



WOLMER'S BOYS' SCHOOL

Department of Chemistry

Third Form

Chemistry

Course Outline

RATIONALE:

Chemistry is the study of the nature, composition, properties and interactions of matter. A study of Chemistry gives insight into the world around us and many of the phenomena we observe. It is important that students be able to assess their interactions with the world they live in and develop skills necessary to think critically and solve problems they encounter. The third form Chemistry course has been revised to include content from the National Standards Curriculum (NSC) as well as aspects of the Caribbean Secondary Education Certificate (CSEC) Chemistry syllabus. The topics outlined seek to facilitate students' understanding of the fundamentals of Chemistry as well as develop skills and attitudes necessary for becoming proficient in Chemistry at the introductory level. Students' mastery of the objectives at this level will give them a good foundation for exploring the world around them and, if they wish, to continue a path related to Science.

GOALS:

Upon completion of this course, students will:

- Understand the existence of materials such as solids, liquids and gases, the particulate nature of matter, and simple chemical reactions that change one material into another.
- Apply scientific knowledge and processes to the solution of real-world problems.
- Use mathematics as a tool for problem-solving, and as a means of expressing and/or modelling scientific theories.
- Appreciate the influence and limitations of science with consideration for ethical issues.
- Demonstrate a positive attitude towards the use of scientific language.
- Demonstrate positive interpersonal skills in order to foster good working relationships.

CHRISTMAS TERM:

Week	NSC Unit	Topics	Lesson/Method of Delivery	Use of ICT	Student Assessment
1		Introduction to Chemistry	<ul style="list-style-type: none">✓ Review of important scientific terms✓ What is Chemistry?✓ Concepts, branches within chemistry Research, Group discussion, Activity sheet	Online research of Chemistry concepts and careers	
2-3	Working like a scientist 3	Experimenting	<ul style="list-style-type: none">✓ The Scientific Method✓ Identify and state problems✓ Formulate hypotheses✓ Plan and design experiments (fair tests) to solve specific problems Experimenting, Collaborative grouping	Research Scientific method and create a digital flow chart Write lab report	Create flow chart of Scientific method and identify steps of the Scientific method
4	Matter (Grade 7, Term 1)	The Particulate Nature of Matter	<ul style="list-style-type: none">✓ Introduction to matter✓ Four concepts of the Particulate Theory of Matter✓ Evidences for the particulate theory of matter – Diffusion	Watch videos Use online simulations Lab Demonstrations	

			Guided discovery, Group discussion, Experimenting		
5		The Particulate Nature of Matter cont'd	<ul style="list-style-type: none"> ✓ Evidences for the particulate theory of matter – Diffusion cont'd & Osmosis Experimenting, Group discussion	Watch videos Use online simulations Lab Demonstrations	Group Lab report on experiment
6-7		The Particulate Nature of Matter cont'd	<ul style="list-style-type: none"> ✓ Relationship between temperature and motion of particles ✓ Properties of the three main states of matter ✓ Interconversion of the states of matter, Heating and Cooling curves Experimenting, Group discussion	Watch videos Use online simulations Lab Demonstrations	Online Quiz
8-9	More about Matter (Grade 8, Term 1)	Atomic Structure and the Periodic Table	<ul style="list-style-type: none"> ✓ The Composition of the Atom ✓ Introduction to the common Elements of the Periodic Table (Elements 1-20) ✓ Properties of the Atom and its sub-atomic particles ✓ Element Symbol Notation Guided discovery, Activity sheets	Research, Watch videos	In class test

10		Atomic Structure and the Periodic Table cont'd	<ul style="list-style-type: none"> ✓ Definition of Isotopes ✓ Uses of common isotopes Research	Research and Report on Isotopes	
11		Atomic Structure and the Periodic Table cont'd	<ul style="list-style-type: none"> ✓ Arrangement of Elements in the periodic Table ✓ Classification of Elements Guided discovery, Project-based activity	Create digital Periodic table	Activity sheet on Periodic table
12		Revision			
13-15		Examinations			

