

WEEK 1: TOPIC: Gaseous exchange

SUB-TOPIC: Difference between cellular respiration, breathing and gas exchange.

ANSWERS for ACTIVITIES/WORKSHEETS/EXAM TYPE QUESTIONS

ACTIVITIES

1. Word Search Answers

Gaseous exchange

Identify the term from the description and then find the term in the word search

D	M	L	L	B	E	S	G	H	N	J	J	Q	T	T	T	M	I	K	R	R	X	G	Z	W
W	O	Z	O	Y	A	R	P	N	N	I	W	K	O	T	E	K	L	D	X	O	N	P	E	I
H	U	W	I	I	B	N	X	N	Z	W	B	G	O	K	R	B	E	Z	N	P	M	C	G	M
A	N	I	C	H	T	I	F	L	M	D	O	R	H	D	R	I	D	B	F	R	I	I	N	P
G	P	N	I	B	F	K	M	N	V	R	Y	T	N	K	E	W	L	R	U	J	X	K	X	N
L	P	V	T	I	C	M	M	T	O	X	A	T	V	N	S	C	O	O	U	K	Z	D	J	B
S	G	N	A	J	N	E	C	J	P	L	K	F	G	G	T	E	Q	N	E	H	Q	E	T	V
M	Q	A	U	I	Y	L	E	R	Q	N	X	D	J	K	R	Q	W	C	M	V	Y	C	Z	L
D	G	X	Q	Z	Z	B	A	I	V	I	N	G	M	R	I	T	O	H	G	T	L	N	H	P
V	S	R	A	B	Z	T	Z	D	O	E	B	M	K	B	A	U	V	I	S	E	P	A	H	G
L	Z	M	K	I	O	Y	I	T	L	T	R	F	I	K	L	G	F	O	H	V	U	N	P	F
I	M	A	P	S	Z	F	G	L	K	R	L	J	Y	D	D	A	Y	L	H	F	S	X	Z	W
G	I	I	X	C	F	R	U	N	G	A	G	I	G	F	P	O	U	E	A	G	I	Z	V	D
U	I	H	T	U	C	K	H	B	D	C	E	S	V	O	N	T	N	S	A	M	W	J	H	F
K	A	S	S	O	N	Q	O	S	A	H	X	R	V	U	R	A	N	J	O	L	T	B	Q	P
U	J	I	M	I	C	O	M	E	U	E	J	V	O	T	I	H	O	Z	X	J	Q	A	Y	Z
H	O	E	T	L	V	H	F	E	P	O	N	O	P	B	V	O	I	T	O	Z	J	N	P	F
N	J	E	R	Q	M	N	O	G	O	L	E	N	I	G	I	O	T	G	E	Q	R	E	A	B
U	Q	K	K	Z	A	T	H	N	W	E	I	S	L	B	S	C	A	X	W	L	A	A	I	J
S	V	G	L	N	H	C	U	A	D	S	L	N	A	P	V	T	L	Y	I	K	G	R	A	E
M	U	R	B	J	U	F	E	H	G	R	A	Z	Q	G	C	L	I	Q	N	L	M	O	T	A
T	G	J	W	T	Z	Z	K	C	D	F	I	D	T	X	X	S	T	B	N	J	K	B	T	X
A	D	A	Y	Y	Q	R	R	X	I	L	J	O	C	O	T	Q	N	S	F	F	B	I	I	Z
L	X	Z	N	I	X	F	S	E	A	C	D	Y	N	R	U	F	E	S	L	N	Y	C	Q	K
W	D	D	S	K	X	O	Q	W	W	L	X	B	X	L	K	E	V	U	C	H	C	O	U	S

AEROBIC
VENTILATION
EXCHANGE
BRONCHIOLES

ANEAROBIC
DIFFUSION
MITOCHONDRION
TRACHEOLES

AQUATIC
GASEOUS
TERRESTRIAL
ALVEOLI

2.

Surface area to volume ratio

Teacher notes:

The answers will depend on the size of the books used by each learner.

