Year 8 Science End of Year Exam
Academic year 2015-16

Prepare

The exams are on Tuesday 7th and Friday the 10th June. You should use the time from now to then productively by spending **a half hour** or so at night (a couple of hours a day over the weekends) quietly in your room reading through your work, making notes and revising.

During the exams, be ready, have the right equipment. Have the right amount of sleep (8 hours). The more preparation you do now means the less worry you will have later.

Exam Materials – Include pens, pencils, ruler, and calculator.

Science Exam Timetable:

Exam date	Exam type
7th June	Progression Test paper 1
10th June	Progression Test paper 2

Topics to revise for the exam.

Unit 1A: 8.1 Obtaining Food

The need of plants for carbon dioxide, water and light for photosynthesis and that this process makes biomass and oxygen

The constituents of a balanced diet and the functions of various nutrients

The effects of nutritional deficiencies

The relationship between diet and fitness

The organs and functions of the alimentary canal

The function of enzymes

Recommended Vocabulary for this unit:

Nutrition diet deficiency alimentary canal peristalsis digestion enzyme photosynthesis.

Unit 1B: 8.2 Elements, Mixtures and Compounds

- Changes of state, gas pressure and diffusion.
- The chemical symbols for the first twenty elements of the Periodic Table.
- Elements, compounds and mixtures.

Recommended Vocabulary for this unit:

Particles diffusion element atom chemical symbol Periodic Table compounds.

Unit 1C: 8.3 Light

- How light travels and the formation of shadows.
- How non-luminous objects are seen.
- Reflection at a plane surface and use the law of reflection.
- Refraction at the boundary between air and glass or air and water.
- The dispersion of white light.
- Colour addition and subtraction, and the absorption and reflection of coloured light.

Recommended Vocabulary for this unit:
Scatter shadow reflection refraction dispersion absorption prism.

Unit 2A: 8.4 Respiration and Circulation

- How water and mineral salts are absorbed and transported in flowering plants.
- The basic components of the circulatory system and their functions.
- The basic components of the respiratory system and their functions.
- Gaseous exchange.
- The effects of smoking.
- Aerobic respiration.

Recommended Vocabulary for this unit:

Aerobic respiration breathing circulation

Unit 2B: 8.5 Metals, Non-metals and Corrosion

- The differences between metals and non-metals.
- Chemical reactions which are not useful.
- Word equations.

Recommended Vocabulary for this unit:

Density malleability ductility combustion word equation corrosion rusting oxidation.

Unit 2C: 8.6 Sound

- The properties of sound in terms of movement of air particles.
- The link between loudness and amplitude, pitch and frequency

Recommended Vocabulary for this unit:

Vibration amplitude pitch frequency longitudinal.

Unit 3A: 8.7 Reproduction and Growth

- The human reproductive system, including the menstrual cycle, fertilisation and foetal development.
- The physical and emotional changes that take place during adolescence.
- How conception, growth, development, behaviour and health can be affected by diet, drugs and disease.

Recommended Vocabulary for this unit:

Menstrual fertilization foetus ovary oviduct uterus vagina penis testis sperm duct.

Unit 3B: 8.8 Chemical Reactions

- Some common compounds including oxides, hydroxides, chlorides, sulphates and carbonates.
- Using word equations to describe a reaction.

Recommended Vocabulary for this unit:

Oxides hydroxides sulfates carbonates salts chlorides oxidation combustion.

Unit 3C: 8.9 Forces and Magnets

- Speed including interpreting simple distance/time graphs.
- How magnetism can be used to move things.

Recommended Vocabulary for this unit:

Speed gradient gravity magnet magnetic poles attraction repulsion magnetic field pattern compass electromagnet.

ALL TOPICS WILL INCLUDE AN ASPECT OF SCIENTIFIC ENQUIRY

Scientific Enquiry work focuses on:

Suggesting ideas that may be tested.
Outlining plans to carry out investigations, considering the variables to control, change or observe.
Making predictions referring to previous scientific knowledge and understanding.
Identifying appropriate evidence to collect and suitable methods of collection.
Choosing appropriate apparatus and use it correctly.
Making careful observations including measurements.
Presenting results in the form of tables, bar charts and line graphs.
Considering explanations for predictions using scientific knowledge and understanding and communicate these.
Presenting conclusions using different methods.

Answers

No matter how good your grades were, you can always do better. When reading the question, make sure you read it properly. Re-read it, and make sure you've understood it. Pick out the key words and take a moment to think about your answer and make sure it is actually answering the question.

In low scoring questions, worth 1 mark, you are expected to write a brief answer, if one word will do use it; if it needs a sentence write a *short* sentence. With medium scoring questions (2 to 4 marks) you need to give your answer making one valid point per mark (so for a 3 mark Q you must make 3 good statements etc

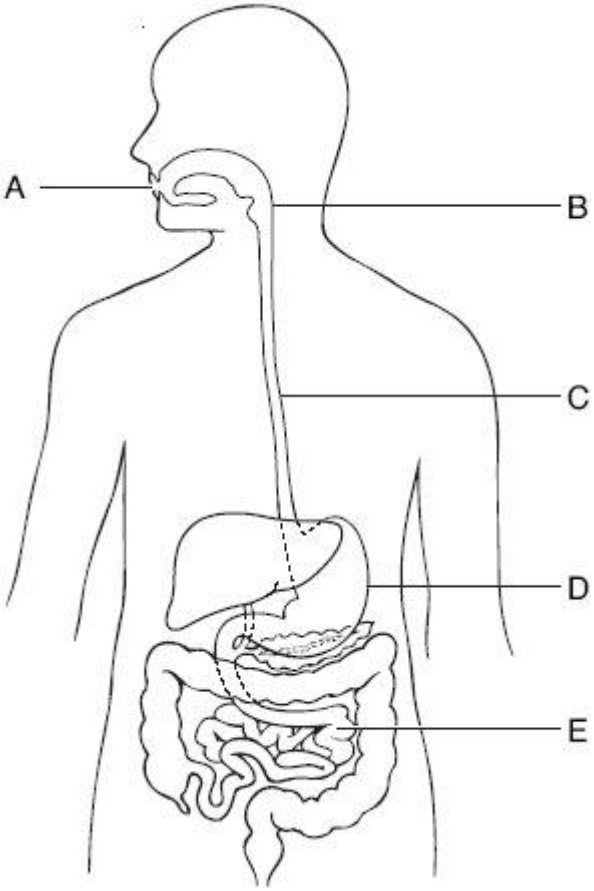
When you have written your answer STOP! Go back and re-read the question and ask yourself, "**does my answer actually answer all of that question?"**

I would also recommend spending some time looking over the tests you have completed during the academic year.

See the next few pages for some practice questions and markschemes.

Sample Questions and Mark schemes

Q1. The diagram below shows the digestive system.



(a) (i) Give the letter which labels the stomach.

.....

1 mark

(ii) Give the letter which labels the small intestine.

.....

1 mark

(iii) Glucose is absorbed in the small intestine.

What carries glucose from the intestine to other parts of the body?

.....

1 mark

(b) Some athletes take glucose tablets before a race.

Why do they take glucose?
Tick the correct box.

for growth	☐	for healthy bones and teeth	☐
to prevent disease	☐	to provide energy	☐

1 mark

(c) The table below shows what four people ate for lunch.

name	lunch
Jon	chicken and salad
Nadia	cheeseburger and chips
Clare	lemonade and a jam doughnut
Zak	mushroom soup and an orange

(i) Whose lunch had the most sugar in it?

.....

1 mark

(ii) Whose lunch had the most fat in it?

.....

1 mark

(iii) Eating too much fat is bad for you.
Give **one** reason for this.

.....

.....

1 mark
maximum 7 marks

Q2. The list below shows properties that different elements can have.

- magnetic
- can be compressed
- very high melting point
- very low melting point
- good conductor of heat
- poor conductor of heat
- good conductor of electricity
- poor conductor of electricity

(a) Which **two** properties from the list above make aluminium suitable for saucepans?

1. .....

2. .....

2 marks

(b) Which property in the list above explains why:

(i) copper is used in the cable of a television?

.....

1 mark

(ii) a lot of oxygen gas can be pumped into a very small container?

.....

1 mark

Maximum 4 marks

Q3. James shone a ray of light at a mirror as shown below.

