

**BRINGING THE OUTDOORS IN  
&  
THE INDOORS OUT  
with  
5 Minute Field Trips**



Prepared By  
Jacqueline Monteith  
Frontier School Division  
Science Instructional Coach



# GENERAL IDEAS



- **Scavenger hunts:** all grades and subjects, from simple to complex. Vary this activity by using photography to 'capture' items rather than removing from their natural setting.



- **Looking closely:** use magnifying glasses to go on an open-ended hunt, just see what you can see!






- **Create a school yard eco-calendar:** temperature from last year, bloom date of dandelions, flowers, and migrating birds in spring and fall, ice forms on water, snowfall, and thunderstorms.







- **Create an outdoor classroom:** all you really need is a place for students to be comfortable during the activity or lesson.

- **Keep a science journal:** record observations and thoughts, any questions about topics, detailed drawings of any subject, creative expressions of science topics, keeping track of personal health and wellness.





# Kindergarten

Cluster	Ideas
<p data-bbox="201 264 277 289">Trees</p> 	<ul data-bbox="396 258 1495 533" style="list-style-type: none"><li>• Practice tree vocabulary on a living tree</li><li>• Bring items from a tree inside for further examination: trunk, needles/leaves, branch, root, etc.</li><li>• Create patterns with found leaves based on colour, size, etc.</li><li>• Adopt two trees: coniferous and deciduous. Observe each tree during the seasons, compare and contrast</li></ul>
<p data-bbox="193 554 285 579">Colour</p> 	<ul data-bbox="396 585 1484 764" style="list-style-type: none"><li>• Find each colour in nature. This may be difficult!</li><li>• Collect objects with different shades of the same colour: grey rocks, yellow leaves, etc.</li><li>• Create a 'colour line' from light to dark</li></ul>
<p data-bbox="198 854 280 879">Paper</p> 	<ul data-bbox="396 888 1490 1066" style="list-style-type: none"><li>• Explore a tree to find out which part makes paper. Discuss what would happen if leaves were added, different colour trees, etc.</li><li>• Add to your design project using elements found in nature. Decorate paper cups or party hats with leaves and stones</li></ul>





# Grade 1

Cluster	Ideas
<p><b>Characteristics &amp; Needs of Living Things</b></p> 	<ul style="list-style-type: none"><li>• Find and discuss one-way and two-way relationships</li><li>• Create a vocabulary list. Take a walk to demonstrate each word</li><li>• Explore all the different vegetation forms on a nature walk</li><li>• In a natural setting, point out what people need to survive. Compare this to what animals need to survive</li><li>• Take a walk, discuss how to respect the environment with specific examples of what to do and what not to do</li></ul>
<p><b>The Senses</b></p> 	<ul style="list-style-type: none"><li>• Close your eyes to discover a natural being: a tree, flower, etc. Describe how it feels, smells, etc.</li><li>• Activate all senses outside, one at a time</li><li>• Collect objects from nature. Classify them according to texture</li></ul>
<p><b>Characteristics of Objects &amp; Materials</b></p> 	<ul style="list-style-type: none"><li>• Collect leaves, pebbles, other natural objects for classifying</li><li>• Explore an outside object using sensory observations: tree, metal bike rack, wooden post</li><li>• Walk around the school or community. Try to find evidence of positive waste management</li></ul>
<p><b>Daily and Seasonal Changes</b></p> 	<ul style="list-style-type: none"><li>• Observe and record evidence of change in plants, leaves. Adopt a tree to observe, re-visit several times in the year</li><li>• Identify items that follow predictable patterns and cycles</li><li>• Look for evidence of seasonal changes: flocking birds, cool air, icicles, tracks in snow, growing buds, busy insects, etc.</li><li>• In one day, go outside several times to observe how shadows change</li></ul>





