan</i>
(a) Respiration <i>Respirasi</i>	- The exchange of oxygen and _____ gases occurs through plasma _____ by _____. <i>Pertukaran gas oksigen dan _____ berlaku melalui _____ plasma secara _____.</i>
(b) Nutrition <i>Nutrisi</i>	- The <i>Amoeba sp.</i> uses the _____ to engulf the food by _____. <i>Amoeba sp. menggunakan _____ untuk menelan makanan secara _____.</i> - The pseudopodia enclose the food which is then packaged in a food _____. <i>Pseudopodia melingkungi bahan makanan dan dibungkus dalam bentuk _____ makanan.</i> - The food vacuole fuses with _____. <i>Vakuol makanan akan bercantum dengan _____.</i> - Then, the food is _____ by _____ enzyme called _____. <i>Kemudian, makanan akan _____ oleh enzim _____ dikenali sebagai _____.</i> - The nutrients are then absorbed into the _____. <i>Nutrien akan diserap ke dalam _____.</i>

(c) Movement <i>Pergerakan</i>	• <i>Amoeba sp.</i> moves by extending _____ and anchoring the tips on the ground. <i>Amoeba sp. bergerak dengan mengunjurkan _____ dan meletakkan hujung pseudopodium pada tanah.</i> • Then, it is followed by the flow of _____ into the projected _____. <i>Kemudian, ia diikuti dengan pengaliran _____ ke bahagian _____ yang diunjurkan.</i>
(d) Excretion <i>Perkumuhan</i>	• Waste products are excreted by _____. <i>Bahan buangan dikumuhkan secara _____.</i> • The _____ vacuole is involved in _____. <i>Vakuol _____ terlibat dalam _____.</i> • When the vacuole is filled with water to a _____ size, it contracts to _____ its contents from time to time. <i>Apabila vakuol mengandungi air sehingga mencapai saiz yang _____, ia akan mengecut untuk _____ air yang berlebihan.</i>
(e) Reproduction <i>Pembiakan</i>	• <i>Amoeba sp.</i> reproduces asexually by _____. <i>Amoeba sp. membiak secara aseks melalui _____.</i> • However, when the environment is not favourable for reproduction, <i>Amoeba sp.</i> forms _____. <i>Namun, apabila persekitaran tidak sesuai untuk pembiakan, Amoeba sp akan membentuk _____.</i>
(f) Response <i>Gerak balas</i>	• <i>Amoeba sp.</i> is constantly changing _____ when responds to stimuli. <i>Amoeba sp. sentiasa mengubah-ubah _____ ketika bergerak balas terhadap rangsangan.</i> • It moves _____ the favourable stimuli such as food. <i>Ia bergerak _____ rangsangan seperti makanan</i> • It moves _____ from the adverse stimuli such as _____ light and _____ conditions. <i>Ia bergerak _____ rangsangan buruk seperti cahaya _____ dan keadaan yang _____.</i>

- 3 Diagram below shows a type of unicellular organism that lives in a freshwater pond.
Rajah berikut menunjukkan sejenis organisma unisel yang hidup di dalam kolam air tawar.



- (a) Which of the labelled parts A,B, C or D performs osmoregulation?
Bahagian berlabel A, B, C dan D, yang manakah menjalankan pengosmokawalaturan?
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- (b) Explain the function of the part stated in (a) during osmoregulation process.
Terangkan fungsi bahagian yang dinyatakan dalam (a) semasa proses pengosmokawalaturan.
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- (c) C is a food vacuole. Describe how the organism above obtains its food from its surrounding.
C adalah vakuol makanan. Huraikan bagaimana organisma di atas mendapatkan makanan dari sekeliling.
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- (d) The movement of the organism shown above is different with *Amoeba sp.* even though both are unicellular organisms. Explain this statement.
Pergerakan organisma yang ditunjukkan di atas adalah berbeza dengan Amoeba sp. walaupun kedua-duanya merupakan organisma unisel. Terangkan pernyataan ini.
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