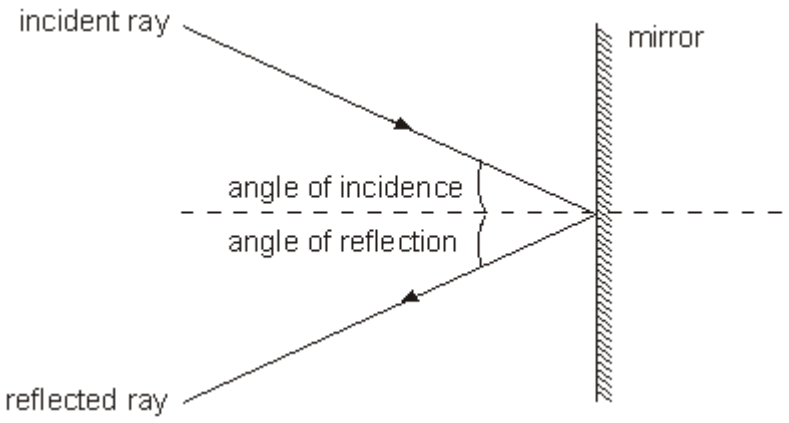


diagram 1

He measured the angle of **reflection** for different angles of incidence.
His results are shown below.

angle of **incidence** (º)	30	40	50	60	70
angle of **reflection** (º)	30	40	50	65	70

(a) Which angle of reflection was **not** measured accurately?

.....°

How can you tell this from the table?

.....

.....

1 mark

(b) James set up a different experiment as shown below.

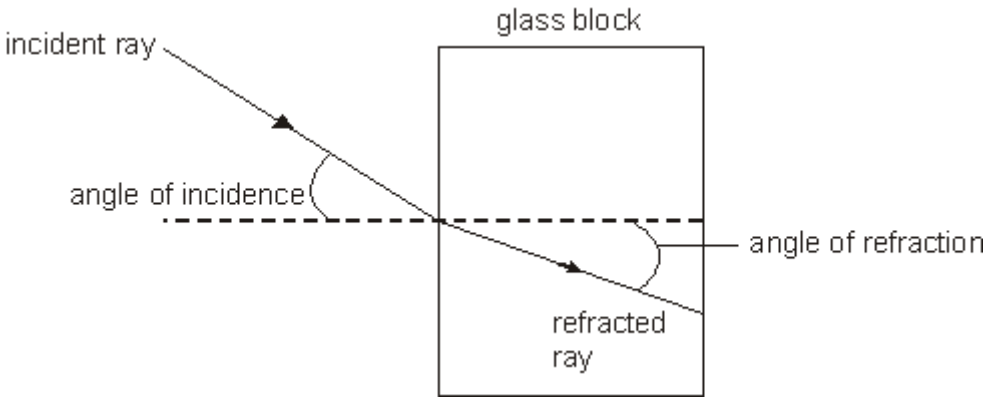
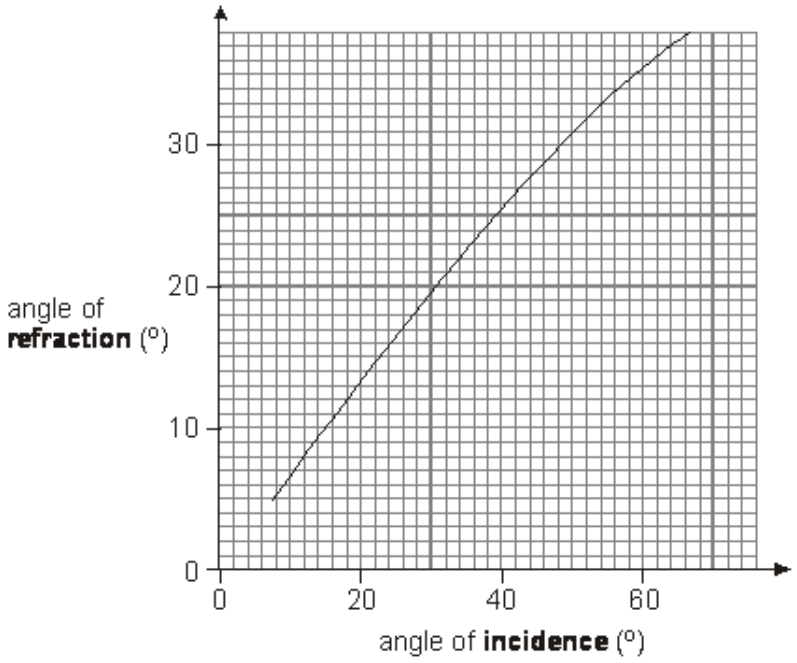


diagram 2

He measured the angle of **refraction** for different angles of incidence.

His results are shown in the graph.



Use the graph to answer the questions below.

(i) When the angle of **refraction** is 20°, what is the angle of **incidence**?

.....°

1 mark

(ii) What conclusion could James draw from his graph?
Complete the sentence below.