## Grade 2

Cluster	Ideas
<p><b>Growth &amp; Changes in Animals</b></p> 	<ul style="list-style-type: none"><li>• Observe and record measurable changes in a volunteer animal</li><li>• In a natural area, identify the foods that animals can use. Classify these foods</li><li>• To reinforce the life cycle, showcase and discuss a plant's life cycle</li></ul>
<p><b>Properties of Solids, Liquids &amp; Gases</b></p> 	<ul style="list-style-type: none"><li>• Create a word list. See how many items you can observe outside</li><li>• Investigate how solids take up space on a larger scale. Use buckets of water and rocks, for example</li><li>• Identify liquids found in your area naturally: water, sap, etc.</li><li>• Demonstrate liquid states by observing a water source in fall/spring, winter, on a foggy morning, etc.</li></ul>
<p><b>Position &amp; Motion</b></p> 	<ul style="list-style-type: none"><li>• Demonstrate object relativity with natural elements: slope of a hill, behind a tree, above the grass, etc.</li><li>• Observe insects in the school yard. Do they spin, bounce, jump, etc.?</li><li>• Continue teaching about friction with outside elements: shoes on concrete, sandpaper on grass, etc.</li><li>• Observe your school yard play structure in terms of motion: planes, axles, etc.</li></ul>
<p><b>Air &amp; Water in Environment</b></p> 	<ul style="list-style-type: none"><li>• Find concrete examples of vocabulary words near the school. This can be like a scavenger hunt for examples</li><li>• Find 5 pieces of evidence of moving air outside</li><li>• Visit the same place in the school yard several times in a month. Observe and identify how water is present: dew, fog, ice, snow, rain, etc.</li></ul>





# Grade 3

Cluster	Ideas
<p><b>Growth &amp; Changes in Plants</b></p> 	<ul style="list-style-type: none"> <li>• Visit the same plant/tree/flower over a period of time, observe, record, chart, photograph growth &amp; changes</li> <li>• In spring, use a stethoscope to listen to sap running inside a tree</li> <li>• In September, put wool socks on over your shoes. Walk in a natural area, the socks will collect seeds. Sort, identify, and even grow the seeds</li> <li>• Find natural examples of vocabulary list</li> </ul>
<p><b>Materials &amp; Structures</b></p> 	<ul style="list-style-type: none"> <li>• Gather natural materials to investigate for bridge building, fasteners and strength</li> <li>• Explore balance in nature – look at the symmetry of a tree, discuss why an unbalanced tree is standing, how various forces have affected items</li> <li>• Observe shapes used in structures around the community Compare/contrast these to shapes in nature</li> </ul>
<p><b>Forces that Attract or Repel</b></p> 	<ul style="list-style-type: none"> <li>• Walk in a natural area to find evidence of gravity</li> <li>• Use natural objects to test magnetic attraction</li> <li>• Use a compass around the schoolyard. Observe the effects on the compass when placed near a bar magnet</li> </ul>
<p><b>Soils in the Environment</b></p> 	<ul style="list-style-type: none"> <li>• Have an outdoor conversation about what we know about soil. Seeing soil in use inspires a variety of responses</li> <li>• Collect soil samples from around the school, community, and in nature. Investigate and compare samples</li> <li>• With gloves on, dig into the soil. Observe insects that use the soil. Discuss how soil can be used. Try to identify as many insects as you can</li> </ul>

