

# Curriculum Linked Activities to Use Outside TOMORROW!

Kootenay Columbia Environmental Educators (KCEE)

<https://www.sd20.bc.ca/kcee/>

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## CORE ROUTINES

- Land Acknowledgement
- Reminding students that they are **outside for learning**
- Setting boundaries and expectations
- Communication tool for the day? - whistle, call and response, song, etc.
- Activities to awaken the senses
- Sit spots (not usually at the beginning, but often incorporated with other activities)
- Every activity requires different levels of pre-teaching and debriefing, depending on your intent.
- Risk assessment

## APPLIED DESIGN, SKILLS, AND TECHNOLOGIES

### Make a Harvesting Tool

- **Materials / Prep:** Natural and man-made loose parts, laminated pictures of 3 food sources (eg. camas roots, salmon, berries).
  - Camas: roots were a staple food stuff
    - You need to be careful not to disturb all the other plants / bulbs around the one you are harvesting.
- **Activity:** Observe the pictures and discuss historical and current harvesting techniques, design a tool using the loose parts that can harvest one of the 3 food sources, it must be a design that is sustainable and can allow for propagation for future generations.
- **Extension / Differentiation:** You can make this more challenging by limiting the materials, or by having students study actual historical replicas, then making adjustments, etc.

### Mobile Field Guide Apps

- **Materials / Prep:** Phones or tablets with different apps already downloaded, clipboards, pencils, nature journals.
- **Activity:** Students use the apps to identify plants and or birds, then record their findings in a nature journal.

- **Extension / Differentiation:** Students can then use the data that they have collected for Math activities, such as ratios, fractions, percentage, charts, and graphing. Or they can choose one species of plant or animal to focus some research on. This can also lead to more in depth conversations around ethnobotany or Indigenous use of animals, etc.
- List of Apps (some are free, some cost \$):
 

<input type="checkbox"/> Plant Snap	<input type="checkbox"/> eBird
<input type="checkbox"/> iNaturalist	<input type="checkbox"/> Butterfly Collection
<input type="checkbox"/> Tree Book	<input type="checkbox"/> Insect Identification
<input type="checkbox"/> MyNature Tree Guide	<input type="checkbox"/> Nature Gate
<input type="checkbox"/> Virginia Tech Tree ID	<input type="checkbox"/> MyNature Animal Tracks
<input type="checkbox"/> Botany Buddy	<input type="checkbox"/> Scat and Tracks of North America
<input type="checkbox"/> Plant Net	<input type="checkbox"/> Goskywatch Planetarium
<input type="checkbox"/> Leaf Snap	<input type="checkbox"/> Star Walk
<input type="checkbox"/> Merlin Bird ID	<input type="checkbox"/> WindGURU
<input type="checkbox"/> Audubon Birds Pro	<input type="checkbox"/> Map My Hike
<input type="checkbox"/> National Geographic Birds	<input type="checkbox"/> Trails-GPS Tracker
<input type="checkbox"/> iBird	

## Rebus Puzzles

- **Materials / Prep:** Premade Rebus puzzles that work for a common trail either printed on cardstock or laminated (I usually prepare 5 maps for 5 groups of 4 students).
- **Extension Materials:** Rebus puzzle making supplies such as markers, cardstock and scissors
- **Activity:** For primary students you prepare the Rebus puzzles ahead of time. Students read the rebus puzzle and the clues will lead them to another hidden Rebus puzzle. For example, the puzzle might use different symbols to describe walking forward 100 steps then going East at the big Willow tree and finding their clue next to the rotten stump. You will need to plant the puzzle pieces ahead of time. I usually do this while the students are having lunch. This is a scavenger hunt and their group receives a prize at the end.
- **Extension / Differentiation:** For intermediate groups, the students go into an area in their groups and create a rebus puzzle scavenger hunt for another group to try to solve. They can map the area on a large piece of paper. Students then cut the map into 5 parts and makes 5 rebus puzzles to go along with each section so that every time they solve a rebus puzzle they get a new piece of the map. The map then shows where the “treasure” is located.

## Mini Amusement Park or Zipline

- **Materials / Prep:** A small person (lego, polly pocket, a stickman made out of pipe cleaners), a piece of rope or string 1 metre long for each student.
- **Activity:** Students shrink down and create a roller coaster or zip line using their string or rope. They use the natural lay of the land to create the ups and downs etc. They can also use their person character to complete the roller coaster or zip line.

- **Extension / Differentiation:** Tell the story of the roller coaster ride, or journal about it afterwards.

### **Peter Pinecone Needs a Perch!**

- **Materials / Prep:** Collect pinecones and glue googly eyes on them.
- **Activity:** In groups of 3 or 4, the students must create a perch for Peter the Pinecone so that he can more easily see the world around him. Students may only use things found in the environment around them.
- **Extension / Differentiation:** You can give more complex criteria, such as “He needs to be sitting at least half a meter off of the ground.”