When light passes from air into glass, the angle of **incidence** is

always ..... the angle of **refraction**.

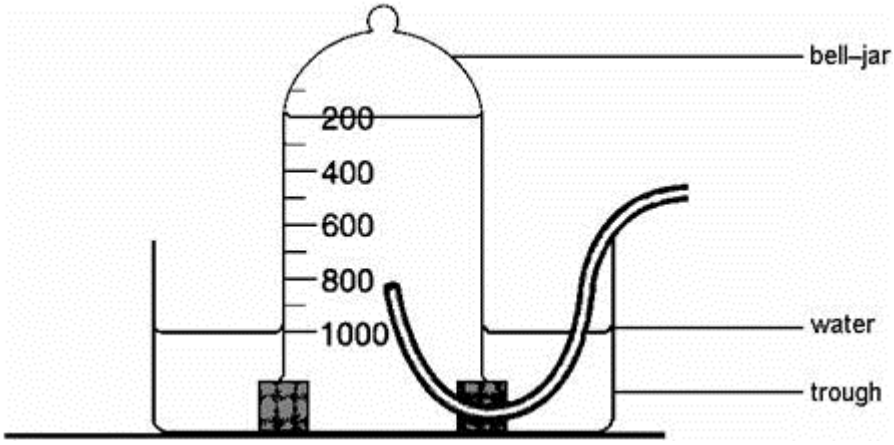
1 mark

(c) **On diagram 2,** draw a line to continue the refracted ray as it leaves the glass block.

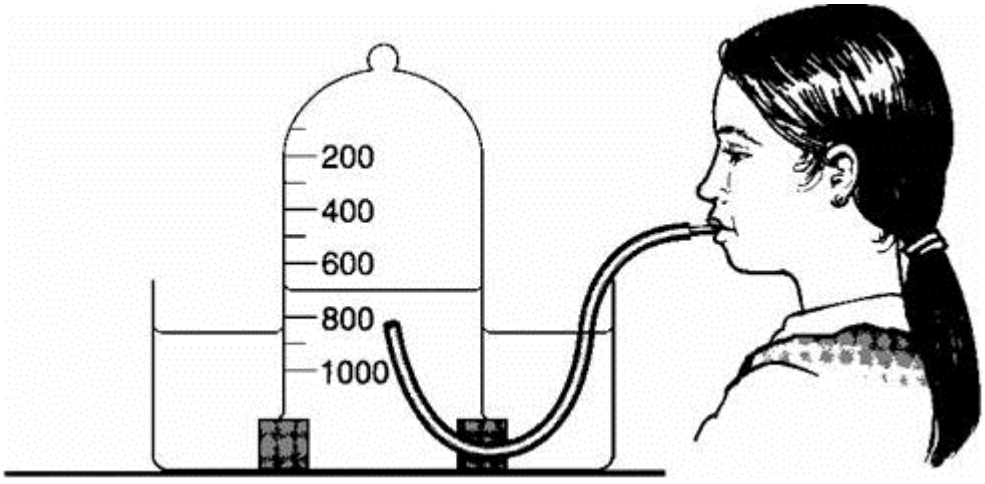
1 mark
maximum 4 marks

Q4. (a) Jasmine was trying to find out how much air she breathed out in one breath.
She poured water into a bell-jar and placed it upside down in a trough of water.
The bell-jar had a scale marked in cm^3.

before Jasmine breathed into the bell-jar



after Jasmine breathed into the bell-jar



(i) How much air did Jasmine breathe out?

..... cm^3

1 mark

(ii) Air contains carbon dioxide, nitrogen, noble gases, oxygen and water vapour.

Give **three differences** between the composition of the air Jasmine breathed in and the air she breathed out.

Compared to the air she breathed in, the air she breathed out contained:

1. .....

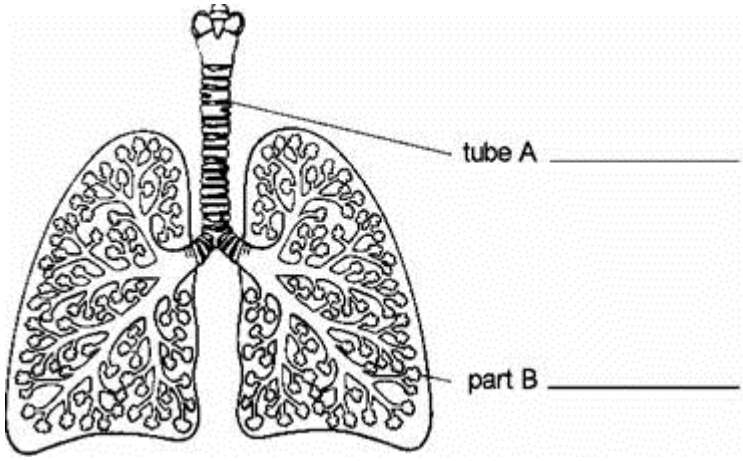
2. .....

