## **NATURAL SCIENCES**

GRADE 8 TERM 3
Tracker

	Week 1											
	CADC	Yea	r:				Year:					
CARC Concents and Activities	CAPS		(	Class	;			(	Class	5		
CAPS Concepts and Activities	Page no.											
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Week 1 Lesson A												
Topic: Static electricity	47											
Content & Concepts: Friction and static												
electricity												
<ul> <li>Friction (rubbing) between certain materials (such as plastic, Perspex, glass,</li> </ul>												
nylon, wool, silk) transfers electrons												
between the atoms of the two materials												
being rubbed together												
The electrons move from one material												
causing a positive charge on its surface												
and causing a negative charge on the surface of the other material (it is only												
the electrons that are transferred,												
protons and neutrons do not move)												
Week 1 Lesson B	47											
Topic: Static electricity	47											
Content & Concepts: Friction and static electricity												
Objects/materials with same/like charges												
repel each other												
Objects/materials with opposite/unlike												
charges attract each other												
Week 1 Lesson C												
Topic: Static electricity	47											
Content & Concepts: Friction and static												
electricity												
A discharge of the electrons causes the												
sparks or shock of static electricity,												
especially when the air is dry												
	Reflection	n										
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What will you do to support or extend learners? Did		ll the										
work set for the week? If not, how will you get back of	on track?											
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## NECT LEARNING PROGRAMME: NATURAL SCIENCES GRADE 8 TERM 8 TRACKER

Year:		
Think about and make a note of: What went well? What did not go well? What did the learners find difficult or easy to understand or do? What will you do to support or extend learners? Did you cover all the work set for the week? If not, how will you get back on track?	What will you change next time	e? Why?
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	Week 2										
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	CAPS	Class						Class	5		
CAPS Concepts and Activities	Page										
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Week 2 Lesson A											
Topic: Energy transfer in electrical	47										
systems											
Content & Concepts: Circuits and current											
electricity											
A circuit is a system for transferring electrical energy											
A closed circuit is needed to make a											
device work, such as making a bulb light											
up (refer to Grade 6 Energy & Change)											
A circuit is a complete conducting pathway for electricity and has a number											
of components connected together:											
o from one terminal at the source of											
energy (cell/battery) along											
conducting material (wires) through the device (filament of incandescent											
bulbs) and back to the other											
terminal of the source of energy											
(cell/battery)											
Week 2 Leasen B											
Week 2 Lesson B  Topic: Energy transfer in electrical	47										
systems	77										
Content & Concepts: Circuits and current											
electricity											
A circuit is a system for transferring											
electrical energy											
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of components connected together:											
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the device (filament of incandescent											
bulbs) and back to the other											
terminal of the source of energy (cell/battery)											
(ceii) battery)											

Week 2 Lesson C											
Topic: Energy transfer in electrical	47										
systems											
Content & Concepts: Components of a											
circuit:											
• Cells/batteries are chemical systems that											
are sources of energy											
<ul> <li>cells store chemical substances</li> </ul>											
(potential energy)											
o when the circuit is completed, the											
chemicals react together to produce an electric current											
o an electric current is the flow of											
charges (kinetic energy) along a											
conductor											
	Reflection	n									
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Week 3 Lesson A										
Topic: Energy transfer in electrical systems Content & Concepts: Components of a circuit  Conducting wires are usually made of metal and carry electricity over a short or long distance  Switches provide a convenient way of controlling electrical circuits	47									
Week 3 Lesson B  Topic: Energy transfer in electrical	48									
content & Concepts: Components of a circuit  Resistors are made of materials that resist/oppose the flow of electrical current in a circuit resistors in a circuit have an influence on the amount of electric current flowing in that circuit some resistors (including bulb filaments, heating wires, elements in kettles/heaters/geysers/stoves) can heat up to provide useful output energy  A light bulb such as a torch bulb, contains a resistance wire called a filament. The filament heats up to be white hot when connected in a circuit. The resistance wire is connected to two contact points - the one end to the screw part (casing) and the other end to the solder knob at the bottom. The two contacts are separated by an insulator										