### **Design Challenges**

- **Materials / Prep:** Dependent on activity.
- **Activity:** Choose a design challenge based on what you are studying in science, math or social studies. Come up with criteria for what the design needs to include. Decide what materials and tools students will have access to; you may decide that they can only use recycled or reclaimed items. Have students work in groups to complete the design challenge, usually on a miniature scale.

You can even incorporate experts in various fields to come in and present about different topics (eg. engineering buildings for snow load).

- **Examples:**
  - Backcountry cabin (that will withstand snow load)
  - Working waterwheel
  - Civilization (with every aspect demonstrated)
  - Pyramid
  - Boat that the entire team can paddle across a pool (eg. with only cardboard and duct tape!)
  - Solar oven
  - Shelter (quick shelters for after a natural disaster or in war torn areas)
- **Extension / Differentiation:** The less instruction and materials, the more challenging the activity!

## **ARTS EDUCATION**

### **Budding Artists - Nature Journaling (Springtime activity)**

- **Materials / Prep:** Flagging tape, students’ nature journals.
- **Activity:** Using flagging tape, students mark a branch on a deciduous tree or shrub. Over several weeks (4 - 6 weeks), students return to their bud (1x per week) and draw its transformation as spring advances in the area.

When out in the field, students work in a field journal (small piece of paper on a clipboard). Back in class, students can draw the bud again adding more details and colours. Display the bud drawings as a sequence.

**Extension / Differentiation:** You may also create a labelled diagram and name the parts of the bud. Or extend the activity to sketching a few different kinds of plants, or following the transformation of an entire ecosystem.

## Walking Field Map

- **Materials / Prep:** Clipboards, small piece of paper and pencil per student or partner. Teacher has a piece of cardboard and sharpie - so you can show and model your field map.

This nature journaling activity is perfect for a walking field trip near your school. It can be done in green spaces or a neighbourhood or both! Before heading out on your walk, show the students how to Zoom in and Zoom out on things in the environment. Discuss how when we Zoom in, we notice details that we can't see when we Zoom out. You can show how to use your hands to create a frame to Zoom in on something (put fingers together to make a frame).

- **Activity:** Before heading on your walk, students record the starting point (school), show how to use dotted lines to represent walking. Set the criteria - everyone must Zoom in on 3 things and Zoom out on 3 things along the walk. Use symbols to add sounds heard (ie. wispy wind to represent breeze or ch ch ch to represent a squirrel). Now head on the walk. The Field Map will look abstract. Students add things to the path of their journey as they encounter them. (example: Zoom in on a mushroom ..... bzzzzz (sound of a bee buzzing.....picture of a flag flapping.....Zoom in on a crocus ....)

Back at school students recreate their Walking Field Map on 8 1/2 x 11 paper. Add more details like colours - maybe direction coordinates etc.

- **Extension / Differentiation:** Students could use measuring tapes and work to create a "to scale" map of their neighbourhood.

## Andy Goldsworthy Nature Art

- **Materials / Prep:** Andy Goldsworthy [Powerpoint](#), camera to capture art.
- **Activity:** Go outside and use natural items to create art. This can be an individual or a group activity.
- **Extension:** Study circles, spirals, mandalas, fibonacci sequence, etc. Or give them a theme or idea that they need to represent in their art.

## Sound Maps

- **Materials / Prep:** Create a basic map of your neighbourhood ahead of time OR just give them blank paper, students have clipboards and pencils.

- **Activity:** During a walk around the neighbourhood students listen for sounds and add them to the map. Depending on the developmental level they may draw a picture to represent the sound, try to represent the sound phonetically, or try to identify the sound.

OR during a sit spot, they can draw a map of all the sounds that they hear around them.

- **Extension / Differentiation:** You can do some really neat recording activities and get students to guess different sounds / species. You can also use a noise meter app (eg. Decibel X) to figure out sound volumes and use this in math activities.

## Tongo Song Lyrics

Tongo

Koomb-bye-ee-a Koomb-bye-o

Ooo Alay

Ma-lay-paw Malaway

## CAREER EDUCATION

### Student Led Risk Assessment - What if?

- **Materials / Prep:** N/A
- **Activity:** This is a practice that is used by different companies (including Teck) as a way to mitigate risk, and it is usually done every morning. In outdoor learning, this can be used whenever you enter into a new area, or start a new activity. Students play the “What if? Game”. Find a safe location, sit down in a circle, and identify all the hazards or risks in the area, and how we can reduce those risks by avoiding, removing or adapting things in our environment.
- **Student led portion:** Identify whether an activity is “bumps and bruises, broken bones, or death” If something is “bumps and bruises” we decide if the benefit of the risk is worth the possible consequence. If something is considered “broken bones” