### GRADE 3

#### LIFE SCIENCE: PLANT GROWTH AND CHANGES

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<th>Outcomes</th>
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<th>Growing UP WILD</th>
<th>Flying WILD</th>
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<tbody>
<tr>
<td><strong>PL3.1</strong> Investigate the growth and development of plants, including conditions necessary for germination.</td>
<td>a. Pose questions related to plant growth (e.g., How do very young plants look different from grown plants? How much water do plants need to grow? Do all plants grow in the same way?).</td>
<td>198 Bird Action</td>
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<td></td>
<td>b. Observe and explain the function of the major structures (i.e., root, stem, flower, leaf, and fruit or seed) of a variety of plants.</td>
<td>198 Bird Action</td>
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<td></td>
<td>c. Relate characteristics such as the number and shape of leaves, flower colour, height, and presence and type of fruit in different types of plants to the plant's environment.</td>
<td>134 Home Sweet Home 198 Bird Action</td>
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<td></td>
<td>d. Sort and classify plants and/or seeds according to one or more student-selected attributes.</td>
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<td></td>
<td>e. Observe and represent, using written language, pictures, and charts, changes that occur through the life cycle of a flowering plant.</td>
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<td></td>
<td>f. Compare the basic needs of plants to the basic needs of animals and humans.</td>
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<td>g.</td>
<td>Research ways in which plants rely on animals and abiotic factors (e.g., gravity, wind, and water) to support plant reproduction by dispersing seeds.</td>
<td>198 Bird Action</td>
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<td>h.</td>
<td>Predict and investigate conditions such as the temperature, available sunlight, available nutrients in soil, and available water, which are necessary for plant germination and growth.</td>
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<tr>
<td>i.</td>
<td>Care for a flowering plant throughout its life cycle, tracking its growth and changes.</td>
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<td>j.</td>
<td>Estimate, record, and display relevant measurements of plant growth, using rulers, tables, and bar graphs.</td>
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<td>k.</td>
<td>Suggest explanations for patterns and discrepancies in the growth rate of similar plants grown in varying conditions.</td>
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<td>l.</td>
<td>Explain the importance of water and light for plant growth and the mechanisms by which plants obtain water and light from the environment.</td>
<td>134 Home, Sweet Home 198 Bird Action</td>
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<td></td>
<td>m. Identify characteristics that remain constant and those that change throughout the life cycle of a flowering plant.</td>
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<td></td>
<td>n. Pose new questions about conditions necessary for plant growth, based on what was learned.</td>
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<td>PL3.2 Analyze the interdependence among plants, individuals, society, and the environment.</td>
<td>a. Observe, safely and respectfully, plants in local environments (e.g., classroom, flower garden, schoolyard, community garden, forest, reserve, and nature preserve).</td>
<td>134 Home, Sweet Home</td>
<td>198 Bird Action</td>
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<td></td>
<td>b. Research traditional and contemporary uses of plants or parts of plants, such as food, beverages, medicine, arts, seed banks, shade, windbreaks, erosion protection, cultural celebrations, and for creating products such as dyes, shelter, and clothing.</td>
<td>91 Home Is Where The Forest Is</td>
<td>134 Home, Sweet Home</td>
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<td></td>
<td>c. Examine the significance to some First Nations and Métis people of offering tobacco during harvesting and how that purpose differs from using the tobacco plant for smoking.</td>
<td>198 Bird Action</td>
<td>230 Bird Buffet</td>
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## LIFE SCIENCE: PLANT GROWTH AND CHANGES

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<td><strong>d.</strong> Examine the importance of agriculture in Saskatchewan, including the variety of plants and plant-related products.</td>
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<td><strong>e.</strong> Describe examples of plant biodiversity (e.g., trees, shrubs, bushes, herbs, grasses, vines, and mosses) in various ecosystems throughout the world.</td>
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<td>134 Home, Sweet Home 198 Bird Action</td>
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<td><strong>f.</strong> Explain how to determine whether plants are healthy and discuss societal and environmental impacts of diseased plants.</td>
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<td>198 Bird Action</td>
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<td><strong>g.</strong> Describe ways that plants and animals depend on each other.</td>
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<td>66 Food Chain Tag 70 Create Your Own Food Web 91 Home Is Where The Forest Is 134 Home, Sweet Home 198 Bird Action 230 Bird Buffet</td>
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<tr>
<td><strong>h.</strong> Assess the impact of natural (e.g., animal migration, fire, competition, and decay) and human activity (e.g., burning land, logging, fertilization, soil compaction, and picking endangered plants) on the biodiversity of plant species.</td>
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<td>91 Home Is Where The Forest Is 134 Home, Sweet Home</td>
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<td><strong>i.</strong> Examine the type and quantity of plants and plant matter in the diets of people who live in various communities and/or represent various cultures.</td>
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<td>198 Bird Action</td>
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### LIFE SCIENCE: PLANT GROWTH AND CHANGES

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<td>j. Explain how and why plants are replenished naturally (e.g., forest fires, and pollination) and artificially (e.g., tree farms, planting seedlings, and seed banks).</td>
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<td>134 Home, Sweet Home 198 Bird Action</td>
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<td>k. Defend a position related to plant use (e.g., picking plants, harvesting crops, fertilization, and planting invasive species) and protection (e.g., establishing conservation areas, planting native species, and developing alternatives to plant based products).</td>
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<td>134 Home, Sweet Home 198 Bird Action</td>
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<td>l. Imagine a world without plants and describe the impact on animals, people, and the environment.</td>
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<td>66 Food Chain Tag 70 Create Your Own Food Web 91 Home Is Where The Forest Is 113 Who Was That masked Bird? 128 Feeder Frenzy 134 Home, Sweet Home 198 Bird Action 230 Bird Buffet</td>
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<td>m. Respond to and acknowledge the ideas of others regarding the importance of plants to self and society.</td>
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<td>91 Home Is Where The Forest Is 134 Home, Sweet Home 198 Bird Action</td>
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<tr>
<td>Outcomes</td>
<td>n. Research lifestyles (e.g., farming, fishing, and logging) and jobs (e.g., florist, crop scientist, landscaper, gardener, fruit grower, ecologist, logger, and nursery worker) which depend on understanding and working with plants and plant-related products.</td>
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<tr>
<td>SM3.1 Investigate properties of materials and methods of joinery used in structures.</td>
<td>a. Identify problems to be solved related to the properties of materials in structures (e.g., What is the purpose of the structure? What materials are appropriate for constructing the structure? What are appropriate methods of joinery?).</td>
<td>128 Feeder Frenzy 194 The Fine Art of Nesting 289 Newton, Bernoulli and Birds</td>
<td>88 Adaptation Artistry 113 Who Was That masked Bird? 128 Feeder Frenzy 194 The Fine Art of Nesting 282 Egg-Stravaganza 289 Newton, Bernoulli and Birds</td>
<td>88 Adaptation Artistry 128 Feeder Frenzy 194 The Fine Art of Nesting 206</td>
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<td></td>
<td>b. Examine the properties of materials used in structures (e.g., beaver lodge, bird nest, wasps’ nest, honeycomb, anthill, tipi, house, marionette, circus float, umbrella, ladder, bridge, earth lodge, quinzhee, drink can, hockey puck, playground equipment, and toys).</td>
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<td></td>
<td>c. Compare the properties of materials used historically and currently to construct structures such as houses, bridges, towers, and roads throughout the world.</td>
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<td></td>
<td>d. Sort materials for use in constructing structures according to one or more physical properties such as strength, texture, colour, flexibility, and durability.</td>
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### PHYSICAL SCIENCE: STRUCTURES AND MATERIALS

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<tr>
<td>e. Analyze how various similar and dissimilar materials can be joined (e.g., gluing, nailing, screwing, stapling, taping, velcroing and tying) and identify the most appropriate methods for joining specific materials for an identified use.</td>
<td>75 Birds On Display 88 Adaptation Artistry 99 Busy Bird Motel 128 Feeder Frenzy 194 The Fine Art of Nesting</td>
<td>206 Avian Art 230 Bird Buffet</td>
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<td>f. Use appropriate tools (e.g., hammer, nail, glue, and scissors) to safely cut, shape, make holes, sew, and assemble materials.</td>
<td>75 Birds On Display 88 Adaptation Artistry 99 Busy bird Motel 128 Feeder Frenzy</td>
<td>206 Avian Art 230 Bird Buffet</td>
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<td>g. Develop and carry out a plan, including making predictions, identifying variables, and recording relevant observations, to test the strength of various materials (e.g., straws, toothpicks, masking tape, string, cotton balls, wooden blocks, Styrofoam, cloth, clay, and spaghetti).</td>
<td>128 Feeder Frenzy</td>
<td>282 Egg-Stravaganza</td>
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<td>h. Assess the suitability of various materials for constructing structures, including methods of strengthening those materials (e.g., adding more layers, tying or gluing together, triangulation, cross-bracing, and changing the shape of the materials).</td>
<td>75 Birds On Display 88 Adaptation Artistry 128 Feeder Frenzy</td>
<td>134 Home, Sweet Home 194 The Fine Art of Nesting</td>
<td>206 Avian Art 289 Newton, Bernoulli and Birds</td>
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## Physical Science: Structures and Materials

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<tr>
<td>i.</td>
<td>Examine the suitability of using recycled materials to construct structures (e.g., tires as highway surfacing, and reclaimed lumber or straw bales for houses).</td>
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<td>75 Birds On Display</td>
<td>88 Adaptation Artistry</td>
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<td>128 Feeder Frenzy</td>
<td>134 Home, Sweet Home</td>
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<td>194 The Fine Art of Nesting</td>
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<td>j.</td>
<td>Discuss the effects of obtaining raw materials from the environment (e.g., wood, oil, and metals) and returning those materials to the environment after being used in manufactured structures.</td>
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<td>194 The Fine Art of Nesting</td>
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<td>SM3.2</td>
<td>Assess the function and characteristics of strong, stable, and balanced natural and human-built structures.</td>
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<td>a.</td>
<td>Analyze the purpose or function of various natural and human-built structures.</td>
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<td>128 Feeder Frenzy</td>
<td>134 Home, Sweet Home</td>
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<td>194 The Fine Art of Nesting</td>
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<td>b.</td>
<td>Examine how some human-built structures are modeled on shapes and structures found in nature.</td>
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<td>75 Birds On Display</td>
<td>134 Home, Sweet Home</td>
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<td>c.</td>
<td>Assess how 2D shapes (e.g., rectangle, triangle, circle, square, hexagon, and octagon) and 3D objects (e.g., dome, arch, and cylinders) provide strength, stability, and balance to natural and human-built structures.</td>
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<td>128 Feeder Frenzy</td>
<td>289 Newton, Bernoulli and Birds</td>
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<td><strong>PHYSICAL SCIENCE:</strong> STRUCTURES AND MATERIALS</td>
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<td>d. Compare the characteristics of solid (e.g., sand castle, mountain, and dam), frame (e.g., partition wall, hockey net, and spider web), and shell (e.g., igloo, bike helmet, balloon, and drink can) structures.</td>
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<td>128 Feeder Frenzy 194 The Fine Art of Nesting 282 Egg-Stravaganza</td>
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<td>e. Classify natural and human-built structures as solid, frame, or shell structures.</td>
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<td>194 The Fine Art of Nesting 289 Newton, Bernoulli and Birds</td>
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<td>f. Compare the characteristics of different types of shelter (e.g., tent, igloo, hut, boat, castle, tipi, yurt, and house) constructed by people throughout the world past and present.</td>
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<td>g. Examine the characteristics and significance of historical structures such as Stonehenge, the Parthenon, Petra, the Great Wall of China, Angkor Wat, Machu Picchu, the Taj Mahal, the Pyramids, and Easter Island moai.</td>
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<td>h. Analyze how various shapes contribute to balance and stability in humans and various animals.</td>
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<td>282 Egg-Stravaganza 289 Newton, Bernoulli and Birds</td>
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<td>i.</td>
<td>Develop and carry out a plan to construct a simple structure such as a tower, bridge, tipi, or bird feeder that meets teacher- or student-specified criteria related to strength, stability, and function.</td>
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|          | 128 Feeder Frenzy  
134 Home, Sweet Home  
194 The Fine Art of Nesting  
230 Bird Buffet |
| j.       | Estimate measurements in order to select appropriate quantities of required materials for constructing a structure. |
|          | 128 Feeder Frenzy  
134 Home, Sweet Home  
194 The Fine Art of Nesting  
230 Bird Buffet |
| k.       | Follow safety procedures and rules while constructing structures and explain the need for such procedures and rules. |
|          | 128 Feeder Frenzy  
134 Home, Sweet Home  
230 Bird Buffet |
| l.       | Illustrate the construction process for a simple structure, including descriptions of the components of the structure, using labelled drawings, written and oral explanations, and demonstrations. |
|          | 128 Feeder Frenzy  
194 The Fine Art of Nesting  
230 Bird Buffet |
| m.       | Assess the strength, stability, and balance of personally constructed structures and make changes to improve the structure as deemed necessary. |
|          | 128 Feeder Frenzy  
194 The Fine Art of Nesting  
230 Bird Buffet  
289 Newton, Bernoulli and Birds |
| n.       | Identify materials or parts of a structure that failed and hypothesize why they failed. |
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194 The Fine Art of Nesting  
282 Egg-Stravaganza |
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<td>o. Assess natural and human-built structures to determine if they are effective, safe, make efficient use of materials, meet user's needs, and minimize impact on the environment.</td>
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<td>128 Feeder Frenzy 194 The Fine Art of Nesting 230 Bird Buffet 282 Egg-Stravaganza</td>
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<td>p. Research jobs and hobbies related to the design, building, and maintenance of natural and human-built structures.</td>
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**Curricular Cross Reference: Saskatchewan Grade 3 Science (2011) and Growing Up WILD, Flying WILD, and Project WET**  
L. Nicholls, M.Ed., June 2012, Saskatchewan Outdoor and Environmental Education Association

