

# Chemistry – Chemistry of the atmosphere - checklist

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4.9.1 The composition and evolution of the Earth's atmosphere	Taught	Practice	Mastered
Describe the composition of the atmosphere.			
Draw accurate pie charts for the composition of the atmosphere.			
Extended writing: describe the theory of the evolution of the Earth's early atmosphere.			
Extended writing: explain why the composition of the atmosphere has changed over billions of years. Compare the Earth's atmosphere to that of Mars and Venus.			
Extended writing: explain how algae and plants have caused the concentrations of oxygen in the atmosphere to increase.			
Extended writing: explain how algae and plants have caused the concentrations of carbon dioxide in the atmosphere to decrease.			
Describe how sedimentary rocks formed and locked up carbon dioxide.			

4.9.2 Carbon dioxide and methane as greenhouse gases	Taught	Practice	Mastered
<p>Describe the effect of greenhouse gases on wavelength.</p> <p>Grade 9: explain why the wavelength changes due to greenhouse gases.</p>			
<p>Describe how greenhouse gases are produced.</p> <p>Evaluate the use of models for predicting climate change.</p>			
<p>Identify the effects of global warming.</p> <p>Explain the effects of climate change.</p> <p>The <a href="#">University Corporation for Atmospheric Research (UCAR)</a> is a good source for classroom based activities and ideas:</p> <p>Describe what a carbon footprint is.</p> <p>Describe how emissions can be reduced. Suggest the consequences of the reductions on the Earth, atmosphere and everyday life.</p>			
<p>Describe what a carbon footprint is.</p> <p>Describe how emissions can be reduced. Suggest the consequences of the reductions on the Earth, atmosphere and everyday life.</p> <p>A person's carbon footprint can be calculated using a variety of sites such as:</p> <p><a href="#">Carbon Footprint Ltd</a> and <a href="#">WWF Footprint Calculator</a></p>			

4.9.3 Common atmospheric pollutants and their sources	Taught	Practiced	Mastered
<p>Write word equations for complete and incomplete combustion.</p> <p>Use these equations to describe the reactions in terms of reactants, products made and number of each present.</p> <p>Explain why the following can be produced in combustion:</p> <ul style="list-style-type: none"> <li>• carbon dioxide</li> <li>• carbon monoxide</li> <li>• soot</li> <li>• water vapour</li> <li>• sulfur dioxide</li> <li>• oxides of nitrogen.</li> </ul>			
<p>Describe the effect of the following products:</p> <ul style="list-style-type: none"> <li>• Carbon monoxide on the human body.</li> <li>• Sulfur dioxide and oxides of nitrogen on acidity of rain water.</li> <li>• Sulfur dioxide and oxides of nitrogen on respiratory system.</li> <li>• Particulates on global dimming.</li> <li>• Particulates on human health problems.</li> </ul>			