

**YEAR 8 SCIENCE
EXAMINATION - SEMESTER 1, 2017**



**KINROSS
COLLEGE**

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**MULTIPLE-CHOICE PART A AND
SHORT ANSWERS PART B**

STUDENT NAME:

TEACHER NAME:

DATE:

USE SEPARATE ANSWER GRID FOR MULTI-CHOICE

TIME ALLOWED FOR THIS EXAM: (Part A and Part B - combined)

Reading time **before** commencing work: 10 minutes
Working time for this paper: 1 hour 50 minutes

MATERIAL REQUIRED / RECOMMENDED FOR THIS PAPER:

To be provided by the supervisor:

- This question and answer booklet

To be provided by the candidate:

- Pens, pencils, eraser and ruler

IMPORTANT NOTE TO CANDIDATES:

No other items may be taken into the examination room.

It is your responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **BEFORE** reading any further. All iPads and mobile phones must be turned off and in your bag along with any other devices and notes. Bags are to be closed and placed under the desk.

INSTRUCTION TO CANDIDATES:

1. **Read** through paper, Part A and Part B, to familiarise yourself with all the questions.
2. Use a **blue or black** ballpoint / ink pen for written answers. Use pencil for drawing the graph.
3. **Write** your answers in the booklets.
4. Should you require more space than you have been given please use **the spare sheet** (at the back of this booklet) and ensure that you include your name and the question / statement to which you are responding.

AT THE END OF THE EXAMINATION:

- Any planning sheets or other pieces of paper **MUST** be handed in with this booklet.
- At the end of the examination make sure that your name is on your booklet and any other pieces of paper used.



Name: _____

Yr 8 Science Exam Multiple Choice Answer Sheet

USE THIS ANSWER SHEET (QUESTIONS NEXT PAGE)

- Circle the letter indicating the *best* answer.

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
8	A	B	C	D
9	A	B	C	D
10	A	B	C	D
11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D
16	A	B	C	D
17	A	B	C	D
18	A	B	C	D
19	A	B	C	D
20	A	B	C	D
21	A	B	C	D
22	A	B	C	D
23	A	B	C	D
24	A	B	C	D
25	A	B	C	D
26	A	B	C	D
27	A	B	C	D
28	A	B	C	D
29	A	B	C	D
30	A	B	C	D

MULTI-CHOICE – PART A

CHOOSE THE LETTER WHICH BEST FITS THE STATEMENT OR QUESTION:

(USE THE ANSWER SHEET BEFORE THIS PAGE)

EARTH SCIENCE & TOOLKIT (20 marks)

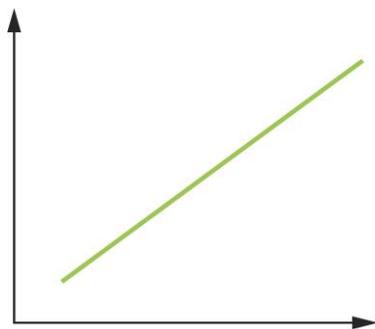
1. Which one of the following is **not** safe behaviour in a science laboratory?
 - a. Wearing a lab coat when using chemicals
 - b. Wearing closed-toe shoes at all times in a laboratory
 - c. Wearing long hair out when using Bunsen burners
 - d. Wearing safety glasses when heating substances

2. **10 out of 15 seeds in the 10ml group sprouted on day 4**
 - a. To determine the relationship between the volume of water per day and the number of days for the bean seeds to sprout.
 - b. Water each group of seeds with 2ml, 5ml, 10ml and 15ml of water each day at 9.00a.m
 - c. The more water used each day, the quicker the seeds sprouted.
 - d. The more water used each day, the quicker the seeds sprouted.

You are conducting a simple experiment to determine the optimal amount of water required each day for bean plants to sprout from seed.

3. **The independent variable of the experiment above is:**
 - a. the type of seeds used
 - b. the amount of water used each day.
 - c. the time taken for the seeds to sprout
 - d. the time of day the seeds are watered.