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<tr>
<td><strong>ME3.1 Investigate the characteristics of contact (e.g., push, pull, and friction) and non-contact (e.g., magnetic and static electric) forces.</strong></td>
<td>a. Pose questions related to the characteristics of magnetic and static electric forces (e.g., Do all magnets attract objects? Do all magnets have a North Pole? Why do I get a shock when I rub my shoes on a carpet and touch a doorknob?).</td>
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<td>b. Demonstrate how contact and non-contact forces are able to cause objects to start moving, speed up, slow down, and stop; cause moving objects to change direction; and cause changes to the shape of objects.</td>
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<td>c. Compare the characteristics of contact, magnetic, and static electric forces, including the range over which they act, and propose methods of increasing or decreasing effects of these forces.</td>
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<td>d. Group materials according to criteria such as their attraction to magnets and ability to be magnetized, based on personal observation.</td>
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<td><strong>Physical Science: Magnetism and Static Electricity</strong></td>
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<td>e. Compare the characteristics and effects of different types and shapes of magnets (e.g., horseshoe, disc, bar, cylindrical, and block), including the location and type of magnetic poles (if any exist), and the shape of magnetic field produced by the magnet.</td>
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<td>f. Predict and test the number of objects a magnet can pick up under different conditions (e.g., distance between magnet and object, number of identical magnets, solids between magnet and object) and develop simple conclusions about conditions that affect strength of magnetic forces.</td>
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<td>g. Investigate how charged materials interact with each other and with other charged and uncharged objects.</td>
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<td>h. Demonstrate ways to use materials found in their environment (e.g., balloon, cotton, fur, wool, confetti, acetate strip, ebonite rod, and Scotch tape) to investigate conditions which affect the strength of static electric forces.</td>
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## PHYSICAL SCIENCE: MAGNETISM AND STATIC ELECTRICITY

### Outcomes

1. Make and record relevant observations during investigations to identify conditions (e.g., humidity, type of materials, and distance between charged objects) which affect the strength of static electric forces, and develop simple conclusions about these conditions.

### Indicators

#### Growing Up WILD

#### Flying WILD

#### Project WET

### ME3.2 Assess

Effects of practical applications of magnetic and static electric forces on individuals and society.

- a. Investigate how magnets are used at home, school, and in business and industrial applications (e.g., refrigerator magnet, magnetic cupboard door latches, credit card magnetic strip, radio speakers, navigation, motorized devices, scrap yard crane, magnetic levitation trains, jewellery, tools, and toys).

- b. Classify magnets that are used at home, school, and in business and industrial applications as natural, temporary, and permanent.

- c. Explore how magnetic compasses can provide evidence for and information about magnetic fields, including those created by current traveling through a conductor, and Earth’s magnetic field.
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<td>d. Design, construct, and test an object such as a toy or game whose function depends on attractive or repulsive magnetic forces.</td>
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<td>e. Describe the operation of a toy or game whose function depends on magnetic forces using terms such as &quot;attract&quot;, &quot;repel&quot;, &quot;push&quot;, and &quot;pull.&quot;</td>
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<td>f. Explain safety procedures to be followed when interacting with magnetic and static electric forces.</td>
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<td>g. Describe the effects of static electric forces in their daily lives (e.g., static cling, sparks when touching metal objects after walking across carpeted surfaces, and photocopiers).</td>
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<td>h. Explain the purpose of technologies which are designed to minimize static electric forces (e.g., fabric softeners and dryer sheets, antistatic bags, chains hanging from combines, antistatic safety boots, grounding straps on cars, and dusters).</td>
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<td>PHYSICAL SCIENCE: MAGNETISM AND STATIC ELECTRICITY</td>
<td>Growing Up WILD</td>
<td>Flying WILD</td>
<td>Project WET</td>
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<td>Outcomes</td>
<td>i. Investigate methods of using magnetic and static electric forces to create artistic expressions (e.g., mobiles, kinetic sculptures, painting, and drama).</td>
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<td>j. Generate new questions from what has been learned about applications of magnetic and static electric forces.</td>
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<td>Outcomes</td>
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<td>ES3.1 Investigate the characteristics, including soil composition and</td>
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<td>ability to absorb water, of different types of soils in their environment.</td>
<td>a. Pose questions and make predictions about the characteristics and</td>
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<td>composition of soils that lead to exploration and investigation (e.g.,</td>
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<td>What colours are soil? What does soil feel like? Where does soil come</td>
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<td>from? Is there water in soil?).</td>
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<td>b. Examine physical characteristics (e.g., particle size, texture,</td>
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<td>moisture, particle size distribution, colour, and ability to hold</td>
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<td></td>
<td>together) of soils from different locations (e.g., garden, flowerpot,</td>
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<td></td>
<td>riverbed, slough, hill top, grassy field, lawn, ditch, and forest) in</td>
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<td></td>
<td>their environment.</td>
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<td></td>
<td>c. Classify soils in their environment according to location and type</td>
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<td>(e.g., clay, sand, silt, and loam).</td>
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<td>d. Analyze soil samples using tools such as spoons, hand lenses, jars,</td>
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<td>and filters appropriately and safely.</td>
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<td>e. Make and record observations and measurements in investigations</td>
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<td>related to soil composition using techniques such as notes in point form,</td>
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<td>diagrams, tables, bar graphs, photographs, and video.</td>
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<td>EARTH AND SPACE SCIENCE: EXPLORING SOILS</td>
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<td>f. Make predictions about the capability of different types of soil to absorb water and test these predictions through exploration and investigation.</td>
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<td>g. Collect and display data, using tables and bar graphs, to show the amount of water absorbed by different types of soil.</td>
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<td>h. Sort soil samples according to one or more physical characteristics such as texture, ability to absorb water, particle size, and colour.</td>
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<td>i. Communicate procedures and results of investigations related to the testing of water absorption of soils using drawings, demonstrations, and oral and written descriptions.</td>
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<td>j. Propose answers to initial questions related to soil composition based on personal investigations.</td>
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<td>ES3.2 Analyze the interdependence between soil and living things,</td>
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<td>including the importance of soil for individuals, society, and all</td>
<td>a. Suggest ways in which individuals and communities value and use soil,</td>
<td>b. Examine the interdependence between animals and soils (e.g., insects</td>
<td>70 Create Your Own Food Web</td>
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<td>components of the environment.</td>
<td>including the importance of Mother Earth for First Nations and Métis peoples.</td>
<td>and grubs live in soil, soil provides shelter for some animals, and</td>
<td>84 Bird Behaviour Scavenger Hunt</td>
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<td></td>
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<td>earthworms aerate soil).</td>
<td>88 Adaptation Artistry</td>
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<td></td>
<td>113 Who Was That masked Bird?</td>
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<td>134 Home, Sweet Home</td>
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<td>c. Examine the interdependence between plants and soils (e.g., soils provide</td>
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<td>nutrients for plant growth, plant leaves die and fall onto the ground, and</td>
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<td>plant roots spread throughout soil).</td>
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<td>d. Relate the characteristics of soils (e.g., composition, colour, texture,</td>
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<td>134 Home, Sweet Home</td>
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<td>and ability to absorb water) to their uses (e.g., agriculture, berms,</td>
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<td>fuel, pottery, earth shelters, road building, habitats, landscaping, and</td>
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<td>purifying water).</td>
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<td></td>
<td>e. Observe the effects of moving water on soils in different environments</td>
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<td>(e.g., beneath an eaves trough downspout, along a stream bank, down a slope,</td>
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<td>and under a sprinkler).</td>
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<td>f. Collaboratively design and safely carry out procedures to determine the effects of moving water on different types of soils.</td>
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<td>g. Propose practices that individuals and communities can take to reduce the effects of erosion on a small-scale (e.g., vegetable garden, and flowerpot) and large-scale (e.g., agricultural field, sports field, riverbank, and road ditch).</td>
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<td>h. Suggest sustainable practices (e.g., composting, and fertilizing) that can affect soils positively and reduce or prevent harmful effects such as compaction and contamination of soils.</td>
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<td></td>
<td>i. Research careers that involve an understanding of soils.</td>
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