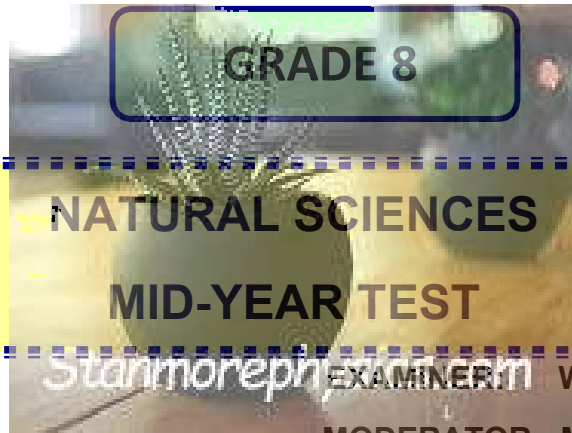




education
Department: Education
GAUTENG PROVINCE



TIME : 2 hours

MARKS : 80

DISTRICT: TSHWANE WEST D15

DATE: 6 JUNE 2024

NAME OF LEARNER:

EXAMINER: Winterveldt Educators

MODERATOR: Malebye P

CLUSTER : Winterveldt

CLASS: 8 _____

INSTRUCTIONS:

- This question paper serves as an answer sheet and consists of 15 PAGES.
- This question paper consists of TWO SECTIONS, A and B.
- Read instructions carefully and answer all questions accordingly
- Allocation of marks SECTION A: 22 AND SECTION B:58
- YOU ARE ADVISED TO USE THE DATA SHEET ATTACHED ON PAGE 14 and WORKING SHEET ON PAGE 15.
- Write neatly and legibly only in blue ink and use a pencil to draw.
- You have 10 minutes allowance time to read before starting to write.
- Diagrams are not necessarily drawn to scale
- CONTENT COVERED: TERM 2 (MATTER AND MATERIAL)

QUESTIONS	1	2	3	4	5	6	7	TOTAL
ALLOCATED MARKS	22	13	4	9	19	8	5	80
LEARNER'S MARK								

SECTION A

QUESTION 1: MULTIPLE CHOICE QUESTION

1.1. Different options are given as answers, choose the correct one by **CIRCLING** the **LETTER** of the **CORRECT** answer.

1.1.1. Atoms consist of ...

- A. elements and compounds.
- B. neutrons, electrons and compounds.
- C. protons, electrons and neutrons.
- D. elements, compounds, neutrons, electrons and protons.

1.1.2 The following particles are found in the nucleus of an atom:

- A. Neutrons and electrons.
- B. Neutrons, elements and electrons.
- C. Protons and neutrons
- D. Protons, electrons and neutrons.

1.1.3. The melting point of element X is 25°C . The boiling point of the same element is 70°C . At 30°C the element is a ...

- A solid.
- B liquid.
- C gas.
- D vapour.

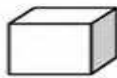
1.1.4 In which one of the following substances will the distances between the particles inside the substance be the greatest? All substances shown have the same volume.

A



an iron block

B



a square container filled with water

C



a square container filled with air

D



a square container filled with sand

1.1.5 What is the name given to horizontal rows on the periodic table

- A. Families
- B. Groups.
- C. Periods
- D. Atoms

1.1.6 The reactants in a chemical reaction are ...

- A. all the substances that appear in the solid phase.
- B. the new substances that are formed.
- C. all the substances that are involved.
- D. all the substances that react with each other.

1.1.7 Which one of the following symbols represents hydrogen?

- A. Hg
- B. He
- C. Hy
- D. H

1.1.8 Protons and neutrons are responsible for the ... of an atom.

- A. mass
- B. volume
- C. density
- D. size

1.1.9 Which one of the following is NOT an example of a compound?

- A. H₂O
- B. O₂
- C. CuCl₂
- D. CO₂

1.1.10 If an atom has 12 protons in the nucleus, then it must also have to be neutral.

- A. 12 protons around the nucleus
- B. 12 neutrons in the nucleus
- C. 12 electrons around the nucleus
- D. 12 electrons in the nucleus

[10x1]

1.2 Give a SCIENTIFIC WORD/TERM for each of the following statements. Write only the word/term next to the question number.

