ELD SCIENCE UNITS GRADE 6

Acknowledgements

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A special thank-you goes to: Lucia Costache, Frank DiPietro, Manon Pageau-Lane, Nizar- El Kadri and Wanda Borré

SCIENCE UNIT INTRODUCTORY PAGE

Grade 6- Understanding Life Systems: Biodiversity

Strand	Reference	Materials
Understanding Life Systems: Biodiversity	**Lesson 1** Understanding Life Systems	**Activity 1** BLMs 8; Samples of fresh fruit such as apples, pears, peaches, oranges. Useful Websites: http://www.myschoolhouse.com/courses/O/1/66.asp
	Lesson 2 Parts of a Plant	**Activity 2** BLMs for Lesson 2; BLM6a, 6b, 7 Sample of plants such as bedding plants. Content Essentials Black line Masters A: P. 10,11, Parts of a Plant; P.13
	Lesson 3 Classifying Animals	**Activities** - BLM5 - pictures of invertebrates; live lobster or mini crabs in an aquarium Content Essentials Black line Masters A: P.13 Habitats; P. 16: Types of Animals; Content Essentials Book B: Black line Masters: P. 9, Animal Groups; Parts of an Ecosystem; Content Essentials Book C: P. 41, Ecosystems;
	Lesson 4 Parts of an Insect	**Activities** - BLM 9, 1, 2a, 2b, 3a, 3b, 4a, 4b Content Essentials Black line Masters A: P. 18

Unit Plan - ELD Science and Technology

Grade: 6

Strand: Understanding Life Systems

Title: Biodiversity

Overall Expectations	Big Ideas
By the end of Grade 6, students will: 1. Assess human impacts on biodiversity, and identify ways of preserving biodiversity; 2. Investigate the characteristics of living things, and classify diverse organisms according to specific characteristics; 3. Demonstrate an understanding of biodiversity, its contributions to the stability of natural systems, and its benefits to humans	Big Ideas: Biodiversity includes diversity of individuals, species, and ecosystems. Sustainability and Stewardship Big Ideas: • Classification of the components within a diverse system is a beginning point for understanding the interrelationships among the components. (Overall expectations 2 and 3) • Because all living things are connected, maintaining diversity is critical to the health of the planet. (Overall expectations 1 and 3) • Humans make choices that can have an impact on biodiversity.
Specific Expectations	Specific Expectations Modified
1. Relating Science and Technology to Society and the Environment: By the end of Grade 6, students will: 1.1 Analyse a local issue related to biodiversity (e.g., the effects of human activities on urban biodiversity, flooding of traditional Aboriginal hunting and gathering areas as a result of dam construction.)	Demonstrate an understanding of a living habitat.

1.2 Assess the benefits that human societies derive from biodiversity (e.g., thousands of products such as food, clothing, medicine, and building materials come from plants and animals) and the problems that occur when biodiversity is diminished (e.g., monocultures are more vulnerable to pests and diseases)	Not attainable.
2. Developing Investigation and Communication Skills By the end of Grade 6, students will:	
2.1 Follow established safety procedures for outdoor activities and field work (e.g., stay with a partner when exploring habitats; wash hands after exploring a habitat)	Modification not necessary.
2.2 Investigate the organisms found in a specific habitat and classify them according to a classification system	Demonstrate an understanding of parts of a flower plant.
2.3 Use scientific inquiry/research skills (see page 15) to compare the characteristics of organisms within the plant or animal kingdoms (e.g., compare the characteristics of a fish and a mammal, of coniferous and deciduous trees, of ferns and flowering plants)	Not attainable for student who are just learning basic vocabulary.
2.4 Use appropriate science and technology vocabulary, including classification, biodiversity, natural community, interrelationships, vertebrate, invertebrate, stability, characteristics, and organism, in oral and written communication	Use oral and graphic forms of communication to communicate knowledge.
2.5 Use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., use a graphic organizer to show comparisons between organisms in various communities).	

3.1 Identify and describe the distinguishing characteristics of different groups of plants and animals (e.g., invertebrates have no spinal column; insects have three basic body parts; flowering plants produce flowers and fruits), and use these characteristics to further classify various kinds of plants and animals (e.g., invertebrates – arthropods – insects; vertebrates – mammals – primates; seed plants – flowering plants – grasses)	Demonstrate an understanding of parts and function of an insect.
3.2 Demonstrate an understanding of biodiversity as the variety of life on earth, including variety within each species of plant and animal, among species of plants and animals in communities, and among communities and the physical landscapes that support them	Not attainable for student who are just learning basic vocabulary.
3.3 Describe ways in which biodiversity within species is important for maintaining the resilience of those species (e.g., because of genetic differences, not all squirrels are affected equally by infectious diseases such as mange; some species of bacteria have become resistant to antibiotics because resistant individuals have survived and reproduced)	Not attainable for student who are just learning basic vocabulary. Not attainable for student who are just learning basic vocabulary.
3.4 Describe ways in which biodiversity within and among communities is important for maintaining the resilience of these communities (e.g., having a variety of species of wheat allows for some part of the crop to survive adverse conditions)	Not attainable for student who are just learning basic vocabulary.
3.5 Describe interrelationships within species (e.g., wolves travel in packs to defend their territory, raise their cubs, and hunt large prey), between species (e.g., the brightly-coloured anemone fish protects its eggs by laying them among the poisonous tentacles of the sea anemone, and in	

return the fish's bright colours attract prey for the anemone to eat; birds and bees take sustenance from plants and carry pollen between plants), and between species and their environment (e.g., algae and water lilies compete for sunlight in a pond), and explain how these interrelationships sustain biodiversity 3.6 Identify everyday products that come from a diversity of organisms (e.g., traditional pain relievers are derived from the bark of the white willow tree; tofu is made from soybeans; silk is made from silkworm cocoons; nutritional supplements, shampoos, toothpastes, and deodorants contain pollen collected by bees) 3.7 Explain how invasive species (e.g., zebra mussel, Asian long-horned beetle, purple loosestrife) reduce biodiversity in local environments	Not attainable for student who are just learning basic vocabulary. Not attainable for student who are just learning basic vocabulary. *Curriculum expectations may not be appropriate for all students who are learning the language, especially those who are in the early stages of second language development.
Links to Prior Knowledge **Students may have a first hand experience or knowledge of one or more of the following:** -plants and insects -healthy animal habitat	

Modified Activities for ELD	Vocabulary/Language Prompts
Activity 1: Parts of a fruit: Explore parts of fruits as a part of a healthy snack. Label the parts of common fruits. Complete attached worksheet. Language prompts: Point to the skin. Where is the seed? We eat the flesh of the fruit.	fresh, skin, seeds
Activity 2: Parts of a plant: Using the worksheet provided, students label parts of a plant. Play the matching game as a group. Language Prompts: Plants are living things. Where are the roots? Leaves are green.	stems, leaves, roots, flower
Activity 3: Classifying Animals: Vertebrates, Invertebrates Using the labelling worksheet, student will label their own diagram- see attachment 1 and 2. Language Prompts: Invertebrates bones on the insides. Vertebrates have their bones on the outside. Human are vertebrates, a crab is a invertebrates.	Vertebrates, crabs, invertebrate, humans

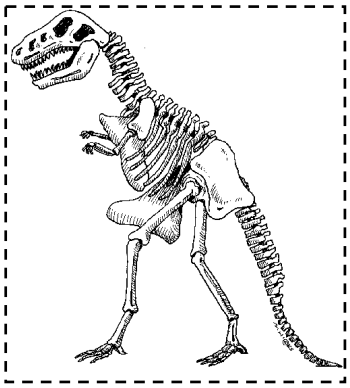
Activity 4: Parts of an Insect: Students will learn the parts of an insect by labelling the diagram. Language prompts: This is a bee. The bee buzzes. Where is the stinger Connection to "Content Essentials" Content Essentials Black line Masters A: P. 10,11, Parts of a Plant; P.13 Habitats; P. 16: Types of Animals; P. 18, Insects. Content Essentials Book B: Black line Masters: P. 9, Animal Groups; P. 16, Parts of Plants; P. 20, What flowers do; P. 31, Parts of an Ecosystem; Content Essentials Book C: P. 41, Ecosystems; Useful Websites: http://www.myschoolhouse.com/courses/O/1/66.asp	Abdomen, legs, head, thorax, stinger,