4. **A variable that should be controlled in the above experiment is:**
 - a. the amount and intensity of light received by each plant
 - b. the time taken for the seeds to sprout
 - c. the amount of water used each day
 - d. what the experimenter has for lunch



Graphs can be used to show the relationship between two variables in an experiment.

5. **The graph shows:**
 - a. that as the dependent variable increases, so does the independent variable.
 - b. that the dependent variable is not affected by the independent variable.
 - c. an inversely proportional relationship between the variables
 - d. the independent variable on the vertical axis and the dependent variable on the horizontal axis.

- 6. The Rock Cycle can explain:**
- How a sedimentary rock can become metamorphic
 - How a metamorphic rock can become sedimentary
 - How all rocks can become igneous
 - All of the above.
- 7. Which of the following is an igneous rock?**
- Pumice
 - Diamond
 - Limestone
 - Marble
- 8. Which of the following is a sedimentary rock?**
- Pumice
 - Diamond
 - Limestone
 - Marble
- 9. Where are the oldest layers of rock usually found in a cliff made from sedimentary rock?**
- At the top
 - In the middle
 - At the bottom
 - At the bottom and in the middle
- 10. Which type of rock often contains fossils**
- Sedimentary
 - Igneous
 - Metamorphic
 - All of them will contain fossils
- 11. The first type of rock to form in the Earth's crust was most likely:**
- sedimentary
 - metamorphic
 - igneous
 - clastic sedimentary.
- 12. Rock that forms from the cooling of magma or lava:**
- metamorphic rock
 - igneous rock
 - sedimentary rock
 - volcanic rock
- 13. What two factors does a metamorphic rock need to form?**
- Weathering and erosion
 - Heat and pressure
 - Cooling and solidification
 - Crystallisation and evaporation
- 14. The two most common processes that change a pile of sediment into a sedimentary rock are:**
- compaction and cementation
 - weathering and erosion
 - deposition and sedimentation
 - cooling and crystallisation
- 15. The destruction of rocks by front shattering is an example of:**
- chemical weathering
 - erosion
 - biological weathering
 - physical weathering

CHEMISTRY MULTI-CHOICE

16. **When a material cools down, its particles**
a. Vibrate slower and make it contract
b. Vibrate faster and make it expand
c. Vibrate slower and make it expand
d. Vibrate faster and make it contract
17. **My particles are lined up in a regular repeating pattern and cannot change position. I am a:**
a. Plasma
b. Gas
c. Liquid
d. Solid
18. **Sublimation is the name given to the change from:**
a. Solid to liquid
b. Liquid to gas
c. Liquid to solid
d. Solid to gas
19. **Which of the following is a physical change?**
a. Methane burning in air
b. Magnesium fizzing in hydrochloric acid
c. Salt dissolving in water
d. Glucose releasing energy in respiration
20. **Water contains 2 hydrogen atoms bonded on to 1 oxygen atom. Water is:**
a. An element
b. A compound
c. A mixture
d. None of the above
21. **If a perfume bottle is opened at the front of the classroom, eventually people at the back of the room can smell it. This is due to:**
a. Dissolution
b. Deflection
c. Diffusion
d. Distraction
22. **What is a reactant?**
a. A substance created by a chemical reaction
b. A person who controls a chemical reaction
c. A substance you start with before a chemical reaction
d. A chemical change
23. **What is the periodic table?**
a. A table showing all of the elements
b. A list of molecules
c. A table of gases
d. A table showing all of the solids
24. **When the bathroom mirror steams up it is an example of:**
a. Melting
b. Boiling
c. Condensing
d. Freezing

25. **If a material can be compressed, it means it can:**
- Change its shape
 - Be squeezed into a smaller space
 - Be poured through a tube
 - Be heated to a very high temperature
26. **The burning of methane can be written by the chemical reaction**
- $$\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$$