1.2.1 A sub-atomic particle with a positive charge.

1.2.2 The spontaneous spreading of particles from an area of high concentration to an area of low concentration.

1.2.3 The amount of mass per unit volume.

1.2.4 A substance that cannot be broken down into simpler substances by chemical methods

1.2.5 matter that can flow and does not have a specific shape.

1.2.6 General name for sub-atomic particles inside the nucleus of an atom

1.2.7 The change in phase from a liquid state to a solid state.

[7x1]

1.3. **MATCH** the **TERM** in **COLUMN A** with the description in **COLUMN B**. write the possible answer in **COLUMN C**

COLUMN A	COLUMN B	COLUMN C
1.3.1. Electron	A. Chemical formula for table salt	
1.3.2. Atom	B. Negatively charged sub-atomic particle	
1.3.3. Neutron	C. Positively charged sub-atomic particle	
1.3.4. Molecule	D. Sub-atomic particle that has no charge	
1.3.5. NaCl	E. Two or more atoms chemically bonded	
	F. Smallest building block of matter	

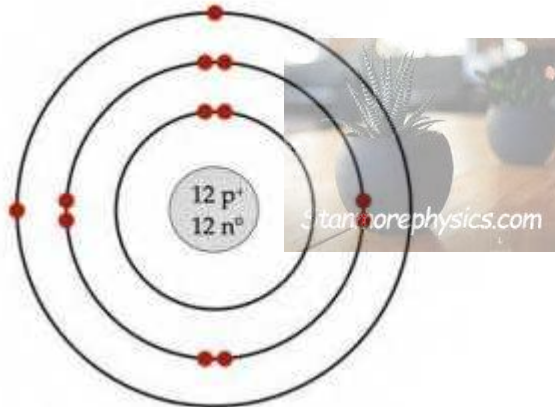
(5x1)

TOTAL SECTION A = 22

SECTION B

QUESTION 2: Model of an Atom and the Periodic table

Study the model of an atom below



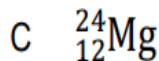
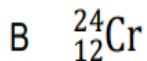
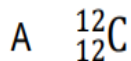
2.1 How many electrons are there in this atom? (1)

2.2 Explain why this atom is electrically neutral. (2)

2.3 In which group and period is this element found on the Periodic Table? (2)

2.4 Give the name and the symbol of this element. (2)

2.5 Choose the correct representation for this element. Only write down the letter of the correct answer (A, B, C or D). (1)



2.6 Use the Periodic Table of elements provided to write down the NAME of an element that:

2.6.1 is a non-metal in Group 1.

_____ (1)

2.6.2 is represented symbol Na

_____ (1)

2.6.3 has six protons in the nucleus of one atom.

_____ (1)

2.6.4 is a noble gas in period 2.

_____ (1)

2.6.5 is in Group 2, Period 3.

_____ (1)

[13]

QUESTION 3: ATOMS, MOLECULES AND COMPOUNDS

3.1. Different types of substances are represented in the diagrams below.

Answer the questions that follow:



Write down the **LETTER** of the diagram which best represents:

3.1 An element that consists of single atoms.

_____ (1)

3.2 An element that consists of diatomic molecules.

_____ (1)

3.3 A compound.

_____ (1)

3.4 A mixture of elements.

_____ (1)

[4]

QUESTION 4: INVESTIGATION

Lungile and Themba are smart grade 8 learners. They set up an investigation to find out how fast liquids mix. They used the following materials and method.

