

# Transport in Cells

## Mark Scheme 1

<b>Level</b>	GCSE (9-1)
<b>Subject</b>	Combined Science: Trilogy - Biology
<b>Exam Board</b>	AQA
<b>Topic</b>	4.1 Cell Biology
<b>Sub-Topic</b>	Transport in Cells
<b>Difficulty Level</b>	Bronze Level
<b>Booklet</b>	Mark Scheme 1

**Time Allowed:** 60 minutes

**Score:** /60

**Percentage:** /100

**Grade Boundaries:**

**M1.(a)** cell membrane

*extra boxes ticked negates mark*

1

(b) nucleus

*extra boxes ticked negates mark*

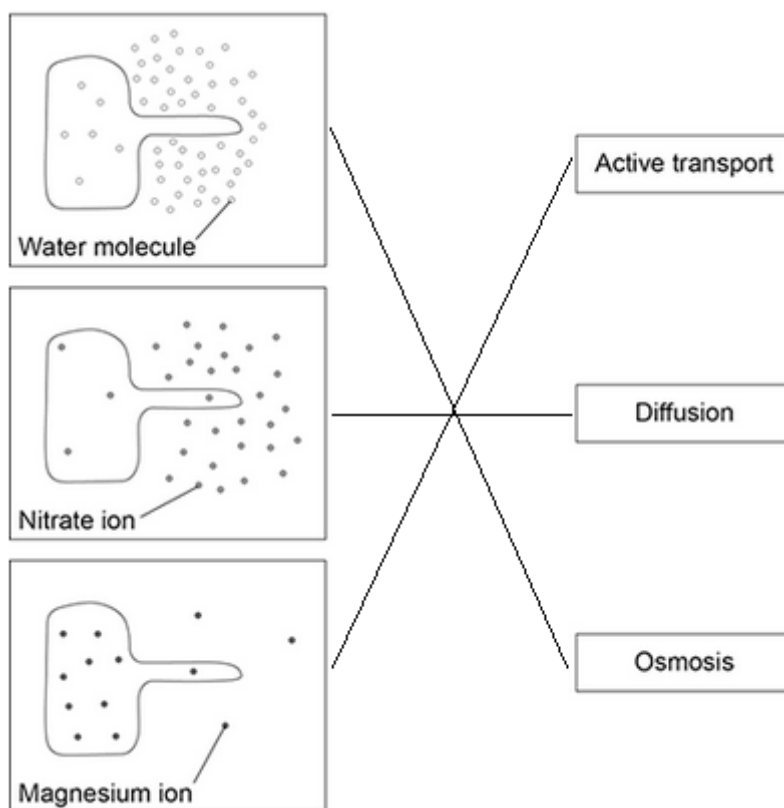
1

(c) has a tail so it can swim (to an egg)

*accept has many mitochondria to release energy to swim*

1

(d)



*all three correct for 2 marks  
one or two correct for 1 mark*

2

[5]

**M2.(a)**

Structure	Organ	Organ system	Tissue
Stomach	✓		
Cells lining the stomach			✓
Mouth, oesophagus, stomach, liver, pancreas, small and large intestine		✓	

all 3 correct = 2 marks  
 2 correct = 1 mark  
 1 or 0 correct = 0 marks

2

(b) (i) diffusion  
*allow phonetic spelling*

1

(ii) glucose

1

(iii) mitochondria

1

**[5]**

**M3.(a)** (i) alveoli / alveolus

*allow air sacs*

*allow phonetic spelling*

1

(ii) any **one** from:

- protection (of lungs / heart)
- help you breathe / inflate lungs.

1

(b) (i) diffusion

1

(ii) capillaries

1

(iii) any **two** from:

- (have many) alveoli  
*allow air sacs*
- large surface / area
- thin (exchange) surface **or** short diffusion pathway  
*accept only one / two cell(s) thick*
- good blood supply / many capillaries  
*allow (kept) ventilated or maintained concentration gradient.*

2

[6]

**M4.(a)** (i) water / H<sub>2</sub>O

*accept oxygen*  
*allow H<sub>2</sub>O*  
*do **not** allow H<sup>+</sup>O or H2O*

1

(ii) the mineral ions are absorbed by active transport

1

the absorption of mineral ions needs energy

1

(iii) have (many root) hairs

1

(which) give a large surface area (for absorption)

1

(b) carbon dioxide in

**or**

oxygen out

**or**

control water loss

*accept gas exchange*

*ignore gases in and out*  
*ignore gain / lose water*

1

(c) (i) guard cells

1

(ii) (stomata are) closed  
*allow there is no gap / space*

1

(iii) plant will wilt / droop  
*ignore die*

1

[9]

M5.(a) osmosis

1

partially permeable

1

(b) (i) any **two** from:

*allow correct answers in terms of A*

- vacuole is small(er)
- cytoplasm has shrunk  
*allow cytoplasm is smaller*
- gap between cytoplasm and cell wall
- cell wall curves inwards  
*allow cell B is flaccid or cell A is turgid*
- the (cell) membrane has moved away from the wall

2

(ii) any **one** from:

- water will move / diffuse in
- (cells) will swell
- (cells) will burst  
*ignore turgid*

1

(c) villi give the small intestines a large surface area

1

villi have many blood capillaries

1

[7]

M6.(a) (i) A = nucleus

1

B = (cell) membrane

1

(ii) any **two** from:

*ignore shape*

- no (cell) wall
- no (large / permanent) vacuole
- no chloroplasts / chlorophyll

2

(b) because high to low oxygen / concentration **or** down gradient

*allow 'more / a lot of oxygen molecules outside'*

*ignore along / across gradient*

1

(c) a tissue

1

[6]

M7.(a) A sperm

1

B egg	1
C fertilised egg	1
D embryo	1
(b) insert into mother <i>ignore fertilise / check fertilisation / check viability</i>	1
womb / uterus	1
(c) (i) one quarter	1
(ii) no / little chance of success over 42	1
reference to table of only two women in the age bracket 40-42 years became pregnant <i>the statement 'only 2 out of 53 40-42 year old women became pregnant / had babies' gains 2 marks</i>	1
(iii) so fewer twins / multiple births <del>or</del> multiple births more dangerous	1
	[10]

M8.(a)	(i)	diffusion	<i>apply list principle</i>	1
	(ii)	<b>A</b>	<i>apply list principle</i>	1
	(b)	(i)	osmosis	
			<i>apply list principle</i>	1
		(ii)	<b>R</b>	
			<i>apply list principle</i>	1
				<b>[4]</b>
M9.(a)	(i)	capillary		1
	(ii)	diffusion		1
	(b)	(i)	<b>Z</b>	
			<i>ignore any names</i>	1
	(ii)	<u>large</u> / <u>increased</u> surface / area		
		<i>allow <u>all</u> food absorbed</i>		
		<b>or</b> to absorb <u>more</u> food		
		<b>or</b> improved diffusion		



1

[4]

**M10.(a)** xylem **and** phloem

*either order*

*allow words ringed in box*

*allow mis-spelling if unambiguous*

1

(b) (i) movement / spreading out of particles / molecules / ions / atoms

*ignore names of substances / 'gases'*

1

from high to low concentration

*accept down concentration gradient*

*ignore 'along' / 'across' gradient*

*ignore 'with' gradient*

1

(ii) oxygen / water (vapour)

*allow O<sub>2</sub> / O2*

*ignore O<sup>2</sup> / O*

*allow H<sub>2</sub>O / H2O*

*ignore H<sup>2</sup>O*

1

[4]