

# **NATURAL SCIENCES**

**GRADE 9 TERM 4**

**Tracker**



Week 1											
CAPS Concepts and Activities	CAPS Page no.	Year:					Year:				
		Class					Class				
		Date Completed					Date Completed				
<b>Week 1 Lesson A</b>											
<b>Topic: The Earth as a system</b> <b>Content &amp; Concepts: Spheres of the Earth</b> <ul style="list-style-type: none"> <li>The Earth can be understood as a complex system where all the parts (called spheres) interact with each other</li> </ul>	78										
<b>Week 1 Lesson B</b>											
<b>Topic: The Earth as a system</b> <b>Content &amp; Concepts: Spheres of the Earth</b> <ul style="list-style-type: none"> <li>The Earth can be understood as a complex system where all the parts (called spheres) interact with each other</li> </ul>	78										
<b>Week 1 Lesson C</b>											
<b>Topic: The Earth as a system</b> <b>Content &amp; Concepts: Spheres of the Earth</b> <ul style="list-style-type: none"> <li>Four spheres interact on or near the surface of the Earth:               <ul style="list-style-type: none"> <li>the lithosphere consists of solid rock and soil</li> <li>the hydrosphere consists of water in all its forms</li> <li>the atmosphere is a layer of gases around the Earth</li> <li>the biosphere consists of all living plants and animals and their interactions with rocks, soil, air and water</li> </ul> </li> </ul>	78										
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Week 2 Lesson C										
<p><b>Topic: The Earth as a system</b>  <b>Content &amp; Concepts: The rock cycle</b></p> <ul style="list-style-type: none"> <li>• There are three rock types: igneous, sedimentary and metamorphic rocks</li> <li>• The rock cycle can be explained in the following steps:               <ul style="list-style-type: none"> <li>○ rocks on the surface of the Earth are weathered by heat, cold, wind and water to form smaller particles</li> <li>○ wind and water transport these particles to flood plains and the sea by erosion</li> <li>○ the particles are laid down as sediments</li> <li>○ the sediments are covered by more layers</li> </ul> </li> <li>• The pressure of many layers turns the lower layers into sedimentary rock like sandstone</li> </ul>	78									
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Week 3											
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<b>Week 3 Lesson A</b>											
<b>Topic: The Earth as a system</b> <b>Content &amp; Concepts: The rock cycle</b> <ul style="list-style-type: none"> <li>There are three rock types: igneous, sedimentary and metamorphic rocks</li> <li>The rock cycle can be explained in the following steps:               <ul style="list-style-type: none"> <li>rocks on the surface of the Earth are weathered by heat, cold, wind and water to form smaller particles</li> <li>wind and water transport these particles to flood plains and the sea by erosion</li> <li>the particles are laid down as sediments</li> <li>the sediments are covered by more layers</li> </ul> </li> <li>The pressure of many layers turns the lower layers into sedimentary rock like sandstone</li> </ul>	78										
<b>Week 3 Lesson B</b>											
<b>Topic: The Earth as a system</b> <b>Content &amp; Concepts: The rock cycle</b> <ul style="list-style-type: none"> <li>Hot magma heats the surrounding rock and changes its chemical structure to form metamorphic rock like slate from shale or marble from limestone</li> </ul>	78										
<b>Week 3 Lesson C</b>											
<b>Topic: The Earth as a system</b> <b>Content &amp; Concepts: The rock cycle</b> <ul style="list-style-type: none"> <li>Some rock is pushed below the crust, melts and becomes magma again</li> </ul>	79										
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<b>Week 5 Lesson A</b>											
<b>Topic: Mining of mineral resources</b> <b>Content &amp; Concepts: Mining in South Africa</b> <ul style="list-style-type: none"> <li>There is large scale mining activity in South Africa</li> </ul>	80										
<b>Week 5 Lesson B</b>											
<b>Topic: Mining of mineral resources</b> <b>Content &amp; Concepts: Mining in South Africa</b> <ul style="list-style-type: none"> <li>This activity has significant environmental impacts such as:               <ul style="list-style-type: none"> <li>creation of mine dumps</li> <li>pollution of water resources</li> <li>damage to places with high tourist or cultural heritage value</li> <li>loss of farming and wild life environments</li> </ul> </li> </ul>	80										
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<b>Week 6 Lesson A</b>											
<b>Topic: Atmosphere</b> <b>Content &amp; Concepts: Atmosphere</b> <ul style="list-style-type: none"> <li>The atmosphere is the mixture of gases held around the Earth by gravity</li> <li>This mixture is known as air and consists of nitrogen (78%), oxygen (21%), carbon dioxide (less than 1%), and other gases, including water vapour (1%)</li> <li>The density of the gas particles decreases as the distance from the Earth increases (the further away from the Earth, the thinner the air)</li> <li>The atmosphere has four layers: troposphere, stratosphere, mesosphere, thermosphere</li> <li>Each layer has a different temperature gradient</li> <li>Temperature gradient is how much the temperature changes with height above sea level (altitude)</li> </ul>	80										
<b>Week 6 Lesson B</b>											
<b>Topic: Atmosphere</b> <b>Content &amp; Concepts: Troposphere</b> <ul style="list-style-type: none"> <li>This layer extends from sea level to about 10 km above the surface of the Earth</li> <li>It contains more than 70% of the mass of the atmosphere (particles closest together) and it has the greatest density</li> <li>The temperature decreases as the distance from the surface increases (the further away from the Earth, the colder the air)</li> <li>Weather occurs in this layer</li> <li>All animals and plants live in this layer</li> </ul>	81										