Materials and Apparatus used

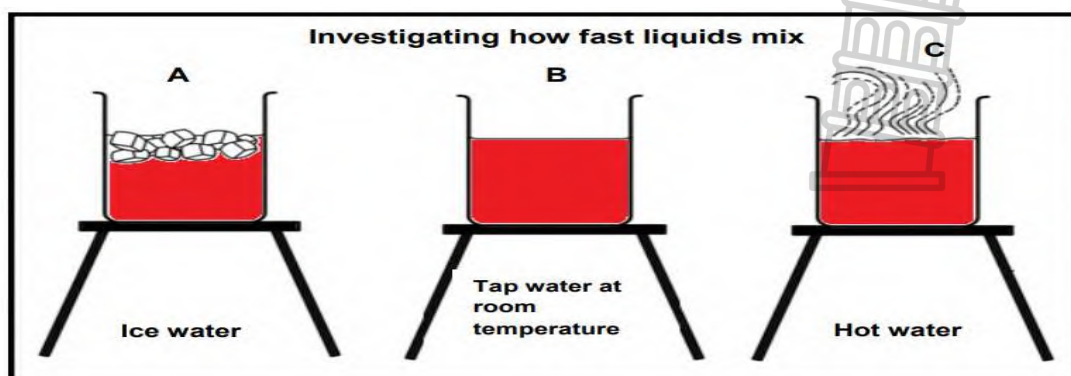
- Food colouring
- 3 droppers
- 3 beakers labelled A, B and C
 - o beaker A - filled with 50 ml ice water,
 - o beaker B - filled with 50 ml tap water at room temperature
- and
- o beaker C - filled with 50 ml hot water.

- Stop watch

Method:

- Place one drop of food colouring simultaneously in each of the three beakers, filled with:
- Measure the time it takes for the food colouring to completely mix with the water
- Draw a table to record results.

A	filled with 50 ml ice water,
B	filled with 50 ml tap water
C	filled with 50 ml hot water



Lungile and Themba completed the investigation and obtained the results below:



Liquid	Time it took to mix completely (s)
Beaker A : Ice water	73
Beaker B : Tap water at room temperature	58
Beaker C : Hot water	45

4 1.1 Write down the....

a) Aim of the investigation (1)

b) Safety precautions (1)

4.1.2 Describe what happens when the drop of food colouring enters the water (1)

4 1.3 What property of liquids does the observation above illustrate? (1)

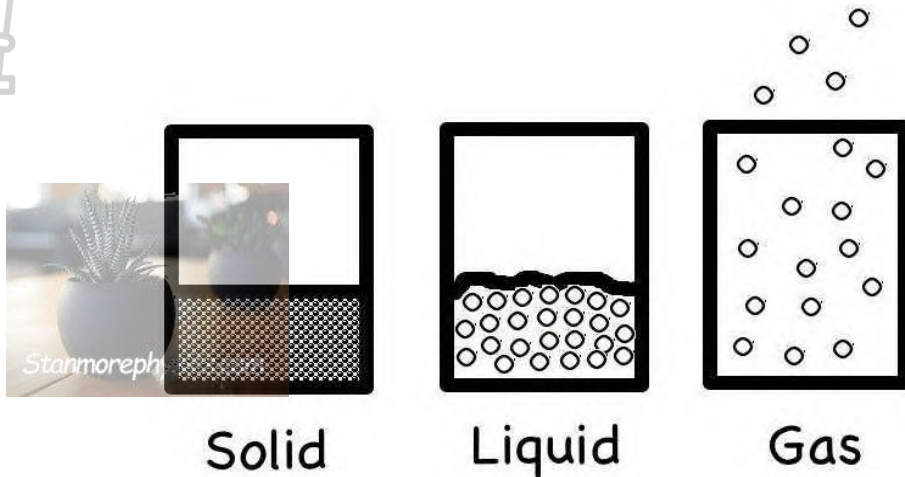
4.1.4 What conclusion can be drawn from Lungile and Themba's results? (2)

4. 1.5 Why is it important to use the same amount of liquid in each of the three beakers? (1)

4.1.6 Mention any two ways in which Lungile and Themba can do to ensure the reliability of their results. (2)

QUESTION 5: PARTICLE MODEL OF MATTER

Consider the three phases of matter illustrated in the diagram below.



5.1 Describe in detail the arrangement and behaviour of particles in a gas (4)

5.2 When you walk past a bakery, you can smell the fresh bread that is being baked. This is possible due to the diffusion of gases.

