

**MINISTRY OF GENERAL EDUCATION**  
**PROVINCIAL SCHEMES OF WORK FOR INTEGRATED SCIENCE**

**Subject:** INTEGRATED SCIENCE **Grade:** 9 **Term:** ONE **Year:** 20.... **Teacher:** ----- **periods per week:** 6

<b>WEEK BEGINNING</b>	<b>TOPIC</b>	<b>SUBTOPIC</b>	<b>EXPECTED OUTCOMES</b>	<b>METHOD</b>	<b>SUGGESTED EXPERIMENTS</b>	<b>REFERANCE</b>
1	<b>THE HUMAN BODY</b>	Circulatory system	Describe the blood circulatory system  Identify the components of blood and their function	Discussion	Model and chart on Human blood circulation	Integrated science G9  Environment science G8  Raven and Johnson  Biological sciences  Complete chemistry and physics
2	<b>THE HUMAN BODY</b>	Circulatory system	Describe the internal structure of the heart  Illustrate the	Demonstration	Model and chart on Human blood circulation	Integrated science G9  Environment

			movement of blood in the double circulatory system			science G8 Raven and Johnson  Biological sciences  Complete chemistry and physics
3	<b>THE HUMAN BODY</b>	Circulatory system	Identify the role of the heart , lungs and blood vessel in blood circulation  Take the pulse rates at rest and after physical exercise	Group Discussion	Video	Integrated science G9  Environment science G8 Raven and Johnson  Biological sciences  Complete chemistry and physics
4	<b>THE HUMAN BODY</b>	<b>Respiratory system</b>	Identify organs of the Respiratory	Use of charts and models		Integrated science G9

			<p>system of a human being</p> <p>Explain the function of the organs of the respiratory system</p>	Discussion		<p>Environment science G8</p> <p>Raven and Johnson</p> <p>Biological sciences</p>
5	<b>THE HUMAN BODY</b>	Respiration system	<p>Demonstrate the mechanism of ventilation in a human being.</p> <p>Describe the exchange of Oxygen carbon in the lungs</p>	<p>Demonstration</p> <p>experimental</p>	<p>Use a model of a chest cavity</p> <p>Conduct an experiment to compare the amount of carbon dioxide in inspired and expired air</p>	<p>Integrated science G9</p> <p>Environment science G8</p>
6	<b>THE HUMAN BODY</b>	Respiratory system	<p>Explain tissue respiration</p> <p>Explain the effect of cigarette Smoking on the respiratory system</p>	<p>Discussion</p> <p>Question and answer with use of charts showing respiratory</p>	<p>Conduct an experiment to show respiration in plant tissues of germinating seeds</p>	<p>Integrated science G9</p> <p>Raven and Johnson</p> <p>Biological sciences</p>

				diseases.		
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7	<b>HEALTH</b>	Sexually transmitted Infection (STIs)	Identify the common sexually transmitted infections  Explain transmission of sexually transmitted infections	Question and answer  Field trip  Discussion	Video on STIs Chart showing the STIs  Conduct a trip with pupils to any nearby health centre.	Integrated science G9  Magazine Raven and Johnson  Biological sciences
8	<b>HEALTH</b>	Sexually transmitted Infection (STIs)	Describe the prevention of STIs  Explain the impact of HIV and AIDS on the population	Field trip  Discussion	Conduct a trip with pupils to any nearby health centre	Integrated science G9 Raven and Johnson  Biological sciences  Complete chemistry and physics
9	<b>THE</b>		Describe what oxygen	Discussion	Chart showing	Integrated science

	<b>ENVIRONMENT</b>	Cycles in the Biosphere	and carbon dioxide cycle are.  Identify factors affecting Oxygen and carbon	Question and answer	the cycles	G9 Raven and Johnson  Biological sciences  Complete chemistry and physics
10	<b>THE ENVIROMENT</b>	Cycles in the Biosphere	Describe the nitrogen cycle  Explain the natural balance of gases in the atmosphere	Discussion  Question and answer	Chart showing the cycle	Integrated science G9  Raven and Johnson  Biological sciences  Complete chemistry
11	<b>THE ENVIRONMENT</b>	Water Management	Describe the importance of water management in our daily life.  Describe effective water management system	Class discussion  Field trip	Trip to the water affairs department in the	Integrated science G9 Raven and Johnson  Complete chemistry