# Grade 4



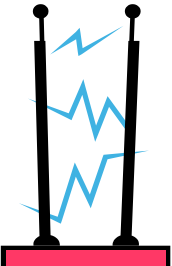
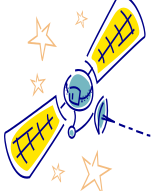
Cluster	Ideas
<p><b>Habitats &amp; Communities</b></p> 	<ul style="list-style-type: none"> <li>• Find and discuss one-way relationships and two-way relationships near the school</li> <li>• Look for an animal or bird home, or find an area that would be suitable. Observe nearby needed places: water, food source, hiding spots. Discuss how much area that animal actually needs</li> <li>• Find a comfortable natural setting to read and discuss plant and animal stories from various cultures</li> </ul>
<p><b>Light</b></p> 	<ul style="list-style-type: none"> <li>• Use light meters to measure the amount of natural light needed in a certain habitat. Measure from a spider web, ant hill, flower, small bush, etc. Chart and discuss</li> <li>• Find and list examples of energy both inside and outside the school. Discuss in a sharing circle</li> <li>• Use natural objects to predict shadow size based on light source position</li> </ul>
<p><b>Sound</b></p> 	<ul style="list-style-type: none"> <li>• With closed eyes, listen to all sounds. Create and compare sound maps and chart. Repeat daily/weekly to notice differences and patterns</li> <li>• When windy, place one ear against a tree and plug the other ear. Listen to all the creaks</li> <li>• After observing sound in an area, create 'deer ears' by cupping hands behind ears. Observe new sounds</li> <li>• Use natural objects to enhance the design of a musical instrument</li> </ul>
<p><b>Rocks, Minerals &amp; Erosion</b></p> 	<ul style="list-style-type: none"> <li>• Collect a certain number of rocks from various areas in the community. Observe, classify, and compare areas</li> <li>• Go for an indoor and outdoor walk around the school to determine which materials are made from rocks and minerals</li> <li>• Observe local human activities which have changed the landscape</li> </ul>

# Grade 5



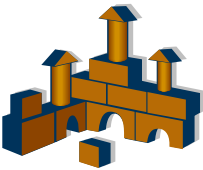

Unit	Ideas
<p data-bbox="142 283 331 352"><b>Maintaining a Healthy Body</b></p> 	<ul data-bbox="396 268 1477 541" style="list-style-type: none"><li>• Observe several different plants in a natural environment. Create invented but realistic food labels for each plant</li><li>• Compare body systems to a tree in the schoolyard. Which parts of the tree would be the skeleton? Nervous system? Muscles? Tendons? Skin?</li><li>• Investigate local waste management processes. Visit any waste management site. Compare to the body's method of getting rid of waste</li></ul>
<p data-bbox="134 577 339 682"><b>Properties of &amp; Change in Substances</b></p> 	<ul data-bbox="396 609 1396 787" style="list-style-type: none"><li>• Explore process: evidence of one action that produces a reaction</li><li>• Collect and investigate natural items, describe substances</li><li>• Find examples of the changing states of matter near the schoolyard. Include physical and chemical changes</li></ul>
<p data-bbox="131 892 342 955"><b>Forces &amp; Simple Machines</b></p> 	<ul data-bbox="396 856 1502 1176" style="list-style-type: none"><li>• Visit the playground to see which simple machines are used. If there is a teeter-totter, experiments with different weights, distance from fulcrum, etc.</li><li>• Hunt around the schoolyard and community for wheel and axles, gear and pulleys, a wedge, etc.</li><li>• Use the playground to create and demonstrate a moveable pulley system, a created lever, a wedge, etc. Create a problem and let the students solve it for you using machines</li></ul>
<p data-bbox="180 1234 298 1260"><b>Weather</b></p> 	<ul data-bbox="396 1203 1502 1522" style="list-style-type: none"><li>• Record daily weather for 2 weeks. Include wind, temperature, clouds, etc. at the same time daily. Each day, have students predict weather for following day based on evidence</li><li>• After designing their own weather instruments, test instruments outside daily for 1-2 weeks. Record observations</li><li>• Record an outdoor weather report in the morning. Broadcast it in your school</li><li>• Invite a hunter/trapper to your classroom to discuss experiences with weather</li></ul>






