



Year 10 Chemistry

Revision Checklist (Winter)



Your Year 10 Chemistry examination will be 60 minutes long and will cover the following:

1. Metals and Reactivity (Year 10 – booklet 1)
2. Periodic table (Year 10 – booklet 2)
3. Air and burning (Year 9 – booklet 2)
4. Managing information (Pink sheet) – plotting graphs and describing trends

You should make sure you have the following with you:

- 2 pens
- Pencil, rubber and sharpener
- 30 cm ruler
- Calculator may be used

Note: You are **not** permitted to take the Data leaflet/Periodic Table from your notes into this examination.

M. Christie

Learning Outcome/Objective	Notes to help with learning/revision
1. METALS AND REACTIVITY (Topic 1 from Year 10)	
1. Show the position of metals in the Periodic Table	Metals – left hand side of the ‘staircase line’, but remember that hydrogen is NOT a metal
2. Recall five physical properties of metals and explain how its physical properties relate to its structure	See page 2 for the properties and page 3 for the structure of a metal. Explanation examples: <ul style="list-style-type: none">• High melting point (solid at room temperature) – strong metallic bond needs large amount of energy to break bond because there is a strong attraction between positive metal ions and ‘sea of electrons’• Density – metals have a high density because the metal atoms are packed closely together and have a lot of mass (are heavy)
3. Describe what is seen when calcium and magnesium are burned in air and write word equations for these reactions	See page 4 - remember the general idea that: metal + oxygen → metal oxide e.g. calcium + oxygen → calcium oxide What do you see while the reaction occurs? What colour and state (solid, liquid, gas) is the product in each reaction?
4. Explain that the difference in reactivity between metals can be studied using their reactions with water and dilute acids	See page 5 – 7 and look at the next learning outcomes (5 – 9) in detail. What do you see when the metal is cut? What do you observe when the metal is placed in water?
5. Recall observations and write word equations for the reactions of sodium, potassium and calcium with water	See pages 5 – 7 and remember the general equation is: reactive metal + water → metal hydroxide + hydrogen e.g. calcium + water → calcium hydroxide + hydrogen
6. Explain the meaning of the term ‘exothermic’	Exothermic = gives out heat
7. Recall the products of the reactions between hydrochloric acid and the metals magnesium, zinc, aluminium, copper and iron.	See pages 6 – 7 and remember the general equation is: reactive metal + hydrochloric acid → metal chloride + hydrogen e.g. zinc + hydrochloric acid → zinc chloride + hydrogen Note: Copper is unreactive and therefore doesn’t react with dilute hydrochloric acid
8. Write word equations for these metals with hydrochloric acid, sulfuric acid and nitric acid	See page 7 and remember the general equations: reactive metal + hydrochloric acid → metal chloride + hydrogen reactive metal + sulfuric acid → metal sulfate + hydrogen reactive metal + nitric acid → metal nitrate + hydrogen
9. Recall the order of metals in the reactivity series	See page 7 (You may have learned a mnemonic to help you)

10. Describe chemical reactions to show which chemicals are needed for iron to rust	See page 8
11. Recall the word equation for rusting	See page 8
12. Suggest reasons why it is important to control rusting	Iron becomes weakened and is less fit for the intended purpose – there may be safety considerations Metal objects have to be replaced – financial cost
13. List four methods of preventing rusting and explain how they work	See page 9
14. Recall that a more reactive metal will replace a less reactive metal from a solution of its compound	This learning outcome is about displacement reactions See page 11
15. Place metals in order of reactivity by studying displacement reactions	See pages 12 - 13
16. Predict the products of displacement reactions	A more reactive metal displaces a less reactive metal from its salt (compound) e.g. magnesium + copper sulfate → magnesium sulfate + copper the magnesium has displaces the copper from copper sulfate
17. Write word equations for displacement reactions	See page 12
18. Recall the names of three unreactive metals and explain what they are used for	See page 14
19. List advantages and disadvantages of using energy saving light bulbs	See pages 14 – 15 and your summary diagram on page 15

2. PERIODIC TABLE (Topic 2 from Year 10)

1. Explain briefly the work of Dmitri Mendeleev in developing the periodic table	See pages 2 – 3, but in particular the summary at the bottom of page 3
2. Sort periodic table data given and note exceptions to any patterns	See pages 2 – 3. You probably carried out the card sort activity in class and noticed the exceptions re iodine and tellurium, for example (see page 2)
3. Label the main areas of the periodic table to include metals, non-metals, alkali metals, halogens, transition metals, noble gases	See page 4 and your coloured version of the GCSE Data Leaflet/Periodic Table. Can you recall the two elements which are liquid at room temperature?
4. Locate an element by using the terms period and group	See page 4. Example of this type of exercise is in parts (i) and (j)
5. Know the symbols for common elements in the periodic table	See page 5. Learn these! Remember if an element has a two letter symbol the first letter is upper case and the second letter is lower case, e.g. “NA”, “nA”, “na” are all wrong – it should be “Na”.
6. State observations when alkali metals react with water	See page 6
7. Recall the colours and states of the halogens at room temperature	See page 8
8. Describe simple trends in the properties of the alkali metals	See pages 6 and 7
9. Recognise similarities in alkali metals’ properties	See page 6
10. Describe simple trends in the properties of the halogens	See page 9
11. Describe simple trends in the properties of the noble gases	See page 10
12. Predict the properties of some elements based on data within the periodic table’s group	e.g. Q.7 on page 6 or Q.5 on page 7