The products of this reaction are:

- $\text{CH}_4 + 2\text{O}_2$
 - $2\text{O}_2 + 2\text{H}_2\text{O}$
 - $\text{CH}_4 + \text{CO}_2$
 - $\text{CO}_2 + 2\text{H}_2\text{O}$
27. **The chemical properties of a substance are:**
- what it looks like
 - how it smells
 - what it does in a chemical reaction
 - how it feels
28. **Which of the following is a chemical property of matter?**
- permanent colour change
 - Viscosity
 - Density
 - Boiling point
29. **A molecule is:**
- Groups of two or more atoms bonded together
 - Two or more of the same atoms bonded together
 - Two or more different types of atoms bonded together
 - All of the above
30. **The size of the particles of a substance affects the rate of a reaction. If the particles are smaller the reaction rate will:**
- decrease
 - increase
 - stop
 - not change

END OF MULTIPLE-CHOICE – PART A
CONTINUE ONTO SHORT ANSWERS PART B

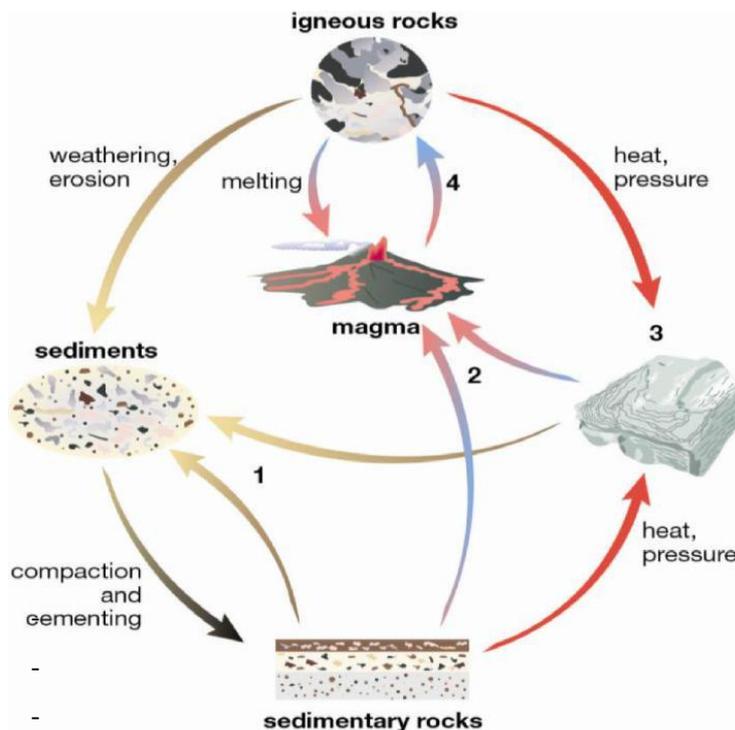
SHORT ANSWERS - PART B (60 marks):

Earth & Beyond + Toolkit (30 marks)

1. Complete the missing labels 1, 2, 3 and 4, on the diagram below showing the rock cycle. using the following terms

cooling, melting, weathering & erosion, metamorphic rocks

(4 marks)



- 1.....
- 2.....
- ..
- 3.....
- 4.....
- ...

2 . Name and describe a method that a palaeontologist can use to estimate the age of a fossil. (2 marks)

- Name of method:
- Description:

3a) Identify two methods (tests) that can be used to identify and differentiate the minerals in a sample of rock. (2 marks)

