

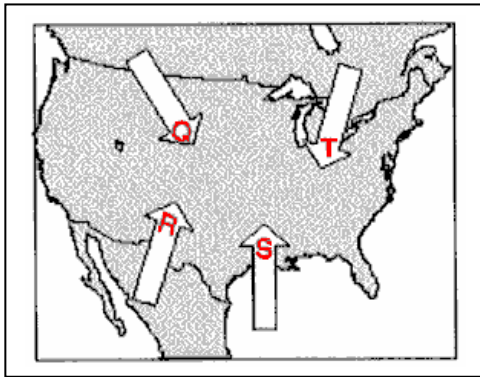
Web Demo - Topics

Science Grade 8 - Part 1

1) Since flight requires a great amount of energy, birds have many adaptations to either save energy or provide more energy during flight. Which of the following bird adaptations reduces the amount of energy that birds must use during flight?

- 1) heavy beaks
- 2) lightweight skeleton with hollow bones
- 3) vary rapid heartbeat
- 4) very high metabolic rate

2) Which of these air masses would probably contain the most moisture?



- 1) T
- 2) S
- 3) R
- 4) Q

3) The data table below shows the masses and volumes of three objects (A, B, and C)

A	B	C
Mass = 4g	Mass = 6 g	Mass = 8 g
Volume = 2 cm ³	Volume = 6 cm ³	Volume = 4 cm ³

The formula for calculating an object's density is:

$$\text{Density} = \text{Mass} / \text{Volume}$$

Which statement about the densities of these three objects is correct?

- 1) B and C have equal densities.
- 2) A and C have equal densities.
- 3) B is more dense than A.
- 4) A is less dense than C.

4) Most scientists believe that Earth's crust is composed of plates. There are two kinds of crust. Oceanic crust is more dense, on average, than continental crust. Accordingly, what would most likely happen if a plate of oceanic crust and a plate of continental crust collided?

- 1) The oceanic crust would sink below the continental crust.
- 2) The oceanic crust would ride above the continental crust.
- 3) The continental crust would sink below the oceanic crust.
- 4) The continental crust would become thinner than the oceanic crust.

5) Shoreline change rapidly. Erosion and deposition are two processes with opposite effect that shape shoreline features.

Which of the following shoreline processes is an example of deposition?

- 1) wave removal of sand from the beach
- 2) accumulating of mud in bays
- 3) carving of sea cliffs by waves
- 4) breakdown of gravel into sand

6) In the deepest parts of the ocean, light cannot reach the ocean floor, and no photosynthesis can be carried out. For this reason scientists developed the hypothesis that none of the larger life-forms could exist at such depths. Then in 1977 the submersible Alvin photographed a group of 2-meter-long tube worms growing around an ocean vent at a depth of 2800 meters. The original hypothesis had to be changed because it was discovered that these organisms

- 1) filtered inorganic elements from the water
- 2) drifted no dense salinity currents
- 3) absorbed energy from the actions of waves
- 4) obtained energy in the absence of sunlight

7) In the fourth century B.C., Aristotle developed a model of natural motion (the motion of an object when no forces act on it). In Aristotle's model, the center of the universe is Earth, where the forces are removed, motion stops. The Moon, Sun, planets, and stars move through space, where the natural motion of objects is circular movement around the Earth. In addition, all objects in the universe have a place where they belong, and objects move toward their place in the universe.

Many years after Aristotle, Newton developed a new model of natural motion and forces. In Newton's model, the natural motion of any object is to be either at rest or moving at a constant speed in a straight line. Forces act to speed up an object, slow it down, or change its direction of motions.

On which of the following points would Newton and Aristotle agree?

- 1) Objects at rest on earth will stay at rest if no force acts on them.
- 2) Objects on Earth and objects in space follow different rules of motion.
- 3) The natural state of objects on earth is to be at rest.
- 4) Objects in motion on earth will stay in motion if no force acts on them.

