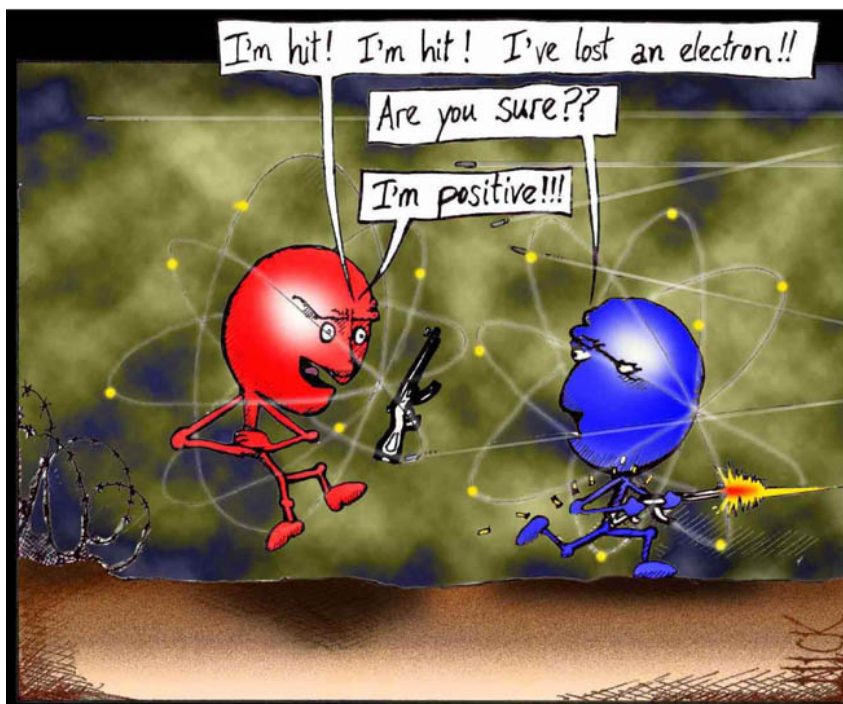
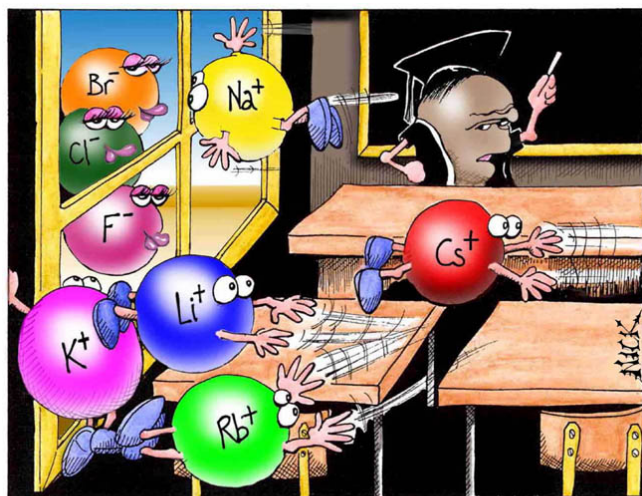


Recent Advances in Science, #32:

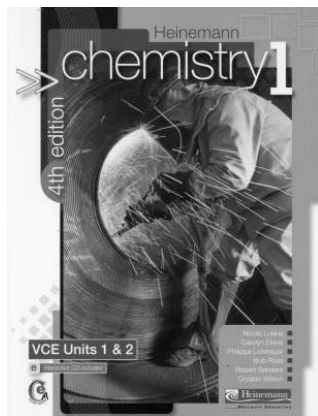
Dr Ed Henderson demonstrates that it IS possible for someone to become too familiar with the safety rules.



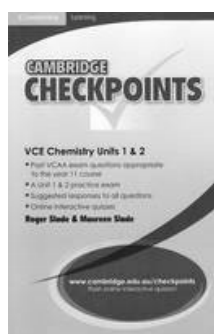
Another casualty in the War of the Atoms.

## **BOOKS YOU REQUIRE:**

**Equipment:** Textbook: Chemistry 1 (Heinemann)  
Checkpoints  
Scientific calculator (**not** a graphics calculator)  
Notebook for class notes  
Notebook for textbook chapter questions  
Notebook for writing up practical reports  
Plastic pocket folder to put worksheets/handouts into



Heinemann Chemistry 1  
VCE Units 1 & 2: Student Book with CD  
Nicole Lukins, Carolyn Elvins, Philippa Lohmeyer, Bob Ross, Robert Sanders and Gordon Wilson



Chemistry Checkpoints  
VCE Units 1 and 2  
Roger Slade and Maureen Slade

### **Assessment - Satisfactory Completion**

The award of satisfactory completion for a unit is based on a decision that the student has demonstrated their understanding of the key knowledge for the set of outcomes specified for the unit. This decision will be based on the teacher's assessment of the student's understanding both during class and on tasks (formal e.g. tests, and informal e.g. work requirements) designated for the unit.

Levels of Achievement - Units 1 and 2

**Procedures for the assessment of levels of achievement in Units 1 and 2 are a matter for school decision.**

Previous tasks completed as formal SACs have included the following (Note: not all of the following assessment tasks are completed in both Unit 1 and 2):

1. *Topic tests*
2. *SACs (including analysis of second-hand data)*
3. *Practical reports*
4. *Exam*

**5. *Annotated Summary Report (first semester)***

This task would require between three and five hours of laboratory time. The annotations would illustrate the links between the practical activities (for example, data, techniques, concepts, problems faced and recommendations for future practical activities).

**6. *Extended Experimental Investigation (second semester)***

This task is either student-designed and/or planned or teacher-directed and would require between three and five hours of laboratory/practical work. Results could be presented in a variety of formats. Students should complete a Risk Assessment and Risk Management as part of this task. Students could work in pairs, small groups or individually.

Additionally, students will be required to submit the following:

7. *Work requirements e.g. worksheets*
8. *Chapter questions*

**Year 11 VCE Chemistry 2015**  
**Unit 1 and 2 – Transition Week (2014)**

Welcome to VCE Chemistry!

The following link will take you directly to the Study Design (Accreditation period: 2013 – 2016) for Units 1-4 for VCE Chemistry. It contains all of the knowledge, skills and outlines of assessment tasks which make up the course.

<http://www.vcaa.vic.edu.au/Documents/vce/chemistry/ChemistrySD-2013.pdf>

**Where to go online for help?**

Explanations: [www.chemguide.co.uk/](http://www.chemguide.co.uk/)

Forum: [www.atarnotes.com/forum/](http://www.atarnotes.com/forum/)

It is highly recommended that students have their teacher notes separate to their practical exercises. This is easier for the student when studying, and for the teacher when checking work. As outlined on the previous page students are expected to have separate work/note-books. Students are expected to bring to every class, unless told otherwise by the teacher, all necessary items eg. scientific calculator, paper, pens, textbook, notebook etc.

**Authentication:** While outside help is encouraged to provide assistance to students, work submitted must be the student's own, with the majority of it done in class.

**Timelines:** Deadlines must be met for all tasks and especially for SACs (School Assessed Coursework). Not meeting deadlines without a legitimate reason can lead to a UG -> zero, for the unit.

**Homework:** To keep up with the amount of material to be covered, at least 2 hours of homework per week is suggested. Handing in homework for marking regularly will assist in staying current with material covered in class.

**Satisfactory completion:** For satisfactory completion of each unit the student must demonstrate achievement of the outcomes specified for the unit. This is based on the teacher's assessment of the student's overall understanding on different tasks for the unit such as textbook questions, tests, practical reports, homework, contribution to class discussion and, of course, exams.