EASTER TERM

Week	NSC Unit	Topics	Lesson/Method of Delivery	Use of ICT	Student Assessment
16	More about Matter (Grade 8, Term 1)	Atomic Structure and the Periodic Table cont'd	<ul style="list-style-type: none"> ✓ Properties of metals and non-metals ✓ Uses of metals and Alloys Research, Collaborative grouping	Research and Report on metals and non-metals	Digital poster of elements

17-18	Chemical bonding, Formulae and Equations	Chemical bonding, Ionic bonding	<ul style="list-style-type: none"> ✓ Definition of chemical bonding ✓ Explain ionic bonding <p>Guided discovery, activity sheet</p>	Watch videos	
19-20		Chemical bonding, Covalent bonding	<ul style="list-style-type: none"> ✓ Explain covalent bonding <p>Guided discovery, activity sheet</p>	Watch videos	Chemical bonding Worksheet
21-22	Chemical bonding, Formulae and Equations	Writing Formulae for Ionic compounds	<ul style="list-style-type: none"> ✓ Write the chemical formulae for binary compounds using valencies <p>Guided discovery, activity sheet</p>	<p>Use online simulations and activity sheets</p> <p>Create digital flash cards</p>	Chemical formulae for Ionic compounds Worksheet
23		Reactions and Equations	<ul style="list-style-type: none"> ✓ Write word and chemical equations for simple reactions ✓ Types of Reactions <p>Experimenting, group discussions, guided discovery</p>	Watch videos	
24		Reactions and Equations cont'd	<ul style="list-style-type: none"> ✓ Types of reactions <ul style="list-style-type: none"> ○ Oxidation ○ Combustion 	Watch videos	

			<ul style="list-style-type: none"> ✓ Write word and chemical equations for simple reactions Experimenting, group discussions, guided discovery		
25		Reactions and Equations cont'd	<ul style="list-style-type: none"> ✓ Types of reactions <ul style="list-style-type: none"> ○ Synthesis ○ Decomposition (Thermal) ✓ Write word and chemical equations for simple reactions Experimenting, group discussions, guided discovery	Watch videos	Progress Test
26		Reactions and Equations cont'd	<ul style="list-style-type: none"> ✓ Types of reactions <ul style="list-style-type: none"> ○ Displacement - Single & Double ✓ Write word and chemical equations for simple reactions Experimenting, group discussions, guided discovery	Watch videos	Types of reactions Quiz
27			Revision		

SUMMER TERM:

Week	NSC Unit	Topics	Lesson/Method of Delivery	Use of ICT	Student Assessment
28-29	Chemical bonding, Formulae and Equations	Reactions and Equations cont'd	<ul style="list-style-type: none">✓ Law of Conservation of Mass✓ Balance given chemical equations		Balancing equations Worksheet
30	Nature of Substances	Acids and Alkalis	<ul style="list-style-type: none">✓ What are acids and alkalis?✓ Types of acids and alkalis✓ Classify substances as acids and alkalis Research, guided discovery, group discussion	Research, Watch videos	
31			<ul style="list-style-type: none">✓ Cite evidence to determine acidity or alkalinity of a substance✓ Indicators – acid-base, universal✓ pH scale Research, Experimenting	Watch videos	

32-33			✓ Create homemade acid-base indicator Research, Experimenting, Lab reporting	Create video	Project on acid-base indicators
34			✓ Conduct investigations on acids and alkalis ✓ Neutralisation reactions Experimenting, Lab reporting	Watch videos, use computer simulations	In groups, conduct research and develop a safety booklet (electronic/non-electronic) on the correct ways of handling acids and alkalis.
35-36		Revision			
37-38		Examinations			

READING LIST:

Tyndale, A. (2016). *Concise Revision Course CSEC Chemistry*, Harper Collins Publishers