


TERM 1
**LESSON PLAN 1
PHYSICAL SCIENCES
CHEMISTRY GRADE 10**

KNOWLEDGE AREA	MATTER AND MATERIALS	TOTAL TIME: 31 DAYS
Term	1	
Unit 1	MACROSCOPIC PROPERTIES OF MATTER The material(s) of which an object is composed. Mixtures: heterogeneous and homogeneous Pure substances: elements and compounds Names and formulae of substances Properties of materials Metals, metalloids and non-metals Electrical conductors, semiconductors and insulators Thermal conductors and insulators Magnetic and non-magnetic materials.	
Date	/ /20__	
Resources	Doc Scientia Textbook and Workbook Physical Sciences Chemistry Book 2 Grade 10 P. 13 – 44	
Time	3 days	
Core knowledge	<p>The material(s) of which an object is composed. Revise the properties of material, e.g.</p> <ol style="list-style-type: none"> Strength Thermal and electrical conductivity Brittle, malleable or ductile Magnetic or non-magnetic Density (lead/aluminium) Melting points and boiling points <p>What materials are products made of? If you have a sand dune, the material out of which the dune is made, is sand. Look at the labels on the containers of food or on medicine bottles, or the wrapper of chocolate. Note the ingredients of the material in the container. What do the different compounds tell you about the material in the container? Why do the manufacturers give the ingredients of the material? Use safety data to learn about the compounds contained in your food and medicines.</p> <p>An activity that classifies a range of materials and combines all these properties, could be useful to revise the content.</p> <p>Learners are encouraged to look at food additives and preservatives. This should be contrasted with indigenous ways of food preservation.</p>	





Core knowledge

Mixtures: heterogeneous and homogeneous

- Revise the properties of a mixture.
- Revise the properties of a heterogeneous mixture.
- Revise the properties of a homogeneous mixture.
- Give examples of heterogeneous and homogeneous mixtures.

Which mixtures are heterogeneous and which mixtures are homogeneous?

- Make mixtures of sand and water, potassium dichromate and water, iodine and ethanol, iodine and water. Which mixtures are heterogeneous and which mixtures are homogeneous?
 - Let learners make their own homogeneous and heterogeneous mixtures and motivate or defend their choices.

Indicate the relationship between names and chemical formulae and chemical bonding to learners.

Use cation and anion tables (p. 27).

Pay attention to the names of covalent compounds and the names of ionic compounds.

Pure substances: elements and compounds

- Revise the microscopic and symbolic representations for elements, compounds and mixtures.
- Revise the definition of an element.
- Revise the definition of a compound.
- Revise the definition of pure substances.
- Revise the classification of substances as pure, as compounds or as elements.
- Devise criteria for purity. Use melting point and boiling points as evidence of purity. Use chromatography as evidence of purity.
 - Decide which of the following substances are pure: water, tea, salt water, copper, brass, air, oxygen.
 - Use molecular models to build pure substances, elements and compounds (motivate your answer).

Names and formulae of substances:

Revise the names of compounds, using the names of the elements from which they are made.

- Revise the cation and anion table.
- Revise the writing of names when given the formulae.
- Revise the writing of formulae when given the names.
- Revise the meaning of the name endings like -ide, -ite and -ate.
- Understand the meaning of prefixes di-, tri-, etc.
 - Why do we have scientific language?
 - Identify the elements that make up a compound on the food labels collected by the learners.
 - Compare the scientific names with traditional names for compounds known by learners.

Indicate the relationship between names, chemical formulae and chemical bonding to learners.



Core knowledge	<p>Use cation and anion tables (p. 27). Pay attention to the names of covalent compounds and the names of ionic compounds.</p> <p>Metals, metalloids and non-metals:</p> <ul style="list-style-type: none"> • Revise the classification of substances as metals, metalloids and non-metals using their properties. • Identify the metals, their position on the Periodic Table and their number in comparison to the number of non-metals. • Revise the classification of non-metals using their properties. • Identify the non-metals and their position on the Periodic Table. • Describe metalloids as having mainly non-metallic properties. • Revise the classification of metalloids by their characteristic property of increasing conductivity with increasing temperature (the reverse of metals), e.g. silicon and graphite. • Identify the metalloids and their position on the Periodic Table. • Identify the metals, non-metals and metalloids on the Periodic Table. <p>Metalloid is the more scientific name for a semi-metal. Give preference to the use of the name metalloids, but do not penalise learners for the use of the name semi-metals.</p> <p>Electrical conductors, semiconductors and insulators:</p> <ul style="list-style-type: none"> • Revise the classification of materials as: electrical conductors, semiconductors and insulators. • Give examples of electrical conductors, semiconductors and insulators. • Identify the substances and the appliances or objects, that are daily used in homes and offices, that are specifically chosen because of their electrical properties (conductors, insulators and semiconductors). <p>Thermal conductors and insulators:</p> <ul style="list-style-type: none"> • Revise how to test and classify materials as thermal conductors and insulators. • Give examples of materials that are thermal conductors and insulators. <p>Magnetic and non-magnetic materials:</p> <ul style="list-style-type: none"> • Revise how to test and classify materials as magnetic and non-magnetic. • Give examples of materials that are magnetic and non-magnetic. • Give examples of the use of magnets in daily life (in speakers, in telephones, electric motors, as compasses, etc.).
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Activity/ Experiment/ Project	Activity 1 P. 15 Case study P. 16 – 17 Practical activity 1 P. 19 – 20 Activity 2 P. 21 – 22 Practical activity 2 P. 22 – 23 Activity 3 P. 28 Practical activity 3 P. 32 – 33 Activity 4 P. 34 Experiment 1 P. 35 – 36 Experiment 2 P. 37 – 38 Experiment 3 P. 39		
Assessment methods	Class test	Control test	Project
	Experiment	Class work	Interview
Resources	Workbook, transparencies, mind maps Summary P. 43 Mind maps P. 44		
Homework	Exercise 1 P. 29 – 31 Exercise 2 P. 41 – 42		