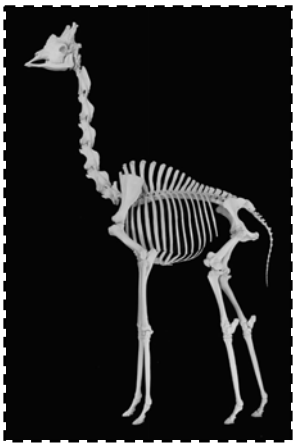
Assessment of Learning	*Assessment for Learning*	*Assessment as Learning*
• Peer assessment • Teacher rubric • ESL Support teacher assessment using L1 if possible • Re-telling • Role plays/demonstrations	• Teacher observations including anecdotal • Student teacher conferences • Peer groupings • Cloze exercises • Sequence and matching exercises	• ESL Buddy Assessment • Self assessment checklist

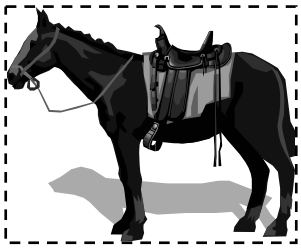
Levels of Thinking and Language Function	Preproduction (non verbal response) PROMPTS: **Show Me, Circle the, Where is, Who has, Draw, Label**	Early Production (one word response) PROMPTS: **Yes/No, Either/Or, Who, What and How**	Speech Emergence (Phrase or short sentences) PROMPTS: **Why, How, Explain, questions requiring a short sentence response**
Evaluation *Appraise, assess, attach, choose, compare, defend, estimate, judge, predict, select, support, value, evaluate*	Assess Rate Select Choose Attach	+ Compare Estimate Value	+ Predict Evaluate Examine Judge
Synthesis *Arrange, assemble, collect, compose, construct, create, design, develop, formulate Manage, organize, plan, prepare, propose, set up*	Plan Construct Collect Assemble Arrange	+Organize Set up Design	+ Create Compose Develop Formulate
Analysis *Analyze, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test*	Categorize Test Examine	+ Contrast Experiment Differentiate	+ Compare Criticize Discriminate Question Distinguish
Application *Apply, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use*	Dramatize Choose Illustrate Practice Sketch	+ Demonstrate Employ Schedule	+ Apply Interpret Operate Use Solve
Comprehension *Classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate*	Classify Locate Select	+ Describe Identify Indicate Recognize	+ Express Restate Review
Knowledge *Arrange, order, define, duplicate, label, name, recognize, relate, recall, repeat, reproduce*	Label Order Arrange Draw Match	+ Name Recognize Repeat	+ Define Reproduce Recall

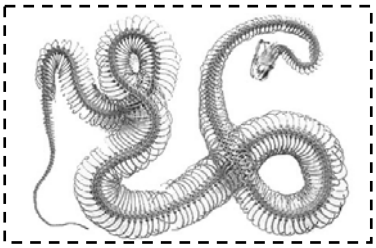
Name: Match skeletons to the animal

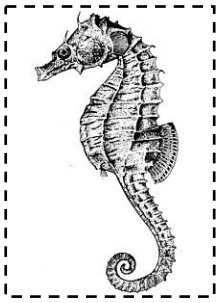
Cut out and stick the skeletons next to the correct animals then label them on graphic organizer.

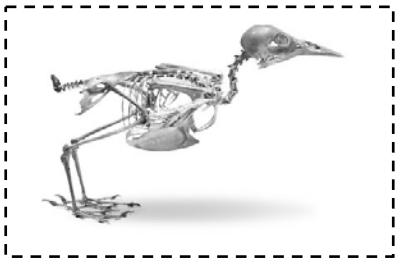


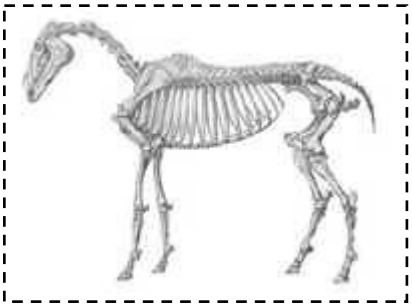


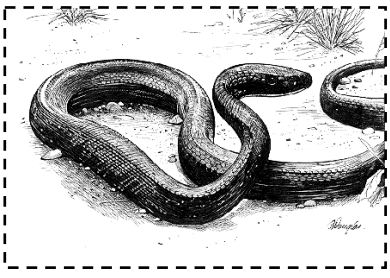










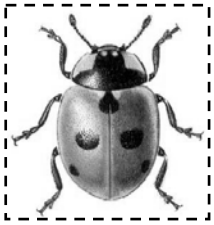


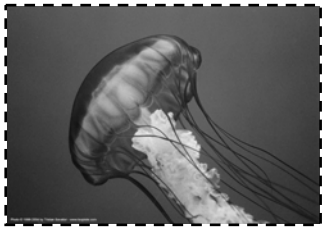
Sort different skeleton types

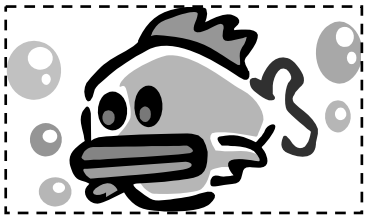
Sort the animals on your picture sheet into the three skeleton types, then cut out the chart and stick it in your science book, don't forget your name & date!

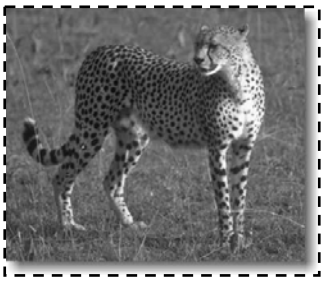
Endo-skeletons (internal skeletons like you and me!)	Exo-skeletons (like a beetle)	Invertebrates with hydrostatic-skeletons (like an earth worm)

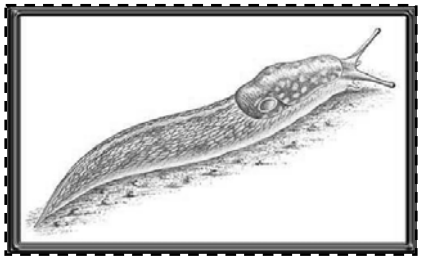
Sort the animals using skeleton types sheet