					district	
12&13		<b>END OF TERM TEST</b>				

**MINISTRY OF GENERAL EDUCATION  
PROVINCIAL SCHEMES OF WORK FOR INTEGRATED SCIENCE**

**Subject: INTEGRATED SCIENCE Grade: 9 Term: 2 Year: 20.... Teacher: ----- periods per week**

<b>WEEKS</b>	<b>TOPIC</b>	<b>SUB-TOPIC</b>	<b>EXPECTED OUTCOME</b>	<b>METHODOLOGY</b>	<b>SUGGESTED EXPERIMENTS</b>	<b>REFERNCE</b>
1	<b>PLANTS AND ANIMALS</b>	Conservation of animals and Plants	<p>Explain the importance of domesticating animals and plants.</p> <p>Explain ways of improving domestic breeds of animals and plants.</p> <p>Identify animals and plants threatened by extinction.</p> <p>Describe the importance of protecting endangered animals and plants.</p> <p>Explain methods of protecting endangered animals and plants.</p>	<p>Discussion in groups</p> <p>Group work</p> <p>Question and answers</p>	<p>Pupils maybe asked to explain why parents would asking for a certain breed of a cock to meet with their hen.</p> <p>A video showing wild life</p>	<p>Integrated science G9</p> <p>Biological sciences</p> <p>Complete chemistry and physics</p>

2	<b>PLANTS AND ANIMALS</b>	photosynthesis	Identify the conditions necessary for photosynthesis	Use charts to illustrate the process of photosynthesis	Conduct experiments on the importance of light, carbon dioxide and the importance of chlorophyll	Integrated science G9  Biological sciences  Complete chemistry and physics
3	<b>PLANTS AND ANIMALS</b>	photosynthesis	Identify the products of photosynthesis in a leaf  Relate the process of photosynthesis to respiration	Demonstration  Explain by comparing the equation for photosynthesis and respiration.	Conduct an experiment on how to test a leaf for starch.  Conduct an experiment to show that oxygen is produced during photosynthesis	Integrated science G9  Biological sciences
4	<b>PLANTS AND ANIMALS</b>	Transpiration	Describe the process of transpiration.  Investigate the factors	Experimental	Conduct an experiment to show water is released through leaves by	Integrated science G9



			<p>that affect the rate of transpiration</p> <p>Explain the importance of transpiration in plants</p>	Class discussion	<p>covering a branch or a leaf with a plastic bag. Use blue cobalt chloride or anhydrous copper II sulphate paper to confirm that the liquid collected is water.</p>	Biological sciences
5	<b>MATERIALS AND ENERGY</b>	Chemical reaction	<p>Describe what chemical reaction is.</p> <p>Describe the nature of chemical reactions</p> <p>Classify different types</p>	<p>Experimental</p> <p>Experimental</p> <p>Class discussion</p>	<p>Conduct an experiment by burning any simple available substances, eg, a paper, magnesium metal or sugar.</p> <p>Conduct an experiment to illustrate exothermic reaction by reacting sodium metal with water or sodium hydroxide with water. Endothermic reaction, by reacting urea (top dressing fertilizer) with water.</p>	<p>Integrated science G9</p> <p>Complete chemistry</p>

			of chemical reactions			
6	<b>MATERIALS AND ENERGY</b>		Describe the chemical reaction of synthesis  Demonstrate the chemical reaction of water with electricity  Explain the law of conservation of matter	Experimental	Conduct an experiment by burning any simple available substances, eg, paper.(expected word equation: Carbon + oxygen → carbon dioxide.	Integrated science G9  Complete physics
7	<b>MATERIALS AND ENERGY</b>	Light and its nature	Describe the different types of lenses.  Demonstrate the location of the focal point and focal length of a lens.  Explain the mechanism of a converging lens to produce real and virtual images.  Explain the uses of converging and diverging lenses	Observation  Experimental	Pupils to investigate the difference between lenses, by closely looking at the lenses.  Conduct experiments by using Converging lens. i.e. microscope film projector;  Conduct experiments by using Diverging lens-spectacles	Integrated science G9  Complete physics

8	<b>MATERIALS AND ENERGY</b>	Light and its nature	<p>Demonstrate the production of a spectrum from white light.</p> <p>Demonstrate the combination of colours of the spectrum to produce white light.</p> <p>Describe the production of a rainbow.</p> <p>Explain why sunsets and sunrise appear red</p>	Class discussion	<p>Conduct an experiment showing dispersion of white light using a prism</p> <p>Place another prism near the dispersed light which will combine it into white light. A newton's disc.</p>	<p>Integrated science G9</p> <p>Complete physics</p>
9	<b>MATERIALS AND ENERGY</b>	Colour Filters	<p>Explain that colours of an object depend on the colour of light it reflects.</p> <p>Describe the effects of colour filters on light rays</p>	<p>Question and answer</p> <p>experimental</p>	<p>An experiment to demonstrate the effects of colour filters on light rays using different colour filters, any source of light. (ray box, candle, touch)</p>	<p>Integrated science G9</p> <p>Complete physics</p>
10	<b>MATERIALS</b>	Electric	Explain the difference	Class discussion		Integrated

	<b>AND ENERGY</b>	Current and Voltage in Circuit	between electric current and voltage  Demonstrate the use of an ammeter to measure electric currents in a circuit.	Experimental	Conduct an experiment to demonstrate the use of an ammeter to measure the electric current.	science G9  Complete physics
11	<b>MATERIALS AND ENERGY</b>	Electric Current and Voltage in Circuit	Demonstrate how to measure potential difference in a circuit  Describe the relationship between potential difference and current.  Explain the use of electric current in the local environment	Experimental  Experimental  Class discussion	Conduct an experiment to demonstrate the use of a voltmeter.  Conduct an experiment to demonstrate the relationship between potential difference and current.	Integrated science G9  Complete physics
12	<b>MATERIALS</b>	Pressure				Integrated

	<b>AND ENERGY</b>		State what pressure is Identify factors affecting pressure in gases	Experimental	Conduct an experiment by using a inflated balloon or plastic. Reducing the volume of an inflated balloon increases pressure inside.	science G9  Complete physics
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**MINISTRY OF GENERAL EDUCATION**

**PROVINCIAL SCHEMES OF WORK FOR INTEGRATED SCIENCE**

**Subject: INTEGRATED SCIENCE    Grade: 9    Term: 3    Year: 20....    Teacher: -----**

<b>WEEK</b>	<b>TOPIC</b>	<b>SUB-TOPIC</b>	<b>EXPECTED OUTCOME</b>	<b>METHODOLOGY</b>	<b>SUGGESTED EXPERIMENTS</b>	<b>REFERNCE</b>
1	<b>MATERIALS AND ENERGY</b>	Energy and its conservation	<p>Explain what energy is.</p> <p>Identify different forms of energy</p> <p>Describe how different forms of energy can be changed</p> <p>Explain the law of energy conservation</p>	<p>Class discussion.</p> <p>Experimental</p>	<p>Conduct an experiment to demonstrate the production of heat from electricity and friction.</p>	<p>Integrated science G9</p> <p>Complete physics</p>
2	<b>MATERIALS AND ENERGY</b>		<p>Explain the effects of energy production on the environment.</p>	<p>Class discussion</p>		<p>Integrated science G9</p> <p>Complete</p>

			Explain ways of conserving energy	Group discussion		physics
3	<b>MATERIALS AND ENERGY</b>	communication	Identify ways of sending and receiving information over long distances.  Describe the advantages and disadvantages of the different ways of sending messages	Field trip	Conduct a trip to any Zamtel station or any community radio station with prepared worksheets	Integrated science G9  Complete physics
4	<b>MATERIALS AND ENERGY</b>	Digital and Analogue Transmission	Describe the transmission of radio and television signals  Explain the amplification of sound.	Field trip discussion	Conduct a trip to any Zamtel station or any community radio station with prepared worksheets	Integrated science G9  Complete physics
5	<b>MATERIALS AND ENERGY</b>	Satellite Communication	Explain the difference between digital and analogue transmission	Field trip Discussion	Conduct a trip to any Zamtel station or any community radio station with prepared worksheets	Integrated science G9

			information  Explain the use of satellite in long distance communication.			Complete physics
6	<b>MATERIALS AND ENERGY</b>	Satellite Communication	Describe the transmission of a live broadcast of an event from Africa to Europe using raw block diagrams	Use of models  Charts		Integrated science G9  Complete physics