Explain what diffusion is. (2)

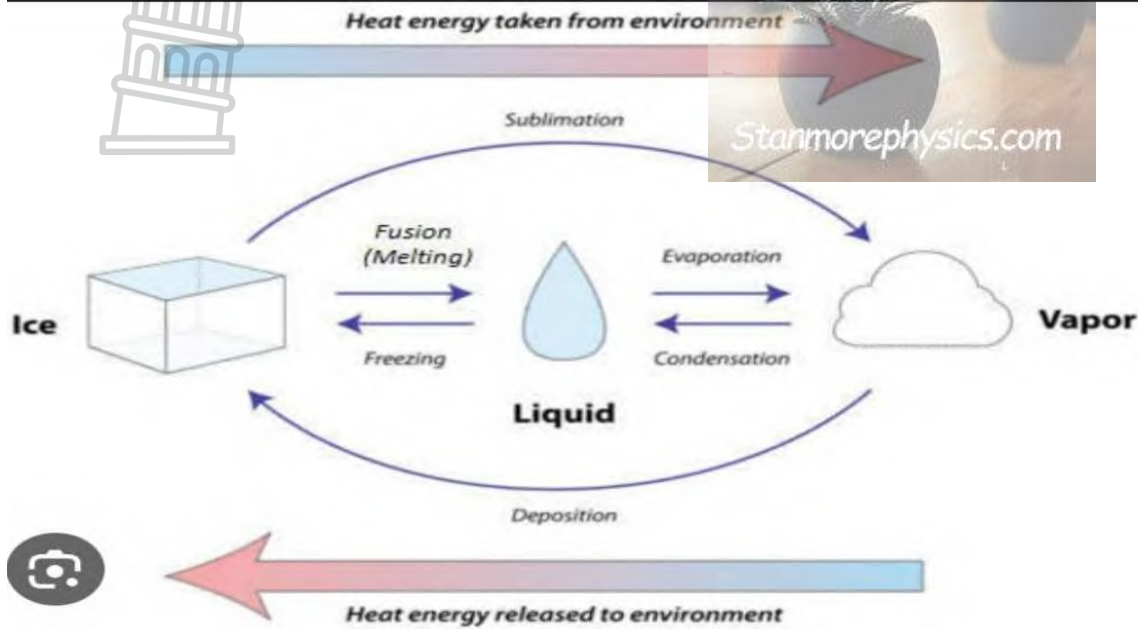
5.3.1 How does diffusion that take place in liquids compare to diffusion in gases ? (1)

5.3.2 Explain why it is NOT possible for diffusion to take place in solids. (2)

5.4 CHANGE OF STATE OF MATTER

(10X1)

Study the picture below and answer the questions that follows.



5.4.1 When ice is heated, it _____ to form water.

5.4.2 when water is _____ it _____ to form water vapour.

5.4.3. When water vapour cools, it _____ to form water.

5.4.4 When water _____ it _____ to form ice.

5.4.5 We can make change of state by _____ or _____ the matter.

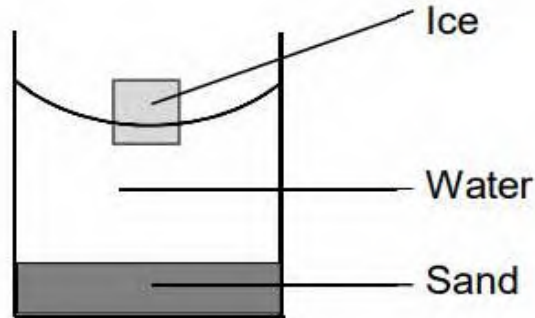
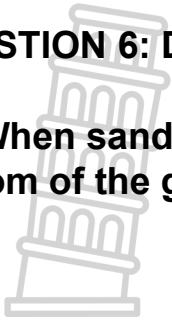
5.4.6 When we cool a solid, liquid or gas it _____ because its particles move closer together.

5.4.7. when we heat a solid, liquid or gas it _____ because its particles move further apart.

[19]

QUESTION 6: DENSITY AND PRESSURE

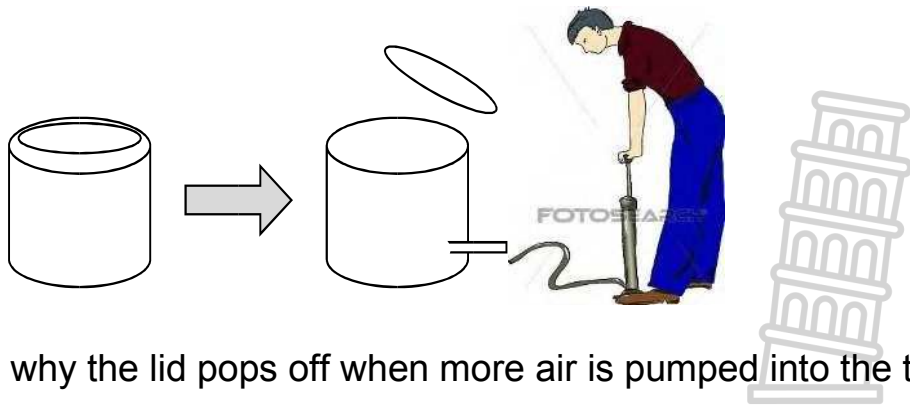
6.1 When sand and ice are added to a glass of water, the sand sinks to the bottom of the glass while the ice floats on the water as shown below.