3. .....

3 marks

(b) In the diagram below, tube A connects the lungs to the mouth. Part B is a part of the lung where gas exchange takes place.

(i) On the diagram, write the names of tube A and part B.



2 marks

(ii) In the wall of tube A there are 'rings' of a stiff material called cartilage. Suggest **one** function of the 'rings' of cartilage.

.....

.....

1 mark

Maximum 7 marks

M1. (a) (i) D

1 (L3)

(ii) E

1 (L3)

(iii) any **one** from

- blood
  accept 'plasma'
- blood vessels
  accept a named blood vessel
  accept 'arteries'; 'veins'
  *a mark should be awarded for 'red **or** white blood cells' as knowledge of the function of blood cells is not expected at this level the mark is awarded for the reference to blood*

1 (L4)

(b) to provide energy ✓
if more than one box is ticked, award no mark

1 (L3)

(c) (i) Clare
accept 'lemonade and jam or doughnut'

1 (L3)

(ii) Nadia
*accept 'cheeseburger and chips' **or** 'burger and chips'*

1 (L3)

(iii) any **one** from

- it causes heart disease
  accept 'it is bad for your heart'
- it could give you a heart attack
  accept 'it might give you a stroke'
- it clogs your arteries **or** blood vessels
  accept 'it makes you fat'
  accept 'it is bad for the liver'

1 (L3)

[7]

M2. (a) very high melting point
answers may be in either order

1 (L3)

good conductor of heat
*do **not** accept 'good conductor'*

1 (L3)

(b) (i) good conductor of electricity

*do **not** accept 'good conductor'*

1 (L3)

(ii) can be compressed

1 (L4)

[4]

M3. (a) • 65

it is different from the angle of incidence **or** all the others are the same

*accept 'number 4' **or** 'the fourth'*

*accept 'it is not 60°' **or** 'it should be 60°'*

accept 'the angle of reflection and the angle of incidence should be the same'

accept 'it is 5° out'

accept 'they are not the same'

***both** the answer and the correct explanation are required for the mark*

award a mark for '60°' if the explanation is correct

'they go up in tens' is insufficient

'it does not fit the pattern' is insufficient

1 (L5)

(b) (i) • a number from 30 to 32

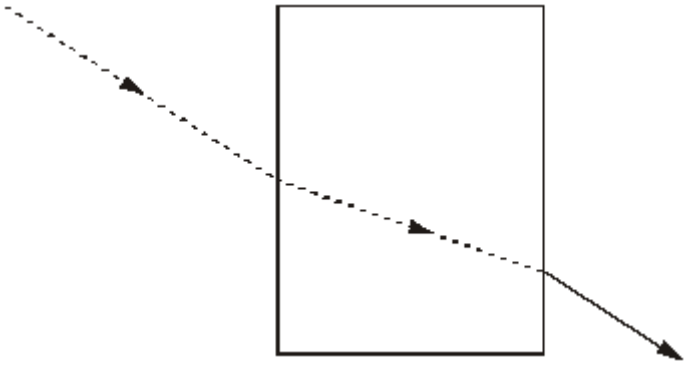
1 (L5)

(ii) • greater than

accept 'greater' or 'bigger'

1 (L5)

(c)



accept a continuous straight line that bends away from the normal

accept a line without an arrow

The ray need not be parallel to the incident ray

1 (L6)

[4]

M4. (a) (i) 500

1 (L5)

(ii) more carbon dioxide

1 (L6)

more water vapour

1 (L6)

less oxygen

1 (L6)

answer may be in any order

(b) (i) trachea **or** wind pipe

1 (L5)

alveolus

*accept 'alveoli' **or** 'air sac'*
answers must be in the correct order

1 (L5)

(ii) any **one** from

- to support the trachea
  accept 'to support it'
- to keep the trachea open to prevent the trachea from collapsing
  *accept 'to strengthen the trachea' **or** 'to make it strong'*
  *do **not** accept 'to protect the windpipe'*

1 (L6)

[7]