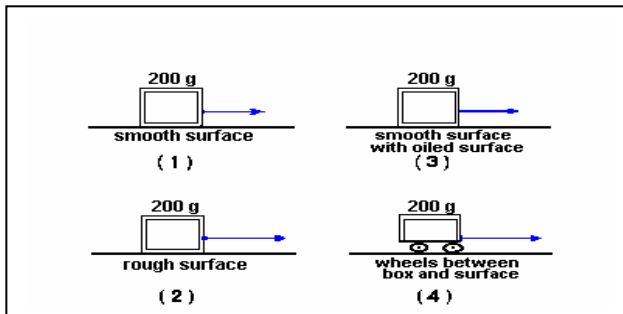
SCIENCE Grade 8 Science - Part 2

This program gives students practice
in the physical sciences.

1) If you push against a wall with a force of 88 newtons, the wall exerts a force against your hand of

- 1) 44 N
- 2) 0 N
- 3) 88 N
- 4) 176 N

2) The diagrams below shows boxes of the same mass being pulled on a flat surface. On which surface would it be hardest to pull the box.



3) An object continues in motion at a constant speed in a straight line unless a force acting on the object is

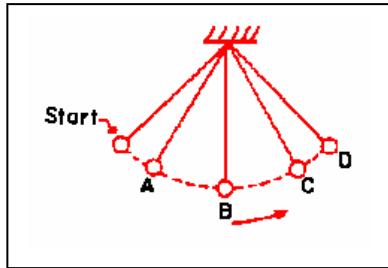
- 1) constant
- 2) balanced
- 3) unbalanced

4) What kind of reaction is the following?



- 1) synthesis
- 2) single replacement
- 3) double replacement
- 4) decomposition

5) A pendulum swings as shown in the diagram. At which position is the kinetic energy of the pendulum is least?



- 1) A
- 2) B
- 3) C
- 4) D

6) When the electrons of the atoms in a crystal are distributed so they belong to all the atoms in the crystal, the crystal is held together by

- 1) ionic bonds
- 2) covalent bonds
- 3) metallic bonds
- 4) macromolecules

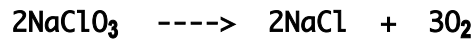
7) Which pH has the highest hydronium ion concentration?

- 1) 2
- 2) 4
- 3) 12
- 4) 10

8) Speed is measured in the unit

- 1) s
- 2) m
- 3) m/s²
- 4) m/s

9) What kind of reaction is the following?



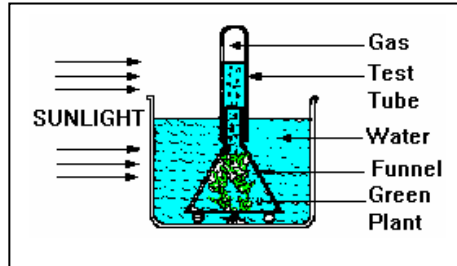
- 1) synthesis
- 2) single replacement
- 3) double replacement
- 4) decomposition

10) Which pH has the highest hydronium ion concentration?

- 1) 2
- 2) 4
- 3) 12
- 4) 10

Science Grade 8 - Part 3

1) Base your answer to the question on the diagram.



Which gas is absorbed from the water when the green plant is in the dark?