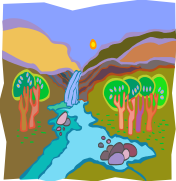
# Grade 6

Unit	Ideas
<p><b>Diversity of Living Things</b></p> 	<ul style="list-style-type: none"> <li>• Find and discuss one-way and two-way relationships</li> <li>• Give students a time limit to collect as many different leaves as possible, then categorize in as many ways as they can (size, colour, points, stem length, etc.)</li> <li>• Observe specific animals and insects. Discuss adaptations needed for survival</li> <li>• Find a place in nature to observe the five kingdoms of living things</li> </ul>
<p><b>Flight</b></p> 	<ul style="list-style-type: none"> <li>• Observe flight in nature, large and small. Observe insects, small birds, large birds. Discuss concepts in nature used in flight technology</li> <li>• Find examples of flight in plants and trees: leaves falling, seeds blowing, etc. Discuss how these characteristics have been copied by humans</li> <li>• Test and re-test a variety of kites on different days, comparing wind and temperature with flight success</li> </ul>
<p><b>Electricity</b></p> 	<ul style="list-style-type: none"> <li>• Address lightening safety around the community and in nature. Identify specific safe unsafe places to be</li> <li>• Collect natural materials to test as insulators or conductors</li> <li>• After creating an electromagnet, take it outside to see if you can pick up any rocks in the schoolyard. Also, take a walk around the school to see which types of metal create a magnetic field (door handles, hinges, bike racks)</li> </ul>
<p><b>Exploring the Solar System</b></p> 	<ul style="list-style-type: none"> <li>• Gather in a place where you can see satellite devices (cell tower, dish on the school). Discuss how these work on site. Introduce students to GPS</li> <li>• View a satellite map (Google maps) of your area. Observe what is seen clearly and what is missing from the map. Follow a trail from the map</li> <li>• In a natural setting, have students describe what would happen if the sun disappeared. Use specific terminology from previous study</li> </ul>



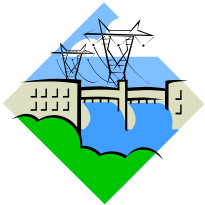

# Grade 7

Cluster	Ideas
<p data-bbox="110 285 363 359"><b>Interactions within Ecosystems</b></p> 	<ul data-bbox="396 310 1365 495" style="list-style-type: none"><li>• Find And Discuss One-Way And Two-Way Relationships</li><li>• Find Evidence Of Complex Change: Sprouting Seed, Cocoon, Etc.</li><li>• Find Evidence Of Simpler Change: Decaying Plant Or Animal</li><li>• Reinforce Needed Vocabulary With Specific Examples In A Natural Setting</li></ul>
<p data-bbox="120 569 347 642"><b>Particle Theory of Matter</b></p> 	<ul data-bbox="396 558 1511 831" style="list-style-type: none"><li>• Observe Allocations Made For Heating/Cooling In The Community: Tar In Sidewalk, Hydro Lines, Docks, Etc.</li><li>• Collect Water Samples From Around The Community (Lake Areas, Pond, Tap, and Rain). Test Boiling Points, Discuss Results</li><li>• Each Student Collects Snow in a Container. At Timed Intervals, Record Temperature. Create A Graph, Compare With Entire Class</li></ul>
<p data-bbox="168 863 298 936"><b>Forces &amp; Structures</b></p> 	<ul data-bbox="396 852 1487 1125" style="list-style-type: none"><li>• Visit A Structure In Your Community (Bridge, Dock). Identify How It Is Able To Withstand Natural Forces. Observe Any Effects Of Force Onto The Structure</li><li>• Identify Static, Live, Dead And Dynamic Loads Around The School. Use A Bicycle To Demonstrate Some Concepts</li><li>• Challenge Students to Design a Structure (Tallest Or Strongest) Using Only Natural Objects They Have Collected</li></ul>
<p data-bbox="152 1167 315 1199"><b>Earth's Crust</b></p> 	<ul data-bbox="396 1188 1438 1377" style="list-style-type: none"><li>• Collect Rocks and Minerals in the Community. Describe Using Observations On Lustre, Cleavage, Etc.</li><li>• Near A Water Source, Find Evidence Of Erosion</li><li>• Visit A Local Garden. Identify Soil Properties To Make That Garden Successful</li></ul>