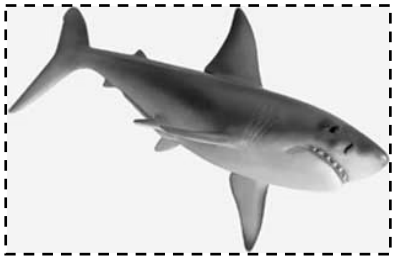


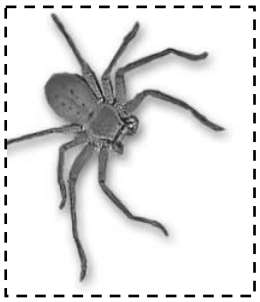


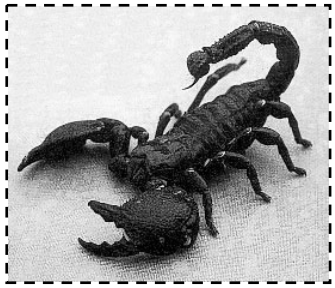








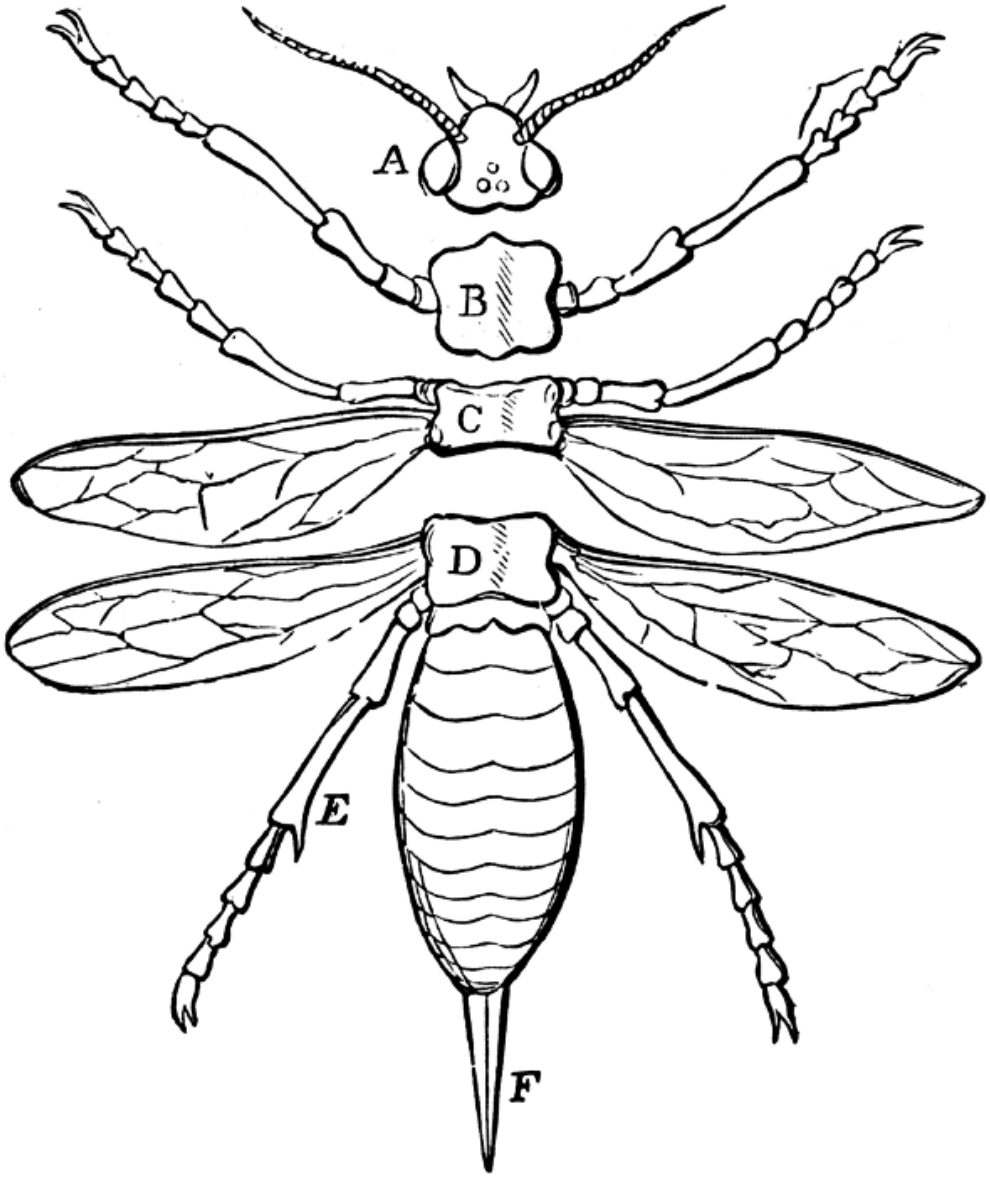




Hint! There are four(4) endo-skeletons, four (4) exo-skeletons and three (3) hydrostatic skeletons

Name:_____ **Parts of an Insect: Label its parts.**

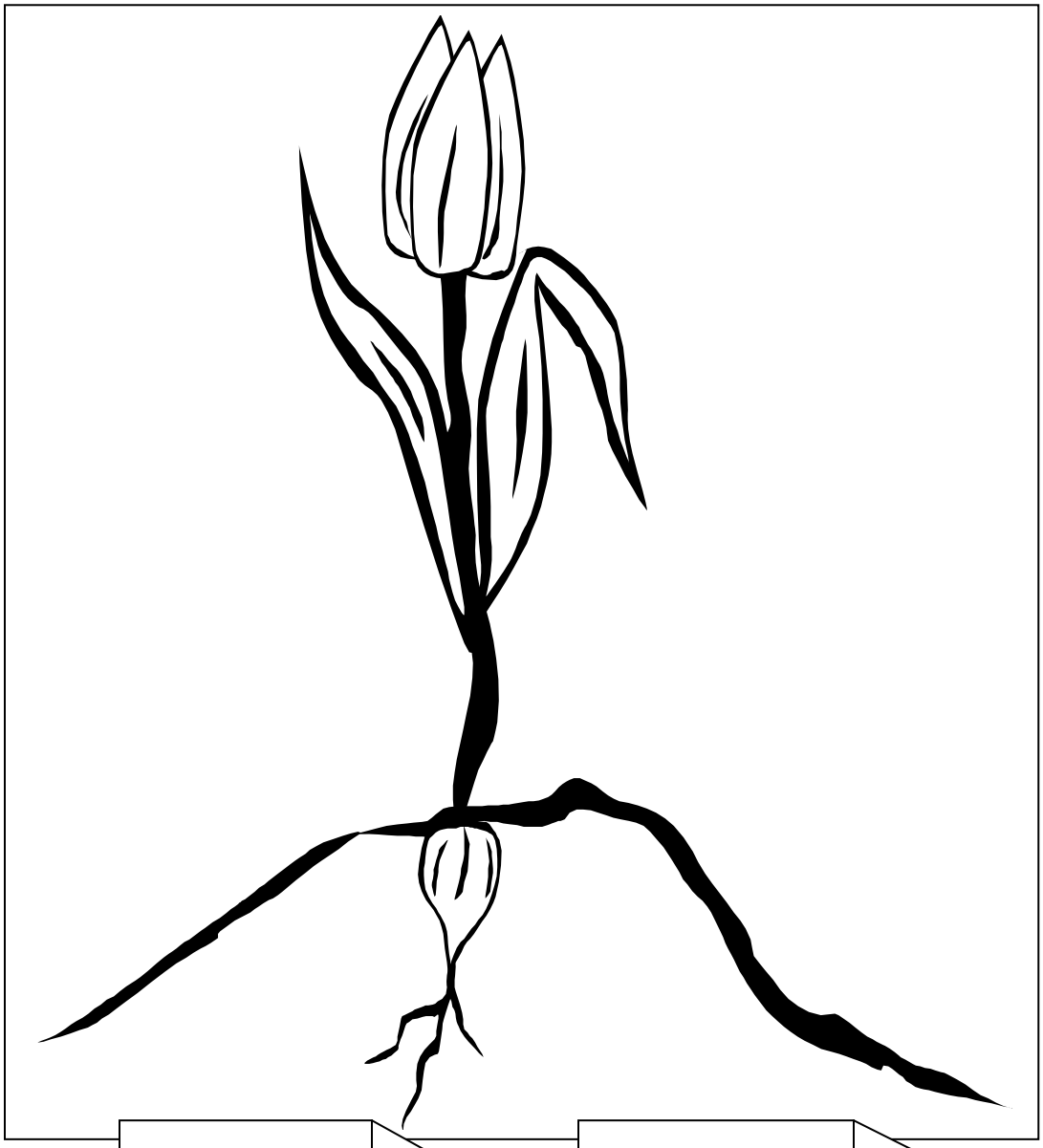
Word Bank: Head, thorax, stinger, wing, leg, abdomen



A. _____
B. _____
C. _____
D. _____
E. _____
F. _____

Name: _____ Label the Parts of A Plant

The Parts of a Plant



Stem

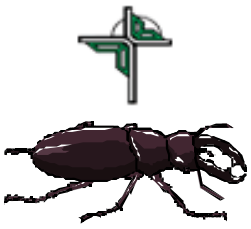
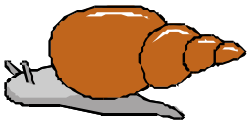
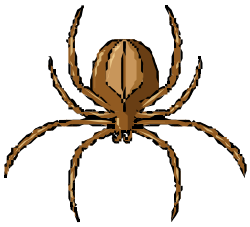
Leaves

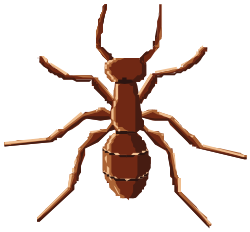
Roots

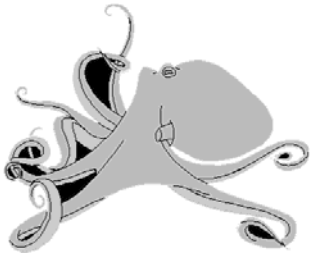
Flower

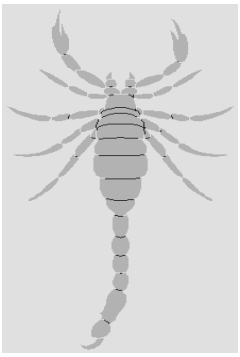
Classification of Invertebrates

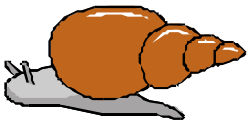
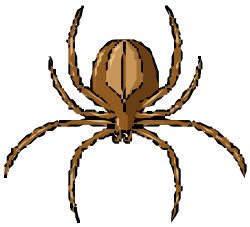
Insects	Arachnids	Molluscs
six legs, three body parts, e.g. ants, wasps, butterfly	legs, two body parts e.g. spiders, scorpion,	slimy foot, often have a shell e.g. snails, octopus, slugs