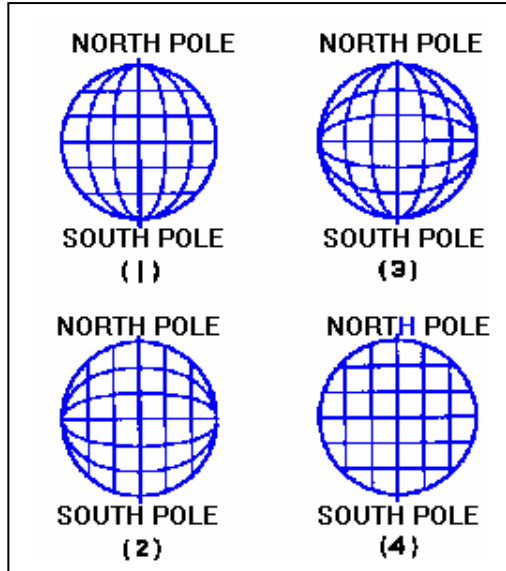
1. oxygen
 2. carbon dioxide
 3. ammonia
 4. nitrogen
- 2) The Arctic fox has fur that is brown and thin in summer. In winter its fur grows white and thick. This color change is an example of
1. adapting to its environment
 2. conserving body heat energy
 3. being attracted to a mate
 4. exchanging materials with its surroundings
- 3) To determine the effect of exercise on breathing rate, students will run around the track. The two measurements that should be taken are
1. the breathing rate before running and the distance around the track.
 2. the breathing rate after running and the time it takes to go around the track.
 3. the time spent running and the distance around the track.
 4. the breathing rate before running and the breathing rate after running
- 4) What type of rocks are laid down in a series of layers?
1. igneous
 2. quartz
 3. metamorphic
 4. sedimentary
- 5) A person is at home when a thunderstorm occurs. What should the person do?
1. Open all the doors and windows and stay inside.
 2. Close all the doors and windows and stay inside.
 3. Go outside and stand under a large tree.

4. Go outside and stay in an open area.

6) When a metal spoon is placed in hot coffee, it soon becomes hot illustrates

- 1. conduction
- 2. reflection
- 3. convection
- 4. radiation

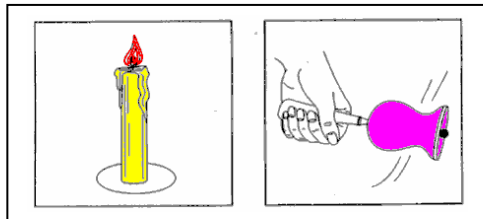
7) The diagrams represent four systems of imaginary lines that could be used to locate positions on a planet. Which system is most similar to the latitude-longitude system used on the earth?



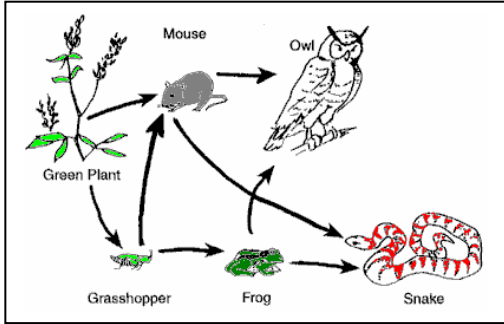
Science Grade 8 Part 4

1) What is the function of the kidneys?
What is the shape and location of the kidneys?
What is the function of the bladder?

2) Base your answer to the question on the diagram below, which show two situations in which energy transformations are occurring.



- A) As the candle burns, which energy transformation occurs?
 B) As the bell rings, what energy transformation occurs?
- 3) Base your answer to the question on the food web shown below.



- A) Identify a producer in this food web.
 B) Identify an herbivore in this food web.
 C) Identify a carnivore in this food web.
 D) Identify an omnivore in this food web.
 E) Explain why removing the snake from this food web might result in a decrease in the grasshopper population.

4) A student plays tennis several times a week. She notices that the tennis ball seems to bounce higher on some courts than on other courts. She wonders if this has something to do with the surface of the court. Design an experiment to see if her hypothesis is correct. Include these elements in your response.

- * State the hypothesis.
- * Identify the factor to be varied.
- * Identify two factors that should be held constant.
- * Clearly describe the procedures.

5) Describe the rotation movement of the Earth.