I Used the Answer Series textbook measuring:

Height 1.1 cm

Length 29.8 cm

Width 20.9cm

Question 1

(remember we have 4 books stacked so the height will be 4x 1.1cm)

1.1 Surface area

(There are 3 different surface areas and therefore the learner must have 3 different calculations x 2; there are in total 6 surface areas)

$$\begin{aligned}\text{Surface area 1} &= 29.8 \times 4.4 \\ &= 131.12\text{cm}^2\end{aligned}$$

$$\begin{aligned}\text{Surface area 2} &= 20.9 \times 4.4 \\ &= 91.96\text{cm}^2\end{aligned}$$

$$\begin{aligned}\text{Surface area 3} &= 29.8 \times 20.9 \\ &= 622.82\text{cm}^2\end{aligned}$$

$$\begin{aligned}\text{Total surface area} &= (\text{Surface area 1} + \text{Surface area 2} + \text{Surface area 3}) \times 2 \\ &= (131.12\text{cm}^2 + 91.96\text{cm}^2 + 622.82\text{cm}^2) \times 2 \\ &= 1691.8 \checkmark \text{cm}^2 \checkmark\end{aligned}$$

Allocate 1 mark if 3 different surface areas were calculated.

Allocate 1 mark for the final answer (according to the learner's measurements) and 1 mark for the unit

(3)

1.2 Volume = L x B x H

$$\text{Eg} = 29.8 \times 20.9 \times 4.4 \checkmark \text{ (There must be 3 values)}$$

$$= 2740.408 \checkmark \text{ cm}^3 \checkmark \quad (3)$$

1.3

Surface area

Volume

$$= \frac{1691.8 \checkmark}{2740.408 \checkmark}$$

$$= 0.62 \checkmark$$

(3)

Question 2

(remember we have 4 books next to each other, the length will be 29.8×4
The height goes back to 1.1)

2.1 Surface area

(There are 3 different surface areas and therefore the learner must have 3 different calculations x 2; there are in total 6 surface areas)

E.g.

$$\begin{aligned}\text{Surface area 1} &= 119.2 \times 1.1 \\ &= 131.12\text{cm}^2\end{aligned}$$

$$\begin{aligned}\text{Surface area 2} &= 20.9 \times 1.1 \\ &= 22.99\text{cm}^2\end{aligned}$$

$$\begin{aligned}\text{Surface area 3} &= 119.2 \times 20.9 \\ &= 2491.28\text{cm}^2\end{aligned}$$

$$\begin{aligned}\text{Total surface area} &= (\text{Surface area 1} + \text{Surface area 2} + \text{Surface area 3}) \times 2 \\ &= (131.12\text{cm}^2 + 22.99\text{cm}^2 + 2491.28\text{cm}^2) \times 2 \\ &= 5\,290.78 \checkmark \text{cm}^2 \checkmark\end{aligned}$$

Allocate 1 mark if 3 different surface areas were calculated.

Allocate 1 mark for the final answer (according to the learner's measurements) and 1 mark for the unit

(3)

2.2 Volume = L x B x H ✓

$$\begin{aligned}\text{Eg} &= 119.2 \times 20.9 \times 1.1 \checkmark \text{ (There must be 3 values)} \\ &= 2740.408 \checkmark \text{cm}^3 \checkmark\end{aligned}$$

(3)

2.3

$$\begin{aligned}&= \frac{\text{Surface area} \checkmark}{\text{Volume}} \\ &= \frac{2740.408}{5290.78} \checkmark \\ &= 2.14 \checkmark\end{aligned}$$

(3)

Question 3

3.1 *Bookus skinny.* ✓

(1)

3.2 *Bookus skinny.* ✓

(1)

3.3 The animal has a larger surface area to volume ratio. ✓

(1)

3.4 These animals have a respiratory system ✓
and circulatory system. ✓

(2)

3.5 All cells will not receive (sufficient) oxygen ✓

and these cells might die.✓

(2)

Question 4

4.1 Alveoli ✓

(1)

4.2

- Large✓
- Thin and permeable✓
- Moist✓
- Vascular✓
- Protected✓
- Well-ventilated✓

Mark first FOUR only

(4)

[30]