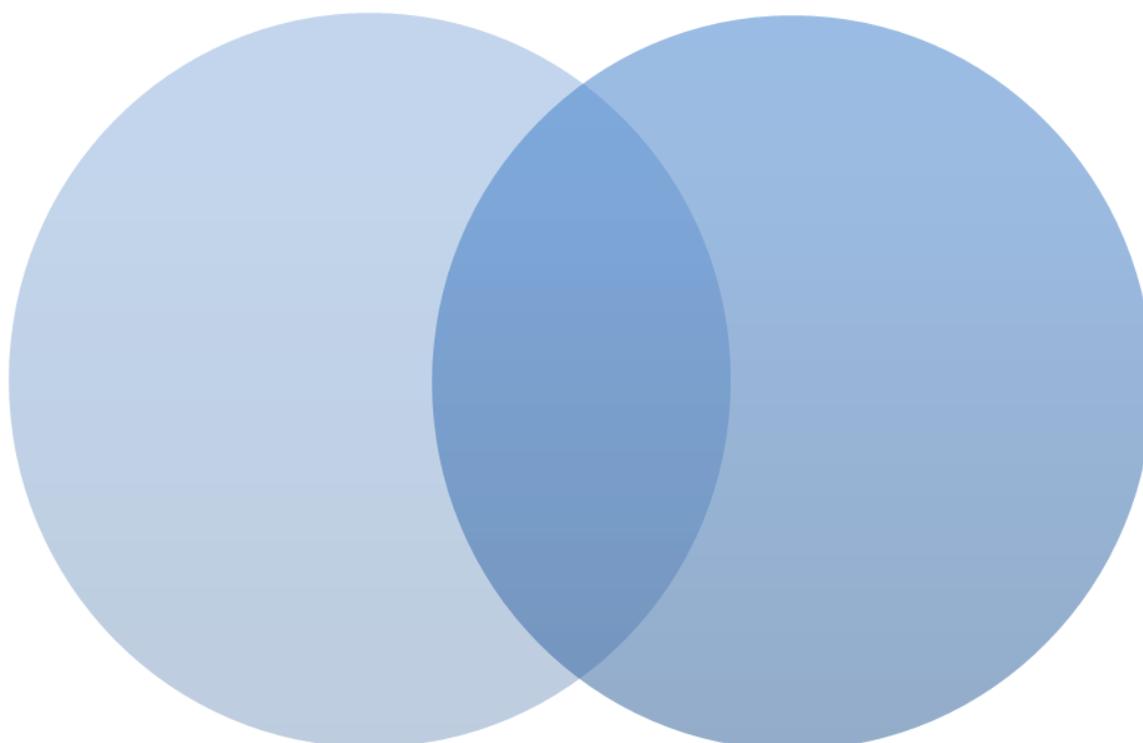
- 1)
-
-
- 2)
-

3b) Define weathering

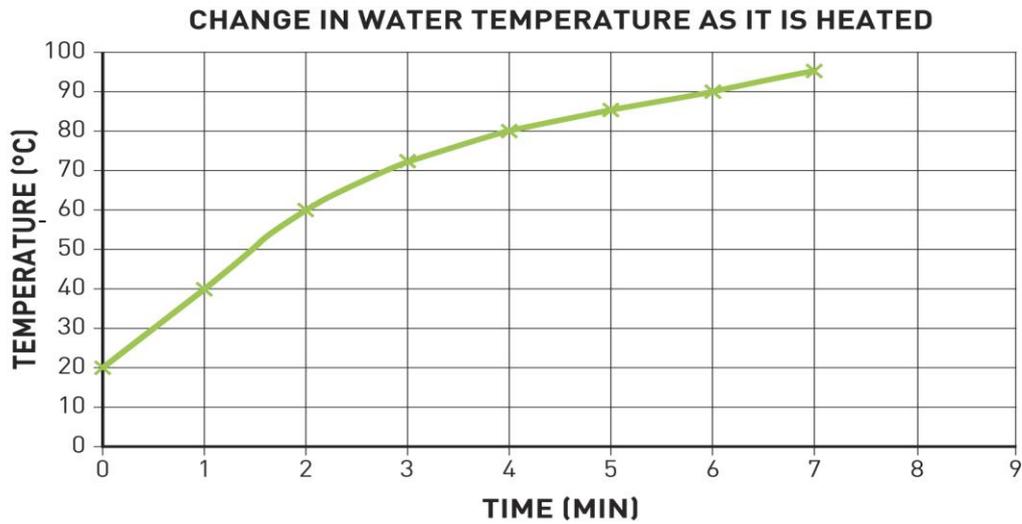
(1 mark)

5. Compare and contrast intrusive igneous rocks and extrusive igneous rocks using the Venn diagram below:

(4 marks)



Questions 6 and 7 relate to the graph shown.