Science Grade 8 - Part 1 Topics

Adaptations in Nature
 Air Masses
 Atomic Mass
 Atomic Number
 Atom Parts

Interpreting Topographic Map
 Lab Equipment
 Light - Absorption
 Meiosis
 Metamorphic Rocks

Cell
Chemical Change
Continental Crust - Plates
Counting Atoms and Molecules
Density
Erosion and Deposition
Earth's Atmospheric Layers
Earth's Layers
Earthquakes
Ecosystems
Electric Circuits
Electric Transformers
Endocrine System
Environmental Factors
Exothermic - Endothermic Reactions
Extinction
Food Energy
Food Pyramid
Food Web
Force
Formula
Gravity
Green House Effect
Heredity
Homeostasis
Human Heart
Human Systems
Inclined Plane
Interpreting Bar Graph
Interpreting Chart
Interpreting Cartoons
Interpreting Graphs
Interpreting Images
Interpreting Information
Interpreting Lab

Mixture
Moon
Motion - Force
Nitrogen Cycle
Periodic Table
Phase Change
Physical States
Plants
Plate Tectonics
Pollution
Radio Waves
Refraction
Reproduction
Rock Cycle
Radio Waves
Refraction
Reproduction
Rock Cycle
Rock Types
Safety
Scientific Process
Scientists
Seasons
Sediments
Solar System
Sound
Species Variation
Spectrum
Suspension
Tundra
Weather
Windmills
Mixture
Moon
Motion - Force

Interpreting Map
Interpreting Tables
Interpreting Topographic Map
Lab Equipment
Light - Absorption
Meiosis
Metamorphic Rocks

Nitrogen Cycle
Periodic Table
Phase Change
Physical States
Plants
Plate Tectonics
Pollution

Science Grade 8 - Part 2 Topics

Gravity
Friction
Unit of Force
Mass
Weight
Force
Speed
Acceleration
Velocity
Falling Objects
Inertia
Air Resistance
Action & Reaction
Centripetal force
Laws of Motion - Application
Newton's First Law of Motion
Newton's Second Law of Motion
Momentum
Escape velocity
Weightlessness
Nature of Work
Unit of Work
Energy & Work
Potential Energy
Kinetic Energy
Conservation of Energy
Nature of Machines
Nature of Machines: Effort & Resistance
Nature of Machines: Input Work & Output Work
Nature of Machines: Efficiency
Machines: Mechanical Advantage
Power
Simple Machines
Levers - First Class

Halogens
Alloys
Metalloids
Uses of Metals & Nonmetals
Transition Elements
Photoconductors
Pollution
Equations: Synthesis
Equations: Single Replacement
Equations: Double Replacement
Equations: Analysis
Exothermic Reactions
Endothermic Reactions
Catalysts
Chemical Symbols
Counting Atoms
Formulas
Formula Writing
Hydrate & Anhydrate Compounds
Binary Compounds
Chemical Equations
Balancing Equation
Gram Formula Mass
Gram Molecular Mass
Solutions
Solution Process
Suspensions
Gas(Aqueous)
Equilibrium
Electrolytes
Dissociation
Unsaturated - Saturated - Supersaturated
Factors Affecting Boiling & Freezing Points
Polar molecules

Levers - Second Class
Levers - Third Class
Compound Machine
Inclined Plane
Transverse Waves
Refraction
Reflection
Incident Ray
Frequency
Electromagnetic Energy
Light Energy
Types of Waves
Color
Speed of Light
Polarized Light
Interference
Reflection
Microscope
Telescopes
Stereo Microscope
Refraction
Optical Fibers
Plane Mirror
Concave Lens
Convex Lens
Types of Images: Movie Screen
Index of Refraction
Lasers
Radio Waves
Microwaves
X-Rays
Fluorescence
Uses - Ultraviolet and Infrared Waves
Matter & Heat
Particles & Kinetic Energy
Expansion & Contraction of Materials
Vapor Pressure
Change of Phase
Direction of Phase Change
Temperature
Average Kinetic Energy of Particles
Temperature Change
Measurement of Temperature
Direction of Heat Flow
Methods of Heat Flow
Insulation
Conduction
Radiation - Uses
Convection
Radiation