Unit One	Unit Two
<p><b>Area of Study (AOS 1) Outcome 1:</b> On completion of this unit the student should be able to explain how evidence is used to develop or refine chemical ideas and knowledge.</p> <p><i>Textbook (Heinemann) relevant chapters:</i> 'The Periodic Table' = 1-4</p>	<p><b>AOS 1 Outcome 1:</b> On completion of this unit the student should be able to write balanced equations and apply these to qualitative and quantitative investigations of reactions involving acids and bases, the formation of precipitates and gases, and oxidants and reductants.</p> <p><i>Textbook (Heinemann) relevant chapters:</i> 'Water' = 10-17</p>
<p><b>AOS 2 Outcome 2:</b> On completion of this unit the student should be able to use models of structure and bonding to explain the properties and applications of materials.</p> <p><i>Textbook (Heinemann) relevant chapters:</i> 'Materials' = 5-9</p>	<p><b>AOS 2 Outcome 2:</b> On completion of this unit the student should be able to explain how chemical reactions and processes occurring in the atmosphere help to sustain life on earth.</p> <p><i>Textbook (Heinemann) relevant chapters:</i> 'The Atmosphere' = 18-21</p>

I have read the above information for Year 11 Chemistry and understand what is required for satisfactory completion.

**PARENT/GUARDIAN**

Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

**STUDENT**

Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

## Worksheet – Moles, mass and molar mass

a) Define the term "mole" as it pertains to chemistry:

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b) Define the term 'molar mass' as it pertains to chemistry:

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c) Calculate the molar mass of the following chemicals:

1)  $\text{Cl}_2$

6)  $\text{Mg}(\text{OH})_2$

2)  $\text{KOH}$

7)  $\text{H}_3\text{PO}_4$

3)  $\text{BeCl}_2$

8)  $(\text{NH}_4)_2\text{SO}_4$

4)  $\text{BF}_3$

9)  $\text{CH}_3\text{COOH}$

5)  $\text{CCl}_2\text{F}_2$

10)  $\text{Pb}(\text{NO}_3)_2$

d) Calculate the number of moles and masses in each of the following:

i) How many moles are present in 34 grams of  $\text{Cu}(\text{OH})_2$ ?

ii) How many moles are present in  $2.45 \times 10^{23}$  molecules of  $\text{CH}_4$ ?

iii) How many grams are there in  $3.4 \times 10^{24}$  molecules of  $\text{NH}_3$ ?

iv) How much does 4.2 moles of  $\text{Ca}(\text{NO}_3)_2$  weigh?

v) How many moles are in 25 grams of water?

vi) How many grams are in 4.5 moles of  $\text{Li}_2\text{O}$ ?

vii) How many molecules are in 23 moles of oxygen?

viii) How many moles are in  $3.4 \times 10^{23}$  molecules of  $\text{H}_2\text{SO}_4$ ?

ix) How many molecules are in 25 grams of  $\text{NH}_3$ ?

- xi) How many molecules are there in 24 grams of  $\text{FeF}_3$ ?
- xii) How many molecules are there in 450 grams of  $\text{Na}_2\text{SO}_4$ ?
- xiii) How many grams are there in  $2.3 \times 10^{24}$  atoms of silver?
- xv) How many grams are there in  $7.4 \times 10^{23}$  molecules of  $\text{AgNO}_3$ ?
- xvi) How many grams are there in  $7.5 \times 10^{23}$  molecules of  $\text{H}_2\text{SO}_4$ ?
- xvii) How many molecules are there in 122 grams of  $\text{Cu}(\text{NO}_3)_2$ ?
- xviii) How many grams are there in  $9.4 \times 10^{25}$  molecules of  $\text{H}_2$ ?
- xix) How many molecules are there in 230 grams of  $\text{CoCl}_2$ ?
- xx) How many molecules are there in 200 grams of  $\text{CCl}_4$ ?
- xxi) How many grams do  $4.3 \times 10^{21}$  molecules of  $\text{UF}_6$  weigh?

## Worksheet - Naming and writing ionic and covalent compounds

1. Define ionic bonding: \_\_\_\_\_

\_\_\_\_\_

2. Define covalent bonding: \_\_\_\_\_

\_\_\_\_\_

3. Fill in the spaces below regarding the name and formula of ionic compounds. You may need to refer to a table of electrovalencies to assist you.