Week 3 Lesson C											
Topic: Energy transfer in electrical	48										
systems											
Content & Concepts: Components of a											
circuit											
<ul> <li>Conducting wires are usually made of</li> </ul>											
metal and carry electricity over a short or											
long distance											
<ul> <li>Switches provide a convenient way of</li> </ul>											
controlling electrical circuits											
Resistors are made of materials that											
resist/oppose the flow of electrical											
current in a circuit											
<ul> <li>resistors in a circuit have an influence on the amount of electric</li> </ul>											
current flowing in that circuit											
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to the screw part (casing) and the other end to the solder knob											
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are separated by an insulator											
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Week 4 Lesson A										
Topic: Energy transfer in electrical	48									
systems										
Content & Concepts: Effects of an										
electric current										
A current can heat a resistance wire										
(such as a bulb filament)  o an electrical current transfers energy										
to the particles in a bulb filament,										
producing light that the filament										
emits										
o circuits can overheat if a short circuit										
occurs										
<ul> <li>fuses are special wires which break the circuit when they</li> </ul>										
overheat and melt. These are										
safety devices that reduce the										
danger when using electricity										
- a short circuit can occur when										
an electric current takes the										
path of lowest resistance, for example when a conductor is										
connected directly to both										
terminals of a cell/battery										
Week 4 Lesson B										
Topic: Energy transfer in electrical	48									
systems Contact 8 Concents: Effects of an										
Content & Concepts: Effects of an electric current										
A current causes a magnetic field (such as										
in electromagnets)										
<ul> <li>an electric current can be used for</li> </ul>										
making temporary magnets known										
as electromagnets. Moving charges										
(current) in a conductor (such as a										
wire), cause a magnetic field around it										
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Week 4 Lesson C										
Topic: Energy transfer in electrical	48									
systems										
Content & Concepts: Effects of an										
electric current										
<ul> <li>An electric current can cause a chemical reaction in a solution, this process is called electrolysis</li> <li>water can be broken down by electrolysis to produce oxygen and hydrogen gas</li> <li>copper(II) chloride solution can be broken down to copper metal and chlorine gas. Copper is deposited on one electrode (cathode) and chlorine gas is formed as bubbles at the other electrode (anode)</li> </ul>	<b>D</b> oflostic									
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Week 5 Lesson A														
Topic: Series and parallel circuits	49													
Content & Concepts: Series circuits														
A series circuit provides only one														
pathway for the current passing through														
it. The current is the same everywhere in the circuit but every time a resistor is														
added in series, the overall current in the														
circuit decreases														
Week 5 Lesson B														
Topic: Series and parallel circuits	49													
Content & Concepts: Series circuits														
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added in series, the overall current in the														
circuit decreases														
Week 5 Lesson C														
Topic: Series and parallel circuits	49													
Content & Concepts: Parallel circuits														
A parallel circuit provides two or more														
pathways for the current passing through it, but the overall current increases when														
more resistors are added in parallel														
	Reflection	n												
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Think about and make a note of: What went well? W			W	hat w	ill you	ı char	ige ne	xt tim	e? W	hy?				
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Topic: Series and parallel circuits	49										
Content & Concepts: Parallel circuits											
A parallel circuit provides two or more pathways for the current passing through											
it, but the overall current increases when											
more resistors are added in parallel											
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Week 6 Lesson B	40										
Topic: Series and parallel circuits Content & Concepts: Other output	49										
devices											
Other complex circuits are used for											
output devices, such as beepers, buzzers,											
LED's (Light Emitting Diodes) or motors											
Week 6 Lesson C											
Topic: Series and parallel circuits	49										
Content & Concepts: Other output											
devices											
Other complex circuits are used for											
output devices, such as beepers, buzzers, LED's (Light Emitting Diodes) or motors											
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Week 7 Lesson A				,0111	51000					01000	
Topic: Visible light	49										
<ul> <li>Content &amp; Concepts: Radiation of light</li> <li>Light is emitted from luminous objects such as the Sun and light bulbs, and is transferred by radiation</li> <li>Light travels in straight lines</li> <li>Light travels through empty space at a speed of 300 000 km per second (the distance from the Sun to Earth is 150 million kilometres) (refer to grade 7 Energy and Change)</li> </ul>											
Week 7 Lesson B											
Topic: Visible light	50										
<ul> <li>Content &amp; Concepts: Spectrum of visible light         <ul> <li>White light consists of a spectrum (range) of different frequencies and wavelengths - violet, indigo, blue, green, yellow, orange, red. All these colours make up the spectrum of visible light</li> <li>A rainbow is seen when light falls on water droplets in the air and is refracted and dispersed into the different colours (violet, indigo, blue, green, yellow, orange, red) seen in the rainbow</li> <li>The light at the violet, indigo, blue range of the spectrum has the highest frequency (shortest wavelength) and orange and red light has the lowest frequency (longest wavelength)</li> </ul> </li> </ul>											
Week 7 Lesson C											
Topic: Visible light Content & Concepts: Opaque and transparent substances  • Light cannot pass through opaque surfaces (such as metal, clay, bricks, wall paint, cardboard), therefore it is either absorbed or reflected  • Opaque substances cast shadows on the side facing away from the light source	50										