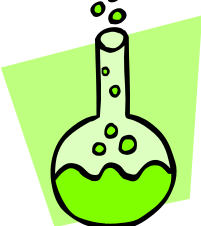


## Grade 8

Cluster	Ideas
<p><b>Cells &amp; Systems</b></p> 	<ul style="list-style-type: none"><li>• Use the Characteristics of Living Things chart to document several organisms in a natural area</li><li>• Collect several plant samples around the school. Use a microscope to compare and contrast samples</li><li>• In a natural setting, have students create an analogy of the planet Earth's systems. What would be the lungs, skeleton system, etc.?</li></ul>
<p><b>Optics</b></p> 	<ul style="list-style-type: none"><li>• Collect and use natural elements to create colour dyes: dandelion stem, berries</li><li>• Explore reflection in the schoolyard and in a natural setting. Identify which sources produce a light reflection, and why</li><li>• Use a camera to go on an optical treasure hunt: photographing various colours, natural examples of optic concepts</li></ul>
<p><b>Fluids</b></p> 	<ul style="list-style-type: none"><li>• Challenge students to find an outdoor example of a newly learned term</li><li>• Use a variety of collected natural objects with different weights and volumes to explore mass &amp; displacement</li><li>• Use natural objects to build penny boats</li></ul>
<p><b>Water Systems</b></p> 	<ul style="list-style-type: none"><li>• Find specific examples of the water cycle outdoors</li><li>• Visit a shoreline on a calm day. Observe the effects of erosion on the bank. Discuss ideas on how to prevent erosion</li><li>• Visit your community's water filter system</li></ul>

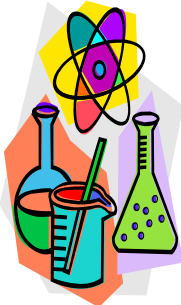
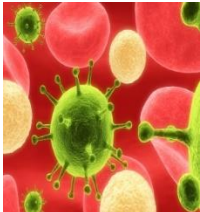
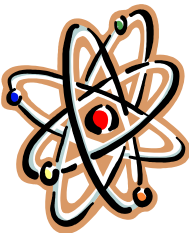
## Grade 9

Cluster	Ideas
<p data-bbox="142 264 331 296"><b>Reproduction</b></p>  <p>The image shows a red female symbol (a circle with a vertical line and a horizontal line) and a blue male symbol (a circle with an arrow) overlapping each other.</p>	<ul data-bbox="407 317 1495 495" style="list-style-type: none"><li>• In a natural setting, observe as many plants which use visible asexual reproduction as possible</li><li>• In a natural setting, have students identify which plants would be genetically modified, and for what purpose. Would they link characteristics?</li></ul>
<p data-bbox="110 596 363 627"><b>Atoms &amp; Elements</b></p>  <p>The image shows a snippet of a periodic table with the element Oxygen highlighted. The text 'Oxygen' and '15.9994' are visible.</p>	<ul data-bbox="407 611 1511 789" style="list-style-type: none"><li>• Take a walk around and near the school. Identify any items that use any of the first 18 elements</li><li>• Find examples of physical and chemical changes in nature</li><li>• Walk around the community to find examples of chemical changes in urban settings</li></ul>
<p data-bbox="168 852 305 926"><b>Nature of Electricity</b></p>  <p>The image shows a stylized illustration of a hydroelectric dam with water flowing through it, set against a blue sky and green hills.</p>	<ul data-bbox="407 915 1479 1094" style="list-style-type: none"><li>• Find several objects around the school and in a natural setting. See if these will relay a charge</li><li>• Visit a water source. Discuss the benefits and issues of bringing a hydroelectricity dam into or near your community</li></ul>
<p data-bbox="147 1209 326 1283"><b>Exploring the Universe</b></p>  <p>The image shows a cartoon alien with green skin and large eyes sitting in a small, white, saucer-shaped spaceship. The Earth is visible in the background.</p>	<ul data-bbox="407 1220 1463 1398" style="list-style-type: none"><li>• For a period of 2 weeks, chart the position of the sun at different times of day. Compare the position results over the time span</li><li>• After researching was of searching for extraterrestrial life, identify and justify an area suitable for habitat by any life form</li></ul>