6.1.1 Write down a definition for density. (2)

6.1.2 Write down the three substances (water, sand and ice) in order of INCREASING density. (3)

6.2 Study the following diagram. An empty paint tin with its lid on, is full of air. When more air is pumped into the tin, the lid pops off at some stage.

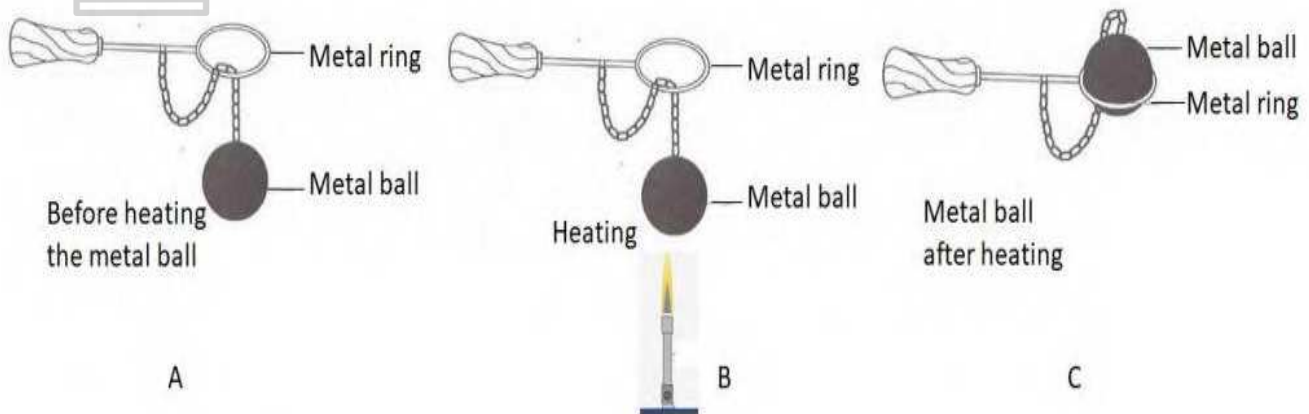


6.2.1 Explain why the lid pops off when more air is pumped into the tin. (3)

[8]

QUESTION 7: PRACTICAL INVESTIGATION

7.1 The following structure below demonstrate investigation done by grade Eights. A metal ball is passed through a ring. It is then heated for more than five minutes as shown and passed through the ring for the second time.



7.1.1 What is the aim of this investigation? (1)

7.1.2 Discuss why the metal ball could not go through the ring (1)

7.1.3 Discuss what will happen once the metal ball is cooled down to its initial temperature. (1)

7.1.4 When a material expands, the spaces between its particles (increase / decrease) but the size and the number of particles are not affected. (1)