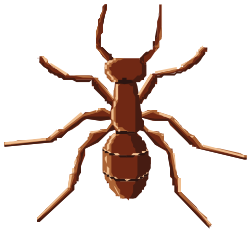




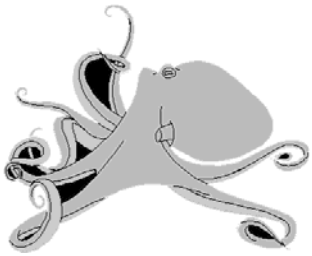


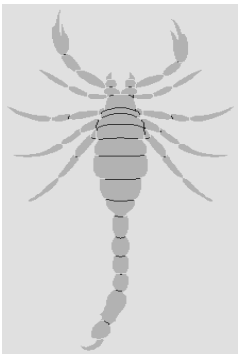










SCIENCE UNIT INTRODUCTORY PAGE

Grade 6- Understanding Structures and Mechanisms: Flight

Strand	Reference	Materials
Understanding Structures and Mechanisms: Flight	**Lesson 1** Parts of a Bird	**Activity 1** - BLM 1 - Picture Dictionary - Connection to **"Content Essentials"** Science book: **Content Essentials Black line Masters A**: P. 36 Parts of a Bird Handbook C Black line Masters P. 24 Birds
	Lesson 2 Parts of a Plane	**Activity 2** - BLM 2 ; - Model of plane used in Lesson 3 - pictures of airplanes; dollar store foam airplane to build
	Lesson 3 Build a Plane	**Activities** - pictures of airplanes; dollar store foam airplane to build
	Lesson 4 Properties of Air	- BLMs 3, - images and samples of things that need air to move: airplane, balloon, windmill

Unit Plan - ELD Science and Technology

Grade: 6

Strand: Understanding Matter and Energy

Title: Flight

Overall Expectations	Big Ideas
By the end of Grade 6, students will: 1. Assess the societal and environmental impacts of flying devices that make use of properties of air; 2. Investigate ways in which flying devices make use of properties of air; 3. Explain ways in which properties of air can be applied to the principles of flight and flying devices.	Structure and Function: Flight occurs when the characteristics of structures take advantage of certain properties of air. Matter: Big Ideas: Air has many properties that can be used for flight and for other purposes.

Specific Expectations	Specific Expectations Modified
1.1 Assess the benefits and costs of aviation technology for society and the environment, taking different social and economic perspectives into account.	Not attainable for student who are just beginning to learn basic vocabulary.
2. Developing Investigation and Communication Skills By the end of Grade 6, students will:	
2.1 Follow established safety procedures for using tools and materials and operating flying devices (e.g., aim flying devices away from each other when launching them; fly kites and airplanes a safe distance from overhead hydro wires)	Modification not necessary.
2.2 Use scientific inquiry/experimentation skills (see page 12) to investigate the properties of air (e.g., air takes up space, has mass, can be compressed)	Not attainable for student who are just beginning to learn basic vocabulary.
2.3 Investigate characteristics and adaptations that enable living things to fly (e.g., a bat's wings are made up of long, thin bones covered with a very light membrane that forms an airfoil surface; insects can twist and turn their wings, which helps them to hover in the air or even fly backwards; some seeds, such as the keys of a maple tree or dandelion seeds, have parachutes or wings like a glider that allow them to be carried by the wind)	Demonstrate an understanding of parts of a bird.
2.4 Use technological problem-solving skills (see page 16) to design, build, and test a flying device (e.g., a kite, a paper	

airplane, a hot air balloon) 2.5 Use appropriate science and technology vocabulary, including aerodynamics, compress, flight, glide, propel, drag, thrust, and lift, in oral and written communication 2.6 Use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., using technological conventions, make a drawing of the flying device they constructed) 3. Understanding Basic Concepts By the end of Grade 6, students will: 3.1 Identify the properties of air that make flight possible (e.g., air takes up space, has mass, expands, can exert a force when compressed) 3.2 Identify common applications of the properties of air, such as its compressibility and insulating qualities (e.g., home insulation, tires, sleeping bags, layered clothing) 3.3 Identify and describe the four forces of flight – lift, weight, drag, and thrust 3.4 Describe, in qualitative terms, the relationships between the forces of lift, weight, thrust, and drag that are required for 3.5 Describe ways in which flying devices or living things use unbalanced forces to control their flight. 3.6 Describe ways in which the four forces of flight can be altered	**Students may have first-hand experience or** Demonstrate an understanding of building and flying a wooden model plane. Demonstrate an understanding of thrust, drag, lift, weight, wing, airplane, flight. Use oral and graphic forms to communicate an understanding of concepts. Demonstrate an understanding of properties of air. Not attainable for student who are just beginning to learn basic vocabulary. See 2.5 Not attainable for student who are just beginning to learn basic vocabulary. Not attainable for student who are just beginning to learn basic vocabulary. No modification necessary. **Curriculum expectations may not be appropriate for all students who are learning the language, especially those who are in the early stages of second language development.*
Links to Prior Knowledge **Students may have first-hand experience about the following**: -flight in an airplane., birds, balloons, kites, etc.	

Modified Activities for ELD	Vocabulary/Language Prompts
Activity 1: Parts of a Bird In this activity, students will work from the picture dictionary and label the important body parts of a bird. Emphasis should be placed on the wings to correlate to plane parts in the next activities. Language Prompts: Birds have wings and fly.	Bird, wing, eye, head, neck, feet. Wings
Activity 2: Plane Parts Using the matching activity sheets and an actual model of a plane labelled, students will review the parts of a plane and label the sheet. Students will also develop an understanding of the forces on a plane: drag, lift, Language Prompts: Airplanes fly with their wings.	Propeller, wing, aileron, wheel, tail
Activity 3: Build a Plane Students will assemble a wooden model of a single engine airplane using the diagrams provided in the kit. Language Prompts: Airplanes need wings to fly. They have tails and a propeller.	see above
Activity 4: Properties of Air In this activity students will identify things in their world that utilize air and circle them. Students are encouraged to search their picture dictionary for additional things that use air and add them to the worksheet. Language prompts: Things fly. Things float. Balloons hold air. Links to "Content Essentials" Handbook A P. 36 Parts of a Bird Handbook C Black line Masters P. 24 Birds	Balloon, airplane, bird, cloud, sailboat.

Assessment of Learning	*Assessment for Learning*	*Assessment as Learning*
• Peer assessment • Teacher rubric • ESL Support teacher assessment using L1 if possible • Re-telling • Role plays/demonstrations	• Teacher observations including anecdotal • Student teacher conferences • Peer groupings • Cloze exercises • Sequence and matching exercises	• ESL Buddy Assessment • Self assessment checklist

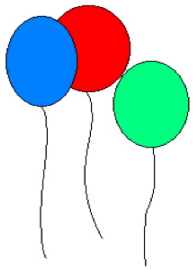
Levels of Thinking and Language Function	Preproduction (non verbal response) PROMPTS: **Show Me, Circle the, Where is, Who has, Draw, Label**	Early Production (one word response) PROMPTS: **Yes/No, Either/Or, Who, What and How**	Speech Emergence (Phrase or short sentences) PROMPTS: **Why, How, Explain, questions requiring a short sentence response**
Evaluation *Appraise, assess, attach, choose, compare, defend, estimate, judge, predict, select, support, value, evaluate*	Assess Rate Select Choose Attach	+ Compare Estimate Value	+ Predict Evaluate Examine Judge
Synthesis *Arrange, assemble, collect, compose, construct, create, design, develop, formulate Manage, organize, plan, prepare, propose, set up*	Plan Construct Collect Assemble Arrange	+Organize Set up Design	+ Create Compose Develop Formulate
Analysis *Analyze, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test*	Categorize Test Examine	+ Contrast Experiment Differentiate	+ Compare Criticize Discriminate Question Distinguish
Application *Apply, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use*	Dramatize Choose Illustrate Practice Sketch	+ Demonstrate Employ Schedule	+ Apply Interpret Operate Use Solve
Comprehension *Classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate*	Classify Locate Select	+ Describe Identify Indicate Recognize	+ Express Restate Review
Knowledge *Arrange, order, define, duplicate, label, name, recognize, relate, recall, repeat, reproduce*	Label Order Arrange Draw Match	+ Name Recognize Repeat	+ Define Reproduce Recall

Name: _____ **Things that Use Air**

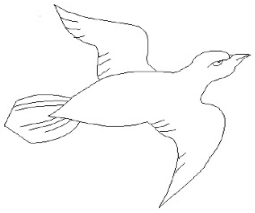
Word Bank:

balloons airplane bird sailboat clouds

Circle and Label the things that Use Air:







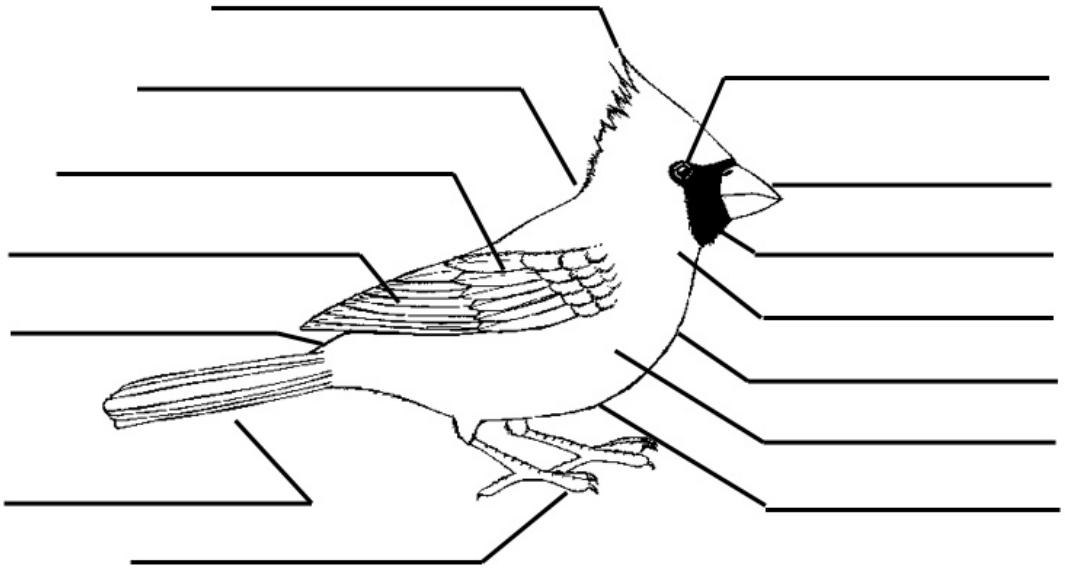

Name: _____ **Parts of a Bird**

Label the parts of a bird

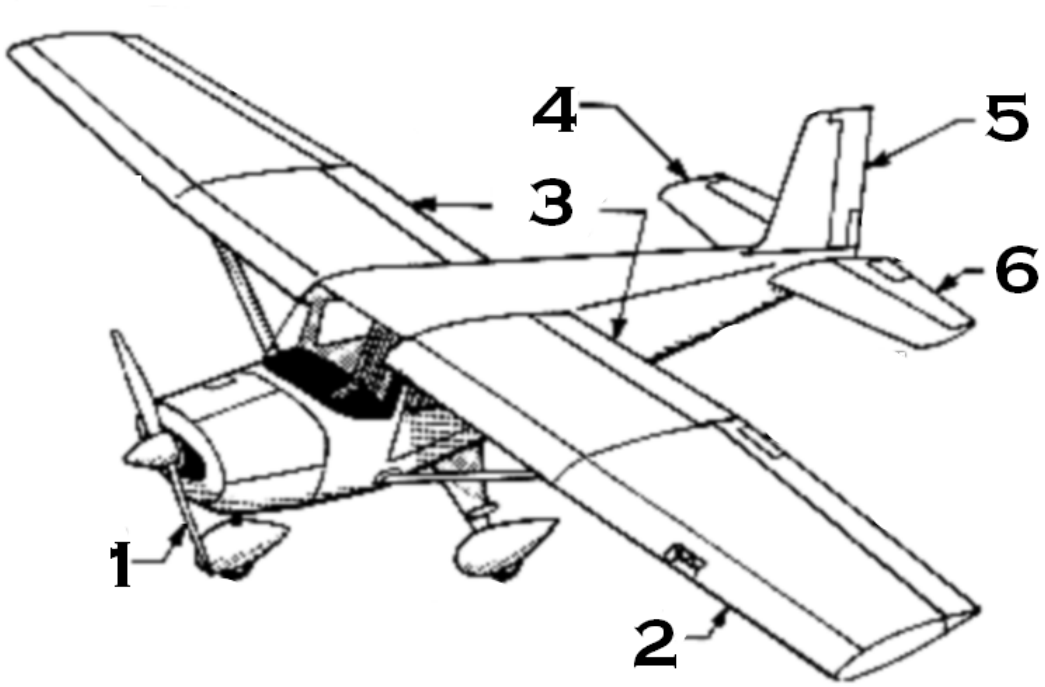
Word Bank:

wing head tail feathers wings eyes crown
neck breast beak feet body stomach back

Name the Parts of a Bird



Name: _____ **Parts of a plane**



Match the numbers to the plane parts:

____Propeller ____wing ____aileron ___tail ____rudder ____stabilizer

SCIENCE UNIT INTRODUCTORY PAGE

Grade 6- Understanding Matter and Energy: Electricity

Strand	Reference	Materials
Understanding Matter and Energy	**Lesson 1** Eight different ways to Generate Electricity	**Activity 1** BLM 1a,b; plastic hair combs BLM 8a, 8b
	Lesson 2 What kind of energy does it use?	**Activity 2** - BLM 8a, b; pictures of types of energy
	Lesson 3 How to build and label a series circuit	**Activities** - BLM 6a,b; 9a,b; Connection to "Content Essentials" Science book: Black line Masters B: P. 87, Current Electricity, Content Essentials Black line Masters C:P. 120, Current Electricity;
	Lesson 4 What is Static Electricity?	- BLM 2,3,4, balloons, sweater, water bottle, plastic hair comb, tissue paper. BLM 5, 7, 8 Connection to "Content Essentials" Science book: Black line Masters B: P. 86, Static Electricity, Content Essentials Black line Masters C: P. 119, Static Electricity,

Unit Plan - ELD Science and Technology

Grade: 6

Strand: Understanding Structures and Mechanisms

Title: Electricity and Electrical Devices

Overall Expectations	**Big Ideas**
By the end of Grade 6, students will: 1. Evaluate the impact of the use of electricity on both the way we live and the environment; 2. Investigate the characteristics of static and current electricity, and construct simple circuits; 3. Demonstrate an understanding of the principles of electrical energy and its transformation into and from other forms of energy.	Energy: Electrical energy can be transformed into other forms of energy. Systems and Interactions: Other forms of energy can be transformed into electrical energy. Sustainability and Stewardship: • Electrical energy plays a significant role in society, and its production has an impact on the environment. • Society must find ways to minimize the impact of energy production on the environment.
Specific Expectations	**Specific Expectations Modified**
1.1 Assess the short- and long-term environmental effects of the different ways in which electricity is generated in Canada (e.g., hydro, thermal, nuclear, wind, solar) 1.2 Assess opportunities for reducing electricity consumption at home or at school that could affect the use of non-renewable resources in a positive way or reduce the impact of electricity generation on the environment. 2.1 Follow established safety procedures for working with electricity (e.g., ensure hands are	Demonstrate an understanding of the 5 different ways electricity is generated: hydro, thermal, nuclear, wind and solar. Demonstrate an understanding of how to reduce electricity use. Modification not necessary.

completely dry when working with electricity; be aware of electrical hazards at home, at school, and in the community)	Demonstrate an understanding of how to build and label series and parallel circuits.
2.2 Design and build series and parallel circuits, draw labelled diagrams identifying the components used in each, and describe the role of each component in the circuit	Not attainable for students who are just beginning to learn basic vocabulary. Modification not necessary.
2.3 Use scientific inquiry/experimentation skills (see page 12) to investigate the characteristics of static electricity.	Not attainable for students who are just beginning to learn basic vocabulary.
2.4 Design, build, and test a device that produces electricity (e.g., a battery built from a lemon or potato; a wind turbine)	Demonstrate an understanding of appropriate terminology: battery, circuit, electricity, series, parallel.
2.5 Use technological problem-solving skills (see page 16) to design, build, and test a device that transforms electrical energy into another form of energy in order to perform a function (e.g., a device that makes a sound, that moves, that lights up)	Use oral and graphic forms to communicate.
2.6 Use appropriate science and technology vocabulary, including current, battery, circuit, transform, static, electrostatic, and energy, in oral and written communication	Modification not necessary.
2.7 Use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., using scientific and technological conventions, create a labelled diagram showing the component parts of the device they created to transform electrical energy into another form of energy and perform a function)	Demonstrate an understanding of static electricity.
3.1 Distinguish between current and static electricity	Not attainable for students who are just beginning to learn basic vocabulary.