- |                                     |   |
|-------------------------------------|---|
| 1. Sodium hydroxide .....           | 15. Copper (II) sulfate .....             |
| 2. Sodium chloride .....            | 16. Aluminium hydroxide .....             |
| 3. Calcium oxide .....              | 17. KOH .....                             |
| 4. Calcium hydroxide .....          | 18. HgOH .....                            |
| 5. Iron (III) sulfate .....         | 19. FeCl <sub>3</sub> .....               |
| 6. Potassium permanganate .....     | 20. NH <sub>4</sub> OH .....              |
| 7. Copper (II) hydroxide .....      | 21. Cu <sub>2</sub> O .....               |
| 8. Ammonium sulfate .....           | 22. NaOH .....                            |
| 9. Nickel (II) bromide .....        | 23. NH <sub>4</sub> NO <sub>3</sub> ..... |
| 10. Ammonium hydrogen sulfate ..... | 24. NaHCO <sub>3</sub> .....              |
| 11. Iron (III) oxide .....          | 25. NaCl .....                            |
| 12. Zinc hydroxide .....            | 26. Ca(OH) <sub>2</sub> .....             |
| 13. Sodium carbonate .....          | 28. CaCl <sub>2</sub> .....               |
| 14. Sodium phosphate .....          | 29. Fe <sub>2</sub> O <sub>3</sub> .....  |

sodium fluoride \_\_\_\_\_

lithium nitrate \_\_\_\_\_

copper(II) hydroxide \_\_\_\_\_

magnesium oxide \_\_\_\_\_

silver sulfide \_\_\_\_\_

zinc chloride \_\_\_\_\_

aluminium phosphate \_\_\_\_\_

iron(III) hydroxide \_\_\_\_\_

silver chloride \_\_\_\_\_

sodium oxide \_\_\_\_\_

barium iodide \_\_\_\_\_

aluminium sulfate \_\_\_\_\_

copper(II) sulfate \_\_\_\_\_

lead(II) iodide \_\_\_\_\_

ammonium carbonate \_\_\_\_\_

lithium sulfide \_\_\_\_\_

tin(II) sulfide \_\_\_\_\_

iron(III) phosphate \_\_\_\_\_

ammonium hydroxide \_\_\_\_\_

magnesium sulfate \_\_\_\_\_

silver sulfate \_\_\_\_\_

iron(II) carbonate \_\_\_\_\_

iron(III) nitrate \_\_\_\_\_

barium nitrate \_\_\_\_\_

magnesium nitrate \_\_\_\_\_

aluminium nitride \_\_\_\_\_

iron(II) hydroxide \_\_\_\_\_

cobalt sulfide \_\_\_\_\_

chromium(III) chloride \_\_\_\_\_

iron(III) sulfate \_\_\_\_\_

lithium oxide \_\_\_\_\_

aluminium hydroxide \_\_\_\_\_

sodium carbonate \_\_\_\_\_

zinc phosphate \_\_\_\_\_

calcium carbonate \_\_\_\_\_

tin(II) chloride \_\_\_\_\_

zinc oxide \_\_\_\_\_

zinc nitride \_\_\_\_\_

ammonium phosphate \_\_\_\_\_

potassium chloride \_\_\_\_\_

sodium permanganate \_\_\_\_\_

ammonium chloride \_\_\_\_\_



Write the formulas for the following compounds and state whether they are covalent or ionic:

NAME	FORMULA	COVALENT or IONIC
ammonium sulfate		
hexaboron silicide		
aluminum phosphate		
copper (II) bicarbonate		
iodine pentafluoride		
dinitrogen trioxide		
lead (IV) sulfite		
phosphorus triiodide		

Write the names for the following compounds and state whether they are covalent or ionic:

NAME	FORMULA	COVALENT or IONIC
	$P_4S_5$	
	$Cu_2S$	
	$Ca_3(PO_4)_2$	
	$Si_2Br_6$	
	$CoCO_3$	
	$CH_4$	
	$B_2Si$	
	$NF_3$	