

Unit C1 - Revision Lesson 1 Atmosphere				
Specification learning outcomes	HSW statements	Exemplar teaching activities	Main differentiation	Resource sheets
<p>1.1 Recall that the gases produced by volcanic activity formed the Earth's early atmosphere.</p> <p>1.2 Recall that the early atmosphere contained: a) little or no oxygen, b) a large amount of carbon dioxide, c) water vapour and small amounts of other gases.</p> <p>1.3 Explain why there are different sources of information about the development of the atmosphere which makes it difficult to be precise about the evolution of the atmosphere.</p> <p>1.4 Describe how condensation of water vapour formed oceans.</p> <p>1.5 Describe how the amount of carbon dioxide in the atmosphere was reduced by: a) the dissolution of carbon dioxide into the oceans, b) the later incorporation of this dissolved carbon dioxide into marine organisms, which eventually formed carbonate rocks.</p> <p>1.6 Explain how the growth of primitive plants used carbon dioxide and released oxygen by photosynthesis, and consequently the amount of oxygen in the atmosphere gradually increased.</p> <p>1.7 Investigate the proportion of oxygen in the atmosphere.</p> <p>1.8 Describe the current composition of the atmosphere and interpret data sources showing this information.</p> <p>1.9 Demonstrate an understanding of how small changes in the atmosphere occur through: a) volcanic activity b) human activity, including the burning of fossil fuels, farming and deforestation.</p>	<p>HSW 1, 3, 4, 5, 6, 7, 13 and 14</p>	<p><u>The theme of this lesson is atmosphere.</u></p> <p>Starter: <i>What's in the air? What was in the air?</i> Start to create two spider diagrams arranged around the words 'air now' and 'early air'. This activity is designed to remind students of the proportions of gases at the two different times. The spider diagrams should contain the information that gases in the early atmosphere came from volcanoes. Do not ask students how the changes came about - this will develop through the lesson and the concept map can be revisited as a plenary when students should be able to show how the changes in atmosphere took place.</p> <p>Main: <i>Evidence for oxygen in the early atmosphere.</i> Use Worksheet C1.1a to discuss evidence for the lack of oxygen in the early atmosphere and some subsequent changes. This is a good point to discuss the evidence for changes to the atmosphere and why it is difficult to be precise. Although the worksheet focuses on oxygen levels, it is important to remind students that life formed in the oceans and that the oceans formed as water vapour condensed. <i>The changing atmosphere.</i> Students use data on Worksheet C1.2b to plot graphs showing how the amount of carbon dioxide, oxygen and nitrogen has changed in the atmosphere. Students also annotate the graphs to explain significant changes. It may be worth noting that students do not need to understand changes in the levels of nitrogen, so you may wish to plot the graphs for carbon dioxide and oxygen only. It is important to discuss with pupils where the carbon dioxide went to and where it is now, i.e. that it dissolved in oceans and then was taken up by marine organisms. <i>Exam question.</i> The Nov'11 Chemistry Foundation paper (5CH1F) contained a question on practically investigating the proportion of oxygen in the air. Students could be asked to do question 4c.</p> <p>Plenary: <i>Concept map.</i> Revisit the spider diagrams drawn at the start of the lesson and ask students to add more information. They should now be able to explain how the changes in the atmosphere occurred. You could then add to this some information on the changes which occur in the atmosphere now, some of which are caused by humans and some of which are not.</p> <p>Homework: Worksheets C1.4c (for students requiring extra support) and C1.4d (for those working at a higher level) contain questions about gases in the atmosphere.</p>	<p>Stretch: Students could be asked to write a mark scheme for Question 4c on the Nov'11 Foundation Chemistry paper (5CH1F)</p> <p>Support: Worksheet C1.1a could be used as a text marking activity. So ask students to read through the text and use different colours to highlight the parts of the text which help to answer each of the questions. The answers could then be discussed before students write them down.</p> <p>Students working on worksheet C1.2b could have one of the graphs drawn for them in advance of the lesson.</p>	<p>Worksheet C1.1a Worksheet C1.2b Worksheet C1.4c Worksheet C1.4d [Question 4c Nov'11 Chemistry Foundation paper 5CH1F]</p>