Acids
Neutralization
pH
Indicators
Acid & Basic Anhydrides
Bases
Colloids
Organic Compounds
Allotropes of Carbon
Silicon
Tin & Germanium
Alloys of Lead
Bonding in Organic Compounds
Hydrocarbons
Alkanes
Alkenes
Alkynes
Unsaturated Compounds
Isomers
Substitution Reactions
Alcohols
Organic Acids
Saponification - Esterification
Carbohydrates
Proteins
Polymers
Fats
Vitamins
Food Spoilage
Determines a Quantitative Relationship
Determines a Qualitative Relationship
Power Plants
Acid Rain
Air Pollution
Thermal Pollution
Land Pollution
Land Reclamation
Fossil Fuels
Oil
Natural Gas
Nonrenewable Resources
Solar Energy
Renewable Resources
Biomass
Wind Power
Nuclear Energy
Nuclear Power & Environmental Impact
Geothermal Power
Tidal Power
Science and Technology

Insulators
Gay Lussac's Law
Charles's Law
Boyle's Law
Pressure
Unit of Pressure
Refrigeration & Heat Pumps
Magnets: Poles
Magnets: Attraction & Repulsion
Materials Attracted by Magnets
Electroscope
Static Electricity
Production of Static Electricity
Electrical Insulators
Characteristics of Electric Current
Types of Electric Current
Measuring Electric Power
Wet Cell
Ohm's Law
Parallel & Series Circuits
Transistors
Radar & TV
Integrated Circuits
Computers
Motion in a Magnetic Field
Magnetism: Electricity
Safety - Electricity
Radioactive Elements
Radioactive Isotopes
Radioactive Decay
Radiation Separation
Half Life of Radioactive Elements
Detection of Radioactivity
Fission
Fusion
Waves
Properties of Sound
Longitudinal(Compressional) Waves
Sound: Frequency
Sound: Range
Sound: Pitch
Doppler Effect
Sound Quality: Overtones
Amplitude of Sound Waves
Sound: Measurement
Absorption & Reflection
Sound: Music
Sound: Noise
Hearing Loss
Ultrasound

Relationship of Science and Technology
Technology as a System
Technology in Use
Technology and Decision Making
Matter
Classes of Matter
Elements
Compounds
Crystals
Solids
Liquids
Gases
Plasma
Homogenous Mixtures
Heterogeneous Mixtures
Density
Specific Gravity - Specific Heat
Freezing/Melting Point
Boiling/Condensation Point
Physical Change
Physical Properties
Sublimation
Chemical Properties
Chemical Change
Atom - Nucleus
Atomic Number
Neutral Atoms
Atomic Mass
Energy Levels
Isotopes
Electrons
Ion Formation
Covalent Bonding
Chemical Bonds
Oxidation Number
Polyatomic Atoms
Macromolecule
Metallic Bond
Periodic Table
Periodic Table: Periods
Periodic Table: Families
Allotropes
Chemical Activity
Properties of Metals
Properties of Nonmetals
Metals - Corrosion
Noble Elements
Alkali & Alkali Earth Elements

Performs Numerical Calculations
Interprets Data in Graphs/Tables/Diagrams
Safety in the Laboratory
Laboratory Equipment
Use of Laboratory Tools
Technology Processes or Devices - Environment
Interaction of Science - Technology - Society
Making Decisions About Technology
Household Chemicals: Toxic Vapors
Household Chemicals: Mixing Household Chemicals
Household Chemicals: Aerosols
Health Practices & Household First Aids Rules
Household Chemicals: Tops on Containers