6. Describe, using as much information as possible, the independent variable in the experiment, from the information in the graph. (2 marks)

7. From the graph, at what time was the temperature 50°C? _____ (1 mark)
USE THE ANSWER SHEET (NEXT PAGE)

8. A student reacted two chemicals together and recorded the temperature of the reaction for 8 minutes. (Shown in Figure 8.1 below)

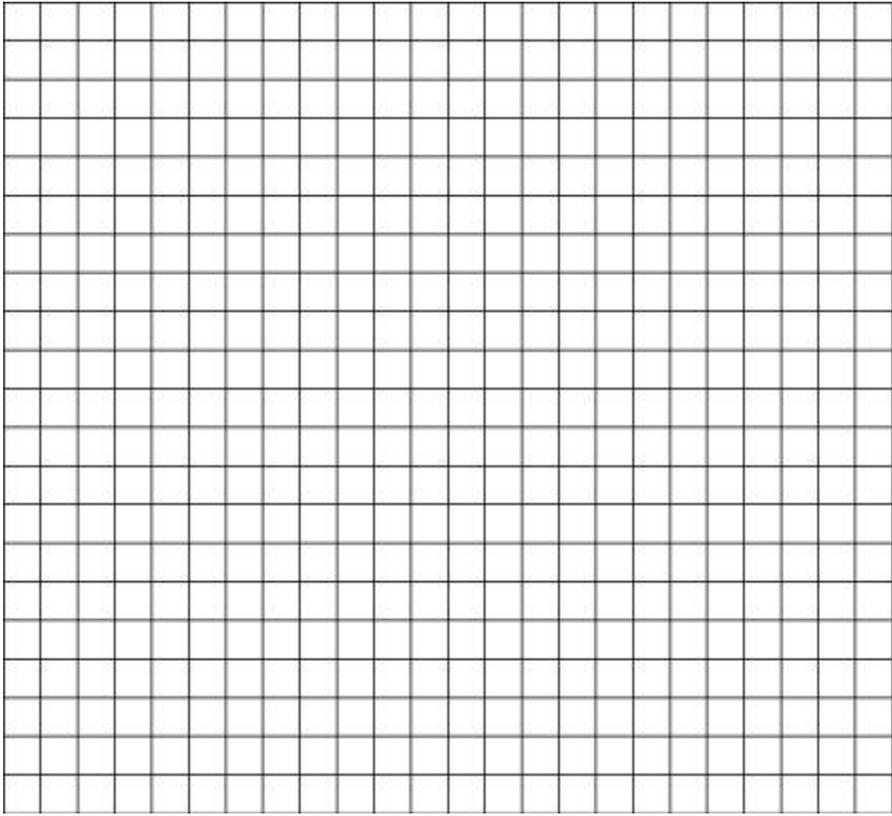
TIME (MINS)	TEMPERATURE (°C)
0	20
1	30
2	40
3	50
4	60
5	65
6	68
7	69
8	70

Figure 8.1

Create a line graph of the set of data that was obtained. (5 marks)

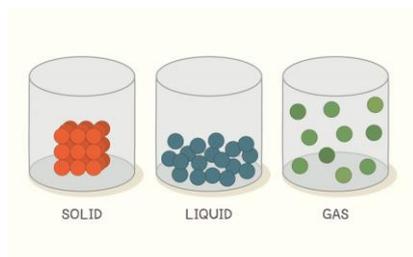
Include: title, label, units, scale

(See next page)



CHEMISTRY (30 marks)