3.2 Use the principles of static electricity to explain common electrostatic phenomena (e.g., the attraction of hairs to a comb that has been rubbed on a piece of wool; the attraction of small pieces of paper to a plastic ruler that has been rubbed with a rag; the attraction of pieces of clothing to each other when they come out of a clothes dryer)	Not attainable for students who are just beginning to learn basic vocabulary.
3.3 Identify materials that are good conductors of electricity (e.g., copper, gold, silver, aluminum, water [when it has a high mineral content]) and good insulators (e.g., glass, plastic, rubber, ceramics)	Not attainable for students who are just beginning to learn basic vocabulary. Label the components of a simple electrical circuit.
3.4 Describe how various forms of energy can be transformed into electrical energy (e.g., batteries use chemical energy; hydroelectric plants use water power; nuclear generating stations use nuclear energy; wind turbines use wind power; solar panels use energy from the sun; wave power stations use energy from ocean waves)	Not attainable for students who are just beginning to learn basic vocabulary.
3.5 Identify ways in which electrical energy is transformed into other forms of energy (e.g., electrical energy is transformed into heat energy in a toaster, light and sound energy in a television, mechanical energy in a blender)	Not attainable for students who are just beginning to learn basic vocabulary.
3.6 Explain the functions of the components of a simple electrical circuit (e.g., a battery is the power source; a length of wire is the conductor that carries the electrical current to the load; a light bulb or motor is the load)	***** *Curriculum expectations may not be appropriate for all students who are learning the language, especially those who are in the early stages of second language development.*
3.7 Describe series circuits (components connected in a daisy chain) and parallel circuits (components connected side by side like the rungs of a ladder), and identify where each is	

3.8 Describe ways in which the use of electricity by society, including the amount of electrical energy used, has changed over time (e.g., drying clothes in a dryer instead of using a clothesline; playing video games instead of playing board games; using electric lights instead of candles)	
Links to Prior Knowledge **Students may have first-hand experience or knowledge about one or more of the following:** Electricity may be a new experience for some newcomers.	

Modified Activities for ELD	**Vocabulary/Language Prompts**
Activity 1 Eight Different Ways to generate electricity Using the matching exercise, students identify and label the different ways in which electricity is produced. Language Prompts: The sun makes solar energy. When we turn on the lights we use hydro energy.	energy: solar, wind, nuclear, hydro, wave, coal, geothermal, oil
Activity 2: What kind of energy does it use? Using the matching exercise, students identify what kind of energy use occurs in their environment. Language Prompts: Gas runs our car. The dog eats dog food for energy. What burns in the fire?	gasoline, wind, electricity, food, wood, sun
Activity 3: How to build and label a series circuits: This activity should be a hands-on activity, materials like a battery, wire, and a small light bulb. The symbol sheet provided is also useful for drawing the circuit once the student has used the manipulatives. Students can use the worksheet provided and follow the diagram.	Wires, battery, bulb, connect, series

Language Prompts: The light goes on when you complete the circuit. **<u>Activity 4</u>**: What is static electricity? Using the stations provided on the worksheet, student will learn what conducts what does not conduct electricity. This is a hands-on activity best completed with a partner. Language Prompts: Static electricity pulls your hair to the comb. Connections to "<u>Content Essentials</u>" for Science: <u>Content Essentials Black line Masters B</u>: P. 86, Static Electricity, P. 87, Current Electricity, P. 107, Scientific Methods <u>Content Essentials Black line Masters C</u>: P. 119, Static Electricity, P. 120, Current Electricity	Comb, static, balloon, water, wool

Assessment of Learning	*Assessment for Learning*	*Assessment as Learning*
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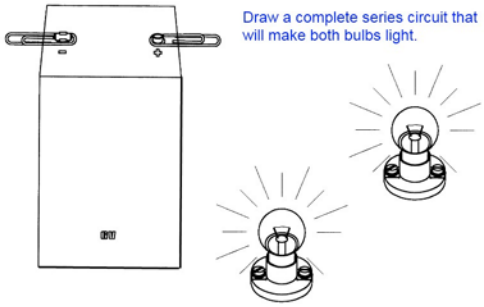
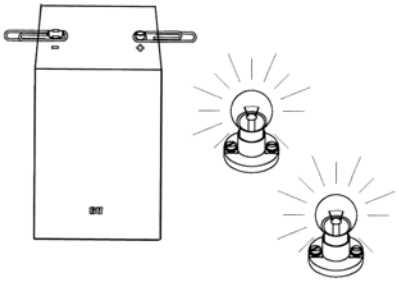
Levels of Thinking and Language Function	Preproduction (non verbal response) PROMPTS: **Show Me, Circle the, Where is, Who has, Draw, Label**	Early Production (one word response) PROMPTS: **Yes/No, Either/Or, Who, What and How**	Speech Emergence (Phrase or short sentences) PROMPTS: **Why, How, Explain, questions requiring a short sentence response**
Evaluation *Appraise, assess, attach, choose, compare, defend, estimate, judge, predict, select, support, value, evaluate*	Assess Rate Select Choose Attach	+ Compare Estimate Value	+ Predict Evaluate Examine Judge
Synthesis *Arrange, assemble, collect, compose, construct, create, design, develop, formulate Manage, organize, plan, prepare, propose, set up*	Plan Construct Collect Assemble Arrange	+Organize Set up Design	+ Create Compose Develop Formulate
Analysis *Analyze, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test*	Categorize Test Examine	+ Contrast Experiment Differentiate	+ Compare Criticize Discriminate Question Distinguish
Application *Apply, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use*	Dramatize Choose Illustrate Practice Sketch	+ Demonstrate Employ Schedule	+ Apply Interpret Operate Use Solve
Comprehension *Classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate*	Classify Locate Select	+ Describe Identify Indicate Recognize	+ Express Restate Review
Knowledge *Arrange, order, define, duplicate, label, name, recognize, relate, recall, repeat, reproduce*	Label Order Arrange Draw Match	+ Name Recognize Repeat	+ Define Reproduce Recall

Electricity

Series and Parallel Circuits

Draw a complete series and parallel circuit.

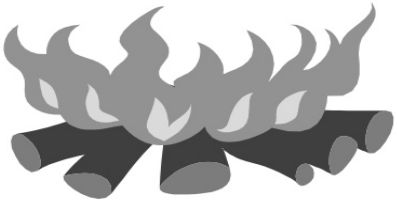


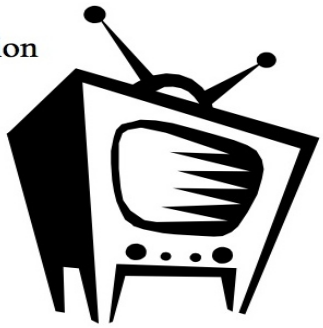
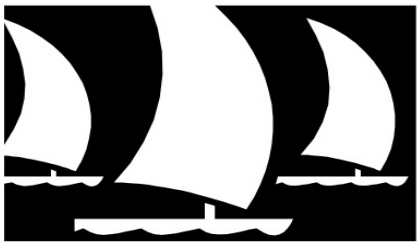


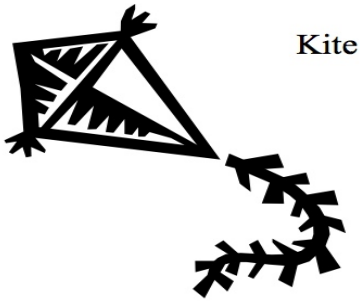
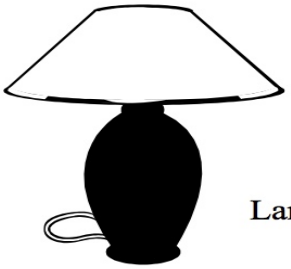
WHERE DOES IT GET ITS ENERGY?

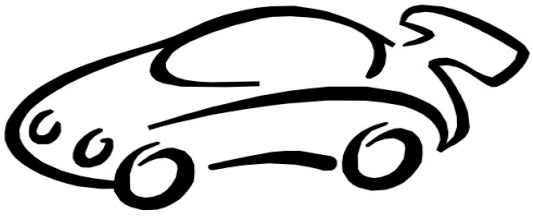
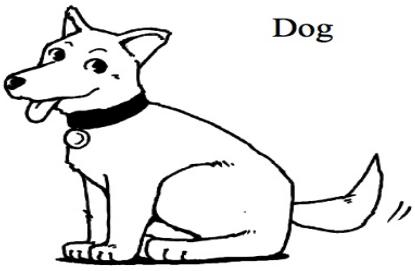
Directions: Cut out the energy words and paste them below the pictures they match.