7.1.5 Explain what happens to the spaces between the particles of a material if the material is heated. (1)

TOTAL SECTION B :58
GRAND TOTAL :80

WINTERVELDT PLC TSHWANE WEST DISTRICT

Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Period	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1	H Hydrogen (1)																	He Helium (4)	
2	Li Lithium (7)	Be Beryllium (9)											B Boron (11)	C Carbon (12)	N Nitrogen (14)	O Oxygen (16)	F Fluorine (19)	Ne Neon (20)	
3	Na Sodium (23)	Mg Magnesium (24)											Al Aluminium (27)	Si Silicon (28)	P Phosphorus (31)	S Sulfur (32)	Cl Chlorine (36)	Ar Argon (40)	
4	K Potassium (39)	Ca Calcium (40)	Sc Scandium (45)	Ti Titanium (48)	V Vanadium (51)	Cr Chromium (52)	Mn Manganese (55)	Fe Iron (56)	Co Cobalt (59)	Ni Nickel (59)	Cu Copper (64)	Zn Zinc (65)	Ga Gallium (70)	Ge Germanium (73)	As Arsenic (75)	Se Selenium (79)	Br Bromine (80)	Kr Krypton (84)	
5	Rb Rubidium (86)	Sr Strontium (88)	Y Yttrium (89)	Zr Zirconium (91)	Nb Niobium (93)	Mo Molybdenum (96)	Tc Technetium (98)	Ru Ruthenium (101)	Rh Rhodium (103)	Pd Palladium (106)	Ag Silver (108)	Cd Cadmium (112)	In Indium (115)	Sn Tin (119)	Sb Antimony (122)	Te Tellurium (128)	I Iodine (127)	Xe Xenon (131)	
6	Cs Caesium (133)	Ba Barium (137)	La Lanthanum (139)	Hf Hafnium (179)	Ta Tantalum (181)	W Tungsten (184)	Re Rhenium (186)	Os Osmium (190)	Ir Iridium (192)	Pt Platinum (195)	Au Gold (197)	Hg Mercury (201)	Tl Thallium (204)	Pb Lead (207)	Bi Bismuth (209)	Po Polonium (209)	At Astatine (210)	Rn Radon (222)	
7	Fr Francium (223)	Ra Radium (226)	Ac Actinium (227)	Rf Rutherfordium (261)	Db Dubnium (268)	Sg Seaborgium (271)	Bh Bohrium (272)	Hs Hassium (277)	Mt Meitnerium (276)	Ds Darmstadtium (281)	Rg Roentgenium (280)	Cn Copernicium (285)	Uut Ununtrium (284)	Uuq Ununquadium (289)	Uup Ununpentium (288)	Uuh Ununhexium (283)	Uus Ununseptium (294)	Uuo Ununoctium (294)	
6	Ce Cerium (140)	Pr Praseodymium (141)	Nd Neodymium (144)	Pm Promethium (145)	Sm Samarium (150)	Eu Europium (152)	Gd Gadolinium (157)	Tb Terbium (159)	Dy Dysprosium (163)	Ho Holmium (165)	Er Erbium (167)	Tm Thulium (169)	Yb Ytterbium (173)	Lu Lutetium (175)					
7	Th Thorium (232)	Pa Protactinium (231)	U Uranium (238)	Np Neptunium (237)	Pu Plutonium (244)	Am Americium (243)	Cm Curium (247)	Bk Berkelium (247)	Cf Californium (251)	Es Einsteinium (252)	Fm Fermium (257)	Md Mendelevium (258)	No Nobelium (259)	Lr Lawrencium (262)					

group number — 13
 atomic number — 5
 symbol — B
 period number — 2
 name — Boron
 atomic mass — 11



GRADE 8

**NATURAL SCIENCES
MID-YEAR TEST
MARKING GUIDELINE**

Stanmorephysics.com

TIME : 2 hours

MARKS : 80

DISTRICT: TSHWANE WEST D15

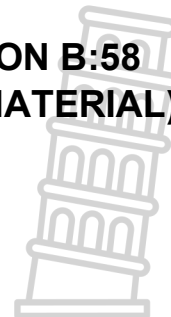
EXAMINER: Winterveldt Educators

MODERATOR :Malebye P

CLUSTER : Winterveldt

INSTRUCTIONS:

- This marking guideline consists of 8 pages.
- Accept relevant answers from learners
- Apply consistent accuracy marking
- Allocation of marks **SECTION A: 22 AND SECTION B:58**
- **CONTENT COVERED : TERM 2 (MATTER AND MATERIAL)**



SECTION A

QUESTION 1: MULTIPLE CHOICE QUESTION

1.1.1 -C✓

1.1.2 -C✓

1.1.3 -B✓

1.1.4 -C✓

1.1.5 -C✓

1.1.6 -D✓

1.1.7 -D✓

1.1.8 -A✓

1.1.9 -B✓

1.1.10 -C✓

1.2 SCIENTIFIC TERM/WORD

1.2.1. Proton✓

1.2.2. Diffusion✓

1.2.3. Density✓

1.2.4. Element✓

1.2.5. Liquid✓

1.2.6. Nucleons✓

1.2.7. Freezing /Solidification✓

1.3 MATCHING COLUMN

1.3.1. B✓
1.3.2. F✓
1.3.3. D✓
1.3.4. E✓
1.3.5. A✓

SECTION B: Model of an Atom and the Periodic table

2.1 7 Electrons ✓

2.2 The atom has balanced/equal number positively charged and negatively charged subatomic particles ✓✓

Or

Number of Protons and Electrons is balanced ✓✓

(only one, award marks for a relevant answer)