9. States of matter differ in several ways.



Using the diagram above, describe the difference in:

a) the speed of the particles:

(3 marks)

b) how the particles fill a container

(3 marks)

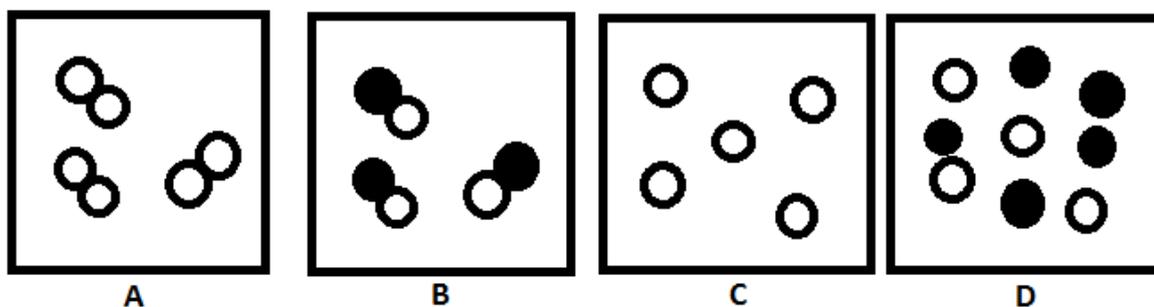
10a. What are physical properties of matter? _____

(1 mark)

10b. List 2 examples of physical properties: _____

(1 mark)

11. The diagrams below represent the arrangement of particles in four different gases. In the space below, correctly identify each one as an element, a compound or a mixture. (Use one label twice)



(2 marks)

12 Alice and Joanne placed a piece of metal in a test tube of liquid and made 5 observations about the reaction they witnessed, which they recorded in the table below:

Observations	Results	
	Start	Finish
Temperature	23C	45C
Colour	Colourless	Colourless
Liquid	Clear	Clear
Piece of metal	Can be seen	Can't be seen
Air above test tube	No smell	Strong smell

a. Did Alice and Joanne observe a **physical reaction** or a **chemical reaction**?

_____ (1 mark)

b. Which two observations in the table support your answer to part a? Explain why.

_____ (4 marks)

13a. How does particle size affect the rate of a chemical reaction?

(1 mark)

13b How does temperature increase the rate of a chemical reaction?

_____ (1 mark)

14. Complete the table below by describing the changes as either physical or chemical

Change	Physical or chemical?
Burning a piece of wood	
Ice melting	

(1 mark)

15. Write word equations for each of the following reactions:

a. Hydrogen reacts with oxygen to produce water.

_____ (2 marks)

b. Methane reacts with oxygen to produce carbon dioxide and water

_____ (2 marks)

16. The railway track in the photograph twisted and buckled on a hot summer day



The tracks **expanded** in the heat.

a. What does **expanded** mean?

_____ (1 mark)

b. Explain, by referring to the speed of vibration of particles, why materials expand when they are heated.

_____ (3 marks)

17. Dennis and Zoe were investigating the reaction between hydrochloric acid (HCl) and magnesium (Mg). This reaction produces magnesium chloride (MgCl₂) and hydrogen (H₂).

They wanted to see what effect changing the concentration of acid had on the rate of the reaction. They measured the rate of reaction by timing how long it took to collect 10mls of hydrogen. Their results are in the table:

Acid Concentration (M)	Time to collect H ₂ (s)
0.1	77
0.5	15
1.0	12
2.0	4
4.0	2

18. What was the independent variable in this investigation?

_____ (1 mark)

a. What was the **dependent variable** in this investigation?

_____ (1 mark)

b. Suggest 2 things Dennis and Zoe would need to keep the same to ensure that this was a fair test

_____ (1 mark)

c. What should Dennis and Zoe have done to get **more reliable** results?

_____ (1 mark)

END OF PART B - SHORT ANSWERS

END OF EXAM