Gasoline	Sun
Wind	Electricity
Wind	Food
Electricity	Wood

Tree 	Fire 

Television 	Sailboat 

 Kite	 Lamp

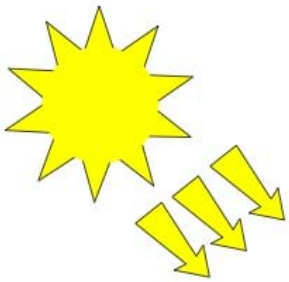
Car 	Dog 

Types of Energy Name: _____

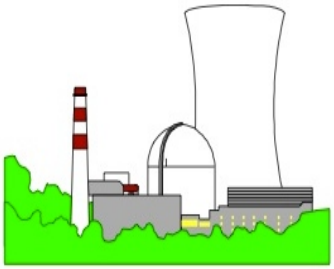
Word Bank:

1. Solar Power
2. Wave Power
3. Geothermal Energy
4. Oil Production
5. Coal Mining
6. Wind Power
7. Nuclear Power
8. Hydro Electric Energy

_____- _____ _____



_____- _____ _____

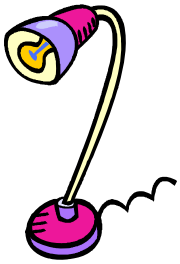


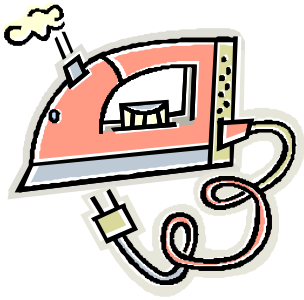
_____ _____

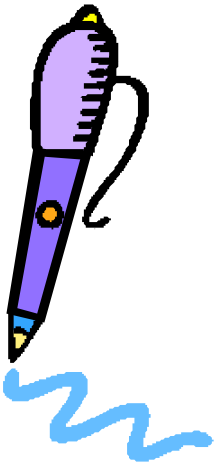
NAME_____

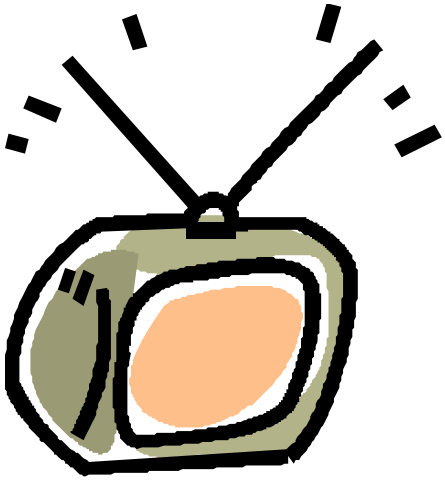
Which of these objects use electricity?

Cut out the pictures and stick them under the correct heading on the next page.









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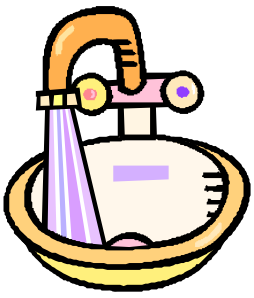
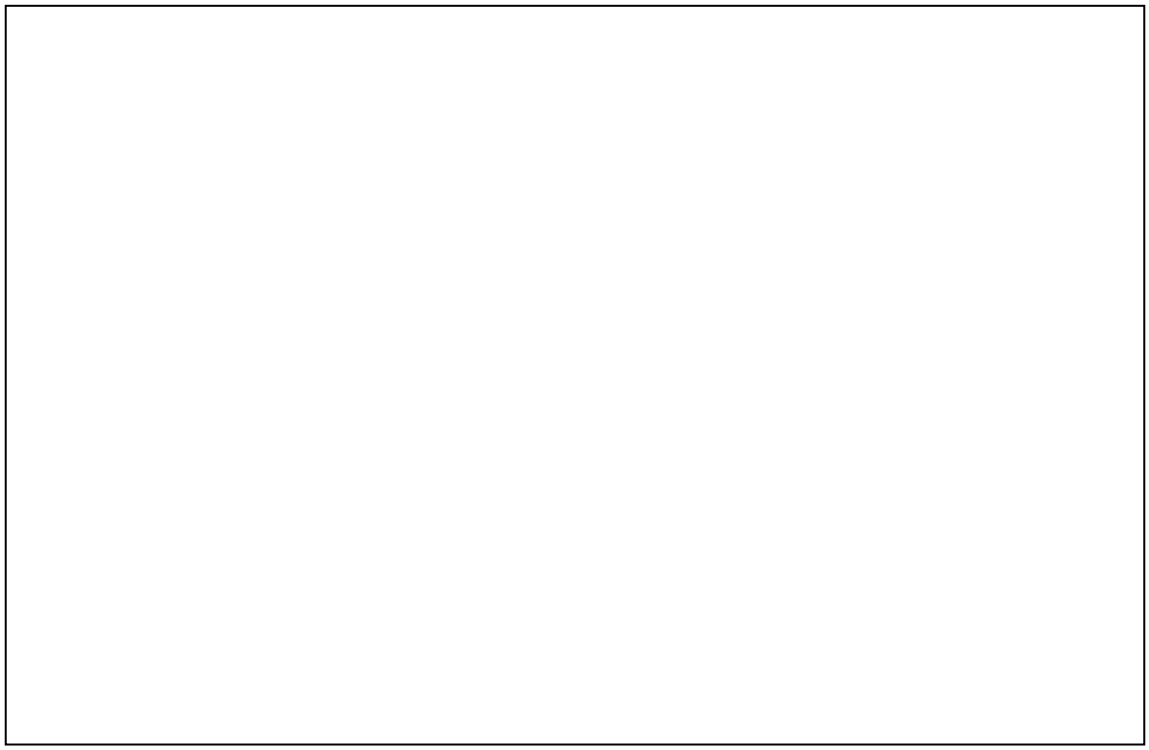
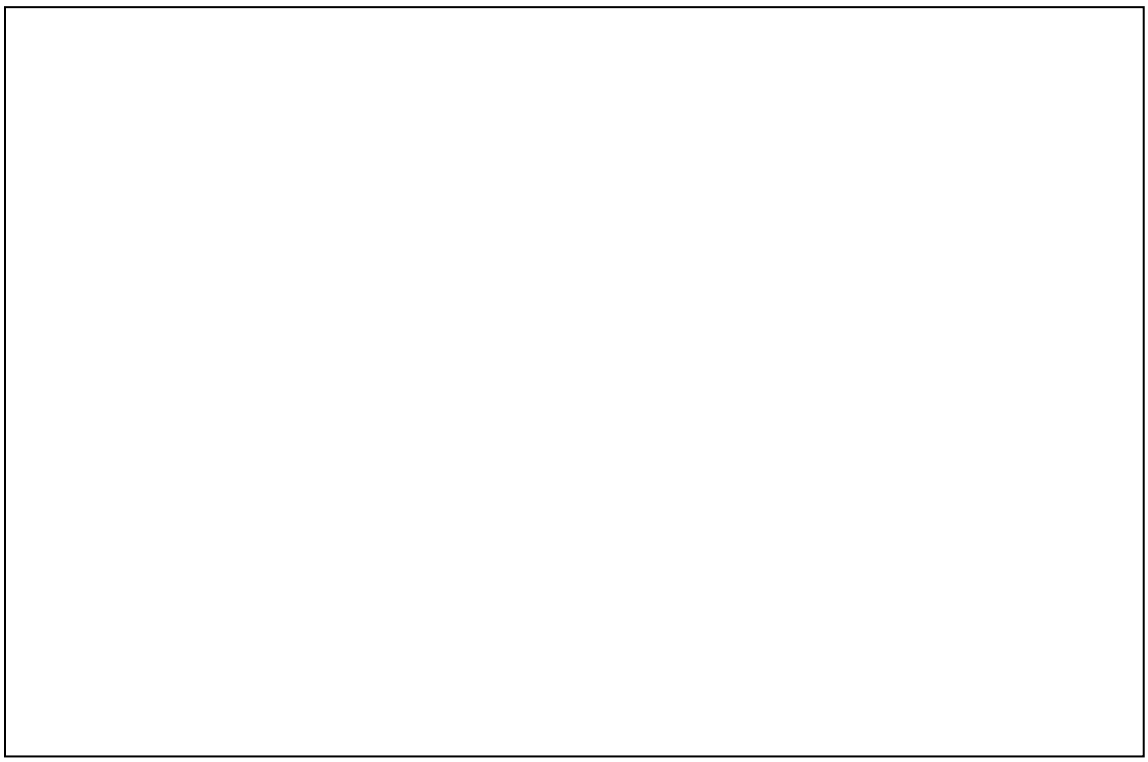


Uses electricity



Doesn't use electricity



SCIENCE UNIT INTRODUCTORY PAGE

Grade 6- Understanding Earth and Space Systems

Strand	Reference	Materials
Understanding Earth and Space Systems	**Lesson 1** Canadians in Space	**Activity 1** - BLMs 1 - Content Essentials: Book C: BLM p. 90 - images of the Canadarm, space shuttle, telescope
	Lesson 2 Phases of the Moon	**Activity 2** - BLM 2, 3 -teacher collected pictures of phases of the moon. -Content Essentials: BLM Book B: p. 73, Book C: p. 90
	Lesson 3 Solar System	**Activities** - BLM 3 - teacher collected images of planets - Content Essentials BLM: Book A: p.34, p.36 Book B: p. 70, Book C: p. 83
	Lesson 4 Tides	**Activities** -BLM 4,5 - Content Essentials: Book C: Earth and Moon p. 90