Week 6 Lesson C										
<p><b>Topic: Atmosphere</b></p> <p><b>Content &amp; Concepts: Stratosphere</b></p> <ul style="list-style-type: none"> <li>• This layer extends from about 10 km to about 50 km above the Earth's surface</li> <li>• The air in the stratosphere is very thin compared to the air in the troposphere</li> <li>• Some aeroplanes fly as high as the stratosphere</li> <li>• The stratosphere includes a band of ozone gas (O<sub>3</sub>) which absorbs ultraviolet radiation from the Sun</li> <li>• This absorption of ultraviolet radiation increases the temperature of the stratosphere - as a result, the further away from the Earth, the warmer the air becomes</li> <li>• Too much ultraviolet radiation interferes with life on Earth (human health, photosynthesis, life cycles and sizes of populations of species)</li> </ul>	81									
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<b>Week 7 Lesson A</b>											
<b>Topic: Atmosphere</b> <b>Content &amp; Concepts: Mesosphere</b> <ul style="list-style-type: none"> <li>This layer extends from about 50 – 80 km above the Earth’s surface</li> <li>The air is extremely thin and very cold</li> <li>There is still enough air in this layer to burn up small rocks and dust entering from space</li> <li>Burning rocks are visible from the Earth and known as ‘shooting stars’</li> </ul>	82										
<b>Week 7 Lesson B</b>											
<b>Topic: Atmosphere</b> <b>Content &amp; Concepts: Thermosphere</b> <ul style="list-style-type: none"> <li>This layer starts above 80 km from the Earth (the thermosphere slowly diminishes at about 350 km and space begins after that. Satellites orbit much further away)</li> <li>The International Space Station (ISS), where astronauts work in space orbits the Earth at a height of about 370 km</li> <li>The lowest part of the thermosphere absorbs ultraviolet radiation and dangerous X-rays from the Sun</li> <li>It also reflects radio waves back to Earth for TV and radio broadcasts</li> </ul>	82										

Week 7 Lesson C												
<p><b>Topic: Atmosphere</b></p> <p><b>Content &amp; Concepts: The greenhouse effect</b></p> <ul style="list-style-type: none"> <li>• The greenhouse effect is a natural phenomenon – it warms the atmosphere sufficiently to sustain life</li> <li>• Greenhouse gases trap the ultraviolet radiation which then warms the air closest to the surface of the earth (like inside a greenhouse)</li> <li>• The most common greenhouse gases are carbon dioxide, water vapour and methane</li> <li>• An increase in greenhouse gases leads to global warming</li> <li>• Global warming is an increase in the average temperature of the atmosphere</li> <li>• Global warming is a potentially life threatening problem on Earth. It can lead to:               <ul style="list-style-type: none"> <li>○ climate change</li> <li>○ rising sea levels</li> <li>○ food shortages</li> <li>○ mass extinctions</li> </ul> </li> </ul>	82											
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Week 9 Lesson A												
<b>Topic: Revision and Study</b>	71-84											
Week 9 Lesson B												
<b>Topic: Revision and Study</b>	71-84											
Week 9 Lesson C												
<b>Topic: Revision and Study</b>	71-84											
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