Science Grade 8 Part 3 Topics

Essential Elements of Living Things	Air Pollution
Living Things - Need for Movement	Resources
Living Things - Need for Energy	Conservation
Living Things - Need for Water	Geothermal Energy
Living Things - Need for Food	Synfuel
Living Things - Irritability	Solar Energy
Living Things - Continuance of Life	Wind Energy
Living Things - Excretion	Earthquakes
Living Things - Respiration	Air Masses
Living Things - Reproduction	Low pressure Areas
Survival and the Environment	Fronts
Adaptation and the Environment	Isobars & Isotherms
Classification	Atmospheric Pressure
Protists - Examples	Water Vapor
Life Cycles	Weather Forecasting
Plants - Roots	Atmospheric: Nitrogen & Oxygen
Plants - Stems	Atmospheric: Water
Plants - Leaves	Atmospheric: Air Constituents
Plants - Guard Cells	Environment: Humans
Plants - Transpiration	Air Pollutants
Plants - Photosynthesis	Disposal of Substances
Plants - Tropisms	Air Movement: Unequal Heating
Plants - Respiration	Conduction
Carbohydrates	Convection
Fats	Radiation
Proteins	Humidity
Minerals	Condensation & Sublimation Nuclei
Asexual Reproduction - General	Dewpoint & Frost

Flowering Plants - Pistil
Flowering Plants - Stamens
Flowering Plants - Pollination
Seeds - Germination
Animal - Reproduction
Interdependence of Living Things
Succession
Ecosystem
Food Chain
Producers
Consumers
Decomposers
Food Web
Disturbance of Nature's Balance
Disturbance of Nature's Balance - Man
Necessity of Conservation
Soil Problems and Conservation
Fossil Fuels
Nuclear Energy
Moving Water
Land Pollution
Nuclear Pollution
Thermal Pollution
Air Pollution
Renewable and Nonrenewable Resources
Solar Energy
Geothermal Energy
Forest Resources
Wildlife Resources
Environmental Management
Designs a Controlled experiment
Results of the Investigation
The Cell
Tissues
Organs
System
Skeletal System
Cartilage
Types of Muscles - Skeletal Muscle
Types of Muscle - Smooth Muscle
Types of Muscle - Cardiac Muscle
Nervous System
Sensory Neurons

Forms of Precipitation
Hydrologic Cycle
Lightning
Thunderstorms
Tornados
Hurricanes
Blizzards
Sunburn
Determines a Quantitative Relationship
Determines a Qualitative Relationship
Earth's Rotation
Earth's Movement
Seasons
Gravity & Gravitational Attraction
Spring Equinox
Fall Equinox
Visible Stars
Phases of the Moon
Lunar Eclipse
Solar Eclipse
Tides
Size Comparison - Solar Universe Objects
Distances - Solar Universe Objects
Sun's Energy
Sun Spots
Planets: Earth
Meteor
Comets
Aircraft Navigation in Air
Aircraft Instruments
Forces affecting Space Flight
Returning to Earth
Satellites
Future Space Programs
Performs Numerical Calculations
Gravity
Friction
Unit of Force
Mass
Weight
Laws of Motion: Action & Reaction
Centripetal force
Horizontal Force

Spinal Cord	Potential Energy
Motor Neurons	Kinetic Energy
Sensory Neurons	Conservation of Energy
Sense organs and Taste	Nature of Machines: Efficiency
Simple Reflex	Power
Stimulus - Response	Simple Machines
Endocrine System	Levers - First Class
Thyroid Gland	Transverse Waves
Adrenal Gland	Refraction
Pituitary Gland	Reflection
Pancreas	Electromagnetic Energy
Digestive System	Light Energy
Digestion - Mouth	Color
Digestion - Enzymes	Reflection
Digestion - Stomach	Plane Mirror
Digestion - Small Intestine	Concave Lens
Digestion - Large Intestine	Index of Refraction
Measuring Energy	Ultraviolet Waves - Infrared Waves
Diffusion	Matter & Heat
Osmosis	Expansion & Contraction of Materials
Circulatory System	Change of Phase
Circulatory System - Heart	Direction of Phase Change
Blood Circuits - Pulmonary Circulation	Average Kinetic Energy of Particles
Blood Circuits - Systemic Circulation	Direction of Heat Flow
Blood Vessels - Arteries	Insulation
Blood Vessels - Veins	Conduction
Plasma	Convection
Red Blood Cells	Radiation
White Blood Cells	Pressure
Blood Platelets - Blood Clotting	Magnets: Attraction & Repulsion
Lymph	Static Electricity
Environment - Respiratory System	Electrical Insulators
Respiration With Oxygen	Safety - Electricity
Excretory System	Radiation - USES
Excretory System - Skin	Fission
Excretory System - Lungs	Fusion
Excretory System - Kidneys	Properties of Sound
Excretory System - Large Intestine	Compressional Waves
Reproductive System	Sound: Frequency
Reproductive System - Male	Sound: Measurement
Reproductive System - Female	Sound: Music
Cell Theory	Hearing Loss
Cell Membrane	Determines a Qualitative Relationship