Unit Plan - ELD Science and Technology

Grade: 6

Strand: Understanding Earth and Space Systems

Title: Space

Overall Expectations	Big Ideas
1. Assess the impact of space exploration on society and the environment; 2. Investigate characteristics of the systems of which the earth is a part and the relationship between the earth, the sun, and the moon; 3. Demonstrate an understanding of components of the systems of which the earth is a part, and explain the phenomena that result from the movement of different bodies in space.	Systems and Interactions: Earth is a part of a large interrelated system. (Overall expectations 2 and 3) Technological and scientific advances that enable humans to study space affect our lives. (Overall expectations 1 and 2)
Specific Expectations	**Specific Expectations Modified**
By the end of Grade 6, students will: 1.1 Assess the contributions of Canadians (e.g., astronauts Marc Garneau and Roberta Bondar; astronomers Richard Bond, David Levy, and Helen Hogg; Spar Aerospace Limited's development of the Canadarm; the University of British Columbia's development of the "Humble" space telescope) to the exploration and scientific understanding of space 1.2 Evaluate the social and environmental costs and benefits of space exploration, taking different points of view into account 2. Developing Investigation and Communication Skills By the end of Grade 6, students will: 2.1 Follow established safety procedures for handling tools and materials and observing the sun (e.g., use appropriate eye protection when testing a sundial) 2.2 Use technological problem-solving skills (see page 16) to design, build, and test devices (e.g., a sundial, a model of the earth's rotation around the sun) for investigating the motions of different bodies in the solar system 2.3 Use scientific inquiry/research skills (see page 15) to investigate scientific and technological advances that allow	Demonstrate an understanding of Canada's involvement in international space exploration. Not attainable for students who are just beginning to learn basic vocabulary. Modification unnecessary.

humans to adapt to life in space 2.4 Use appropriate science and technology vocabulary, including axis, tilt, rotation, revolution, planets, moons, comets, and asteroids, in oral and written communication 2.5 Use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., use a graphic organizer to identify and order main ideas and supporting details for a report about how science and technology can help humans adapt to life in space) 3. Understanding Basic Concepts By the end of Grade 6, students will: 3.1 Identify components of the solar system, including the sun, the earth, and other planets, natural satellites, comets, asteroids, and meteoroids, and describe their physical characteristics in qualitative terms. 3.2 Identify the bodies in space that emit light (e.g., stars) and those that reflect light (e.g., moons and planets) 3.3 Explain how humans meet their basic biological needs in space (e.g., obtaining air, water, and food and managing bodily functions) 3.4 Identify the technological tools and devices needed for space exploration (e.g., telescopes, spectroscopes, spacecraft, life-support systems) 3.5 Describe the effects of the relative positions and motions of the earth, moon, and sun (e.g., use models or simulations to show solar and lunar eclipses, phases of the moon, tides)	Draw and label our solar system. Not attainable for students who are just beginning to learn basic vocabulary. Use appropriate vocabulary including rotate, planet, earth, moon, stars, solar system. Use oral and graphic forms to communicate. See 2.2 See 2.2 Not attainable for students who are just beginning to learn basic vocabulary. Modification unnecessary. Demonstrate an understanding of tides. **Curriculum expectations may not be appropriate for all students who are learning the language, especially those who are in the early stages of second language development.*
Links to Prior Knowledge **Students may have first-hand experience or knowledge about:** -tidal movements of oceans -planets and solar systems.	

Modified Activities for ELD	Vocabulary/Language Prompts
Activity 1: Canadians in Space: Using the Canadarm worksheet, the student will explore the Canada Space program site, drawing pictures and labelling Canada's Contribution to space exploration. http://www.cascaeducation.ca/files/cdn_spacetech.html Language Prompts: Canadians fly in space. They are called astronauts.	Canadarm, satellite, Hubble, telescope, astronaut
Activity 2: Phases of the Moon: Using the worksheet, student will recognize the phases of the moon. Following the directions, students will learn to identify the different phases of the moon. Language Prompts: We see the moon in the night sky. A full moon looks like a circle. A new moon looks like a crescent.	Full moon, waxing, waning, gibbous
Activity 3: Solar System: Using the worksheet provided, student will learn the names of the planets by following the instructions. Follow up with the second worksheet where the student labels the planets in order from the Sun outward. Language Prompts: Earth is a planet. There are 9 planets in the solar system. Planets rotate around the sun.	Sun, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto. High tide, low tide, water, ocean, moon

Activity 4: Tides Using the activity sheet, students will label the graphic images correctly using the term high tide and low tide. The student will draw a picture of high and low tide, labelling correctly their drawn images. Language Prompts: The moon causes water to move. Moving water is a tide. Connection to "Content Essentials: Science" Black line Masters A: P. 30, Water; P. 33, The Sun and Stars; P. 34, Day and Night; P. 36, Solar System; Black line Masters Book B: P. 70, The Solar System; P. 73, The Moon; P. 74, Other Objects in Space. Black line Masters Book C: P. 83, The Solar System, P. 85, Earth and Moon; P. 90, Exploring Space;	

Assessment of Learning	*Assessment for Learning*	*Assessment as Learning*
• Peer assessment • Teacher rubric • ESL Support teacher assessment using L1 if possible • Re-telling • Role plays/demonstrations	• Teacher observations including anecdotal • Student teacher conferences • Peer groupings • Cloze exercises • Sequence and matching exercises	• ESL Buddy Assessment • Self assessment checklist

Levels of Thinking and Language Function	Preproduction (non verbal response) PROMPTS: **Show Me, Circle the, Where is, Who has, Draw, Label**	Early Production (one word response) PROMPTS: **Yes/No, Either/Or, Who, What and How**	Speech Emergence (Phrase or short sentences) PROMPTS: **Why, How, Explain, questions requiring a short sentence response**
Evaluation *Appraise, assess, attach, choose, compare, defend, estimate, judge, predict, select, support, value, evaluate*	Assess Rate Select Choose Attach	+ Compare Estimate Value	+ Predict Evaluate Examine Judge
Synthesis *Arrange, assemble, collect, compose, construct, create, design, develop, formulate Manage, organize, plan, prepare, propose, set up*	Plan Construct Collect Assemble Arrange	+Organize Set up Design	+ Create Compose Develop Formulate
Analysis *Analyze, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test*	Categorize Test Examine	+ Contrast Experiment Differentiate	+ Compare Criticize Discriminate Question Distinguish
Application *Apply, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use*	Dramatize Choose Illustrate Practice Sketch	+ Demonstrate Employ Schedule	+ Apply Interpret Operate Use Solve
Comprehension *Classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate*	Classify Locate Select	+ Describe Identify Indicate Recognize	+ Express Restate Review
Knowledge *Arrange, order, define, duplicate, label, name, recognize, relate, recall, repeat, reproduce*	Label Order Arrange Draw Match	+ Name Recognize Repeat	+ Define Reproduce Recall

Name: _____ Tides

Match to the picture below:

Low tide, low water

High tide, high water

_a)_____

_b)_____

c)_____ d)_____

e)_____ f)_____

Draw the picture of low and high tide. Label.

Low Tide	High Tide

Name: _____ What are the Phases of the Moon?

8 Phases of the Moon

Write the numbers on the correct phase.

1. New Moon
2. Waxing Crescent
3. Waxing Quarter (First Quarter)
4. Waxing Gibbous
5. Full Moon
6. Waning Gibbous
7. Waning Quarter (Last Quarter)
8. Waning Crescent

Waxing=When the moon looks bigger

Ex. Waxing leads to a full moon

Waning=When the moon looks smaller

Ex. Waning leads to a new moon

Name: _____ Phases of the Moon

Follow the directions:

a) Print the number 1 on the new moon.

b) Print the number 2 on the full moon.

c) Print the fraction 1/2 on the first quarter and last quarter.

d) Colour the waxing crescent blue.

e) Colour the waning crescent grey.

f) Colour the waxing gibbous yellow.

g) Colour the waning gibbous pink.

Name: _____ Planets in our Solar System:

a) Colour Mercury orange. b) Colour Venus pink.

c) Colour Earth green. d) Colour Mars red.

e) Colour Jupiter purple. f) Colour Saturn gray.

g) Colour Uranus brown. h) Colour Neptune yellow.

i) Colour Pluto black.