Reflection		
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Week 8 Lesson A												
Topic: Visible light	50											
Content & Concepts: Opaque and												
transparent substances												
<ul> <li>Light passes through transparent substances (such as glass, clear plastic,</li> </ul>												
cellophane, clean water) therefore some												
of the light is absorbed, some is reflected,												
but most passes through												
Week 8 Lesson B												
Topic: Visible light	50											
Content & Concepts: Absorption of light												
Light can be absorbed by surfaces of												
some materials												
<ul> <li>Light is absorbed differently by different materials</li> </ul>												
A material has colour because it absorbs												
some of the colours in the spectrum												
(some of the frequencies) and reflects other colours												
The frequencies that are absorbed do not												
reach the eye												
o a red object (such as a wall painted												
red) reflects the frequencies we see												
as red and absorbs other frequencies/ colours, such as violet,												
indigo, blue, green												
o a black object (such as a black pot)												
absorbs all of the frequencies/												
colours and therefore looks black (links absorption of heat by matt												
black surfaces: Grade 7)												
o a white object (such as white paper)												
reflects all of the frequencies/												
colours and therefore looks white												
(links to reflection of heat by shiny silver or white surface: Grade 7)												
Sliver of write surface. Grade /)												

Week 8 Lesson C													
Topic: Visible light	51												
Content & Concepts: Reflection of light													
• Light is reflected off most surfaces,													
including mirrors													
<ul> <li>Light can change its direction when it is reflected</li> </ul>													
<ul> <li>In reflection, the angle of incidence and</li> </ul>													
reflection are measured from the normal													
which is a line perpendicular to the													
surface													
<ul> <li>On smooth surfaces, all light is reflected in the same direction</li> </ul>													
On rough surfaces, reflected light is													
scattered													
	Reflectio	n											
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Week 9 Lesson A										Jiete	.u	
Topic: Visible light	51											
<ul> <li>Content &amp; Concepts: Seeing light</li> <li>The frequencies/colours that are reflected enter the eye</li> <li>Specialised receptor cells in the eye's retina are stimulated by specific frequencies (colours)</li> <li>In the eye, light energy is converted to electrical nerve impulses</li> <li>Impulses travel to the brain and the brain interprets them as our perceptions of light</li> <li>The frequencies/colours of light that are absorbed by the surface of an object do not reach the eye</li> </ul>												
Week 9 Lesson B Topic: Visible light	51											
<ul> <li>Content &amp; Concepts: Refraction of light</li> <li>Light can be refracted by transparent substances</li> <li>Light can change its direction when it is refracted</li> <li>Light entering a transparent medium (such as glass, water, perspex) at an angle, changes direction towards the normal in that medium</li> <li>Light travelling out of the medium (back into the air) changes direction away from the normal</li> </ul>												
Week 9 Lesson C												
<ul> <li>Topic: Visible light</li> <li>Content &amp; Concepts: Refraction of light</li> <li>A triangular prism is able to refract and disperse white light into the colours observed in a rainbow</li> <li>A lens is able to refract and focus light</li> </ul>	51											

Reflection		
Year:		
Think about and make a note of: What went well? What did not go well? What did the learners find difficult or easy to understand or do? What will you do to support or extend learners? Did you cover all the work set for the week? If not, how will you get back on track?	What will you change next time	e? Why?
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