Nucleus
Plants - Cell Parts - Chlorophyll
Mitosis
Chromosomes
Inherited Traits
Bacteria
Virus
Transmission of Diseases
Body Defense - Structural Defenses
Antibodies & Antigens
Active Acquired Immunity
Disinfectants - Chemotherapy
Diseases - Virus
Decay of Plants
Control of Undesirable Microbes
Mineral Identification
Cooling & Hardening of Magma
Igneous Rocks
Rocks: Identifying Characteristics
Sedimentary Rocks
Metamorphic Rocks
Ocean: Mapping
Continental Shelf
Longitude
Latitude
Destructional Forces: Weathering
Destructional Forces: Chemical
Destructional Forces: Plants
Soil Formation
Erosion
Stream Erosion
Landslides
Rivers
Regions of Wind Activity
Wind Erosion
Glaciers
Classes of Shorelines
Earthquakes
Theory of Isostasy
Continental Drift Theory
Evidence of Continental Drift
Major Landforms: Mountains
Extrusive Rocks

Determines a Quantative Relationship
Safety in the Laboratory
Laboratory Equipment
Use of Laboratory Tools: Glassware
Household Chemicals: Toxic Vapors
Mixing Household Chemicals
Household Chemicals: Aerosols
Household First Aids Rules
Household Chemicals: Tops on Containers
Matter
Classes of Matter
Elements
Compounds
Solids
Liquids
Gases
Homogenous Mixtures
Heterogeneous Mixtures
Freezing/Melting Point
Boiling/Condensation Point
Physical Properties
Chemical Properties
Chemical Change
Pollution
Exothermic Reactions
Endothermic Reactions
Solutions
Food spoilage
Calorie
Power Plants
Acid Rain
Air Pollution
Land Pollution
Thermal Pollution
Land Reclamation
Fossil Fuels
Oil
Energy Consumption
Nonrenewable Resources
Solar Energy
Renewable Resources
Biomass
Wind Power

Fossil Content
Interpretation of fossils
Air Pollution
Acid Rain
Commercial Solutions to Pollution
Environmental Recycling
Environmental Solutions
Environment & Humans
later Pollution

Nuclear Energy
Geothermal Power
Tidal Power
Science and Technology
Relationship of Science and Technology
Making Decisions About Technology
Science and Technology
Technology as a System
Technology in Use
Technology and Decision Making

Designs an Observation/Measurement Procedure
Interprets Data in Graphs - Tables - Diagrams
Technology Processes or Devices - Environment
Interaction of Science - Technology - Society
Interprets Data in Graphs - Tables - Diagrams

Science Grade 8 Part 4 Essay Topics

Binary Fission
Climate
Digestive System
Earth Science
Earth's Motions
Energy Transformation
Excretory system
First Aid
Food Web
Health Habits
Interpreting Graphs
Interpreting Information
Liver
Mountains
Physical and Chemical Change
Plant Life Cycle
Punnet Square
Scientific Process
Spring
Water on Earth
Weather