# Grade 10

Cluster	Ideas
<p><b>Dynamics of Ecosystems</b></p> 	<ul style="list-style-type: none"><li>• Find and discuss one-way relationships &amp; two-way relationships</li><li>• Use a natural setting to explain carrying capacity, limiting factors for specific animals</li><li>• Identify and document the biodiversity of a set area. Use (and then remove) hunter's tape for the boundary</li></ul>
<p><b>Chemistry in Action</b></p> 	<ul style="list-style-type: none"><li>• Explore process: evidence of one action that is a direct cause for another reaction</li><li>• Challenge students to find direct evidence of non-reversible pollution in and around the community</li></ul>
<p><b>In Motion</b></p> 	<ul style="list-style-type: none"><li>• Focus on movement in nature: clouds, blowing wind, flowers that open or close, things that fly, run, or jump, water that flows, etc</li><li>• Measure the flow of water using two set points, an orange, and a timer</li></ul>
<p><b>Weather Dynamics</b></p> 	<ul style="list-style-type: none"><li>• For 2 weeks, have students predict weather for following day based on specific evidence. Record daily weather including wind, temperature, uv index, highs &amp; lows, etc.</li><li>• Measure radiation in various outdoor areas, both near the school and in nature</li><li>• Find evidence of severe weather effects in your community</li></ul>

# Grades 11 & 12

Area of Study	Ideas
<p><b>Chemistry</b></p> 	<ul style="list-style-type: none"> <li>• Look for evidence of chemical reactions: rust, growing crystals, etc.</li> <li>• Use kinetic molecular theory to describe and explain observed natural properties and processes</li> <li>• Measure air pressure in various indoor and outdoor areas</li> <li>• Participate in a local water supply tour, testing local water, and recommended treatments</li> <li>• Experiment with solubility using a variety of collected water samples</li> </ul>
<p><b>Biology</b></p> 	<ul style="list-style-type: none"> <li>• Look for signs of destruction or death in nature: fly in spider web, rock cracked by tree root, something burned. Have students explain why these are positive or negative, and which leads to new beginnings. Re-visit site to observe changes</li> <li>• Identify activities and locations for outdoor activity in your community Link these to health and wellness</li> <li>• Identify life processes that are common to humans and observed plants</li> <li>• Compare the nutritional needs of local plants and animals to humans In a natural setting, identify the nutritional types</li> <li>• Explain how planet earth maintains homeostasis</li> <li>• Explore 'survival of the fittest' in a natural setting</li> </ul>
<p><b>Physics</b></p> 	<ul style="list-style-type: none"> <li>• Conduct a Safe Egg experiment: create safe containers, parachutes, etc. so the egg is protected upon impact from a set height</li> <li>• Use outdoor examples of wave use in the community</li> <li>• Create a theory of nature (true or false). Defend your theory, 'prove' it using the attributes of a good theory</li> <li>• Use outdoor objects &amp; settings to explore kinematics, momentum, projectiles, centrifugal force &amp; dynamics</li> </ul>

# RESOURCES

## **The Single Concept Field Trip**

Clarke Birchard and Alan Crook

Adapted from *Pathways* 7:4, June 1994

## **Five Minute Field Trips**

Teaching about nature in your schoolyard

Canadian Parks and Wilderness Society

Calgary Zoo

2002