2.3 Group 2 ✓

Period 3 ✓

2.4 Name: Magnesium ✓

Symbol: Mg ✓

2.5 C ✓

2.6 DO NOT PENALISE IF A LEARNER WRITE THE SYMBOL

2.6.1 Hydrogen ✓ (do not penalise if a learner write the Symbol)

2.6.2 Sodium ✓

2.6.3 Carbon ✓ (do not penalise if a learner write the Symbol)

2.6.4 Neon ✓ (do not penalise if a learner write the Symbol)

2.6.5 Magnesium ✓ (do not penalise if a learner write the Symbol)

[13]

QUESTION 3: ATOMS, MOLECULES AND COMPOUNDS

3.1 C ✓

3.2 A ✓

3.3 D ✓

3.4 E ✓

[4]

QUESTION 4: INVESTIGATION

4 1.1

a) To find out how fast liquids mix ✓

(accept relevant answers)

b) Handle Hot water with care ✓

(accept relevant answers)

4.1.2 The food colouring slowly starts to spread through the liquid. ✓

Or

Strands of colour can be observed in the entire liquid that spreads out and eventually forms an even colour. ✓

(mark any 1, Also accept relevant answers)

4 1.3 Liquids consist of particles that continuously moves around ✓

4.1.4 The colder the water, ✓ the longer it takes for the mixture to mix ✓

(Learner may give his/her answer by referring to warm water, credit the learner for that relevant answer)

4.1.5 For the investigation to be fair/ to have reliable and valid results ✓

4.1.6 -Repeat/Re-do the investigation ✓

-Increase the amount of water or food colouring ✓

(accept relevant answers)

QUESTION 5: PARTICLE MODEL OF MATTER

5.1 In a gas, the particles...

- have no particular arrangement. ✓
- move very fast. ✓
- have extremely weak forces between them. ✓
- have very big spaces between them compared to solids and liquids. ✓

5.2 Diffusion is a process in which particles in liquids and gases move (separate and spread) from a highly-concentrated area ✓ to an area with a lower concentration of those particles. ✓

5.3.1 Diffusion in liquids occurs slower than diffusion in gases. OR Diffusion in gases occurs faster than diffusion in liquids. ✓

5.3.2 Particles in solids do not move around, they only vibrate on the spot ✓. Thus it is not possible for the particles to travel from a place of high density to a place of lower density. ✓

5.4 CHANGE OF STATE OF MATTER

(10X1)

5.4.1 Melts ✓

5.4.2 Heated ✓, Evaporates ✓

5.4.3. Condenses ✓

5.4.4 Cools ✓, Freezes / Solidifies ✓

5.4.5 Heating ✓ or Cooling ✓

5.4.6 Contracts ✓

5.4.7 Expands ✓

QUESTION 6: DENSITY AND PRESSURE

[TOTAL 19]

6.

6.1.1 The density of a material describes the amount of mass ✓ in a given volume of that material. ✓

6.1.2 The order must be like this ice ✓ water ✓ sand ✓

(One mark for each correct order)

6.2

6.2.1 More air particles are pumped into the tin ✓ which causes more collisions ✓ with the lid and the sides of the tin, that will increase the pressure ✓ inside the tin and the lid will pop off.

[8]

QUESTION 7: PRACTICAL INVESTIGATION

[5]

7.1.1 To investigate expansion and contraction of metal ball ring ✓

7.1.2 When heated, the metal ball expanded and increased in size ✓

7.1.3 The particles of a metal ball will come closer to each other and metal ball reduce in size/ contracts ✓

7.1.4 Increase ✓

7.1.5 When a material is heated, it expands due to increase in spaces between particles, therefore spaces will be large. ✓

TOTAL SECTION B : 58

GRAND TOTAL : 80