103	Er	Erbium
101	H	Hydrogen
80	Ac	Actinium
52	Te	Tellurium

3. AIR AND BURNING (from Year 9 booklet 2)

1. State the gases which make up the atmosphere.	The air is made up of nitrogen, oxygen, carbon dioxide, noble gases and water vapour.
2. Recall the percentage composition of the atmosphere and put this information into a pie chart.	See page 50 - also check your pink managing information sheet for the success criteria on drawing a pie chart.
3. Recall the discovery of oxygen by Lavoisier and Priestley	---
4. Prepare a sample of oxygen gas.	See page 52 for this experiment.
5. Carry out the test for oxygen.	--- (see below)
6. Describe the test for oxygen.	Oxygen will relight a glowing splint
7. Recall observations about the burning of magnesium and sulfur in oxygen.	See page 54 e.g. what does the magnesium flame look like when magnesium is burning; what does the flame of burning sulfur look like?
8. Know that these elements burn more vigorously in oxygen.	Remember, pure oxygen makes things burn better.
9. Write word equations for the reactions of magnesium and sulfur with oxygen	See page 54
10. Recall the effect of adding universal indicator to the solutions of some oxides	Metal oxides are basic (alkaline) so they turn universal indicator blue. Non-metal oxides are acidic so they turn universal indicator red.
11. Classify the solution produced from a soluble metal oxide or a non-metal oxide in water as acidic or alkaline	See above – learning outcome 10.
12. Describe the density of carbon dioxide compared to air.	Carbon dioxide is denser than air.
13. Recall the test for carbon dioxide.	It turns colourless limewater milky.
14. Recall the effect of placing a burning splint in carbon dioxide.	The splint will go out – but remember this is NOT the test for carbon dioxide – use limewater to test for this gas (see above – learning outcome 13)
15. Classify carbon dioxide as an acidic or alkaline gas	Acidic gas as it is a non-metal (see learning outcome 10)
16. State at least 2 uses for oxygen, nitrogen, carbon dioxide and 1 use for each of argon, neon and helium.	See page 55.
17. Carry out the test for carbon dioxide	What happens when carbon dioxide is added to limewater? See page 54.
18. Know the effect of nitrogen gas on a lighted splint.	The splint goes out.
19. Burn a piece of magnesium metal; not looking directly at the bright white flame, etc)	
20. Measure the mass of a piece of magnesium before and after it has been burnt.	
21. Explain why the mass of the magnesium increases after it has been burnt.	
22. Write a word equation for the reaction of magnesium with oxygen. See page 57 for more.	
23. Describe oxidation in terms of oxygen	Oxidation is the gain of oxygen
24. Identify the parts of a fire triangle	See page 58
25. Describe what happens if one side of the fire triangle is removed	The fire goes out.

Learning outcomes 19 – 22 and also 35 are not being examined.

26. Recall ways to put a fire out	See the table on page 58
27. Plan and carry out an investigation into the relationship between volume of air available and length of burning time of a candle	The results of this investigation are in your workbook
28. Construct a table and represent this information using a scatter graph	---
29. Name the substance that causes blackening of buildings etc when fuels are burnt	Soot
30. List the substances that cause acid rain and recall how they are formed	See the table on page 61
31. Describe some of the damaging effects of acid rain, including the effects on buildings, trees and fish	See the table on page 61
32. Describe how carbon monoxide is produced and explain why it is dangerous	See the table on page 61
33. Explain how catalytic converters help reduce air pollution	They change polluting gases, such as carbon monoxide and nitrogen oxides, into less harmful gases, such as carbon dioxide and nitrogen.
34. Name the acid formed when sulfur dioxide comes in contact with rain water	Sulfuric acid
35. Invest cress	Learning outcome 35 is not being examined.
36. Name the acid formed when nitrogen oxides come in contact with rain water.	Nitric acid
37. Investigate the effect of nitric acid on limestone	Nitric acid corrodes limestone
38. Name the gas associated with the greenhouse effect and global warming.	Carbon dioxide
39. Describe some possible effects of global warming.	Polar ice caps melt, sea levels rise, low level countries would be flooded, changes in climate and weather patterns
40. Recall some ways to reduce air pollution	See the box at the bottom of page 64



4. MANAGING INFORMATION (Chemistry department version)

1. Recognise and be able to classify a table of data as 'ranking', 'composition' or 'raw' data	See chemistry version of 'Managing information sheet' page 1
2. Be able to draw, and read data from bar charts, pie charts and scatter graphs correctly	See pages 1 – 2 and the success criteria for each graph
3. Draw an appropriate trend line on a scatter graph	See pages 3 – 4 and additional question sheet
4. Describe a trend on a scatter graph	See page 4 and additional question sheet.



Don't forget you should always be able to answer questions about general safety in chemistry/science including the hazard symbols which you met in Year 8, e.g. draw the safety symbols; explain why small amounts of a reactive metal are used in an experiment; what would you use to burn magnesium safely; etc

END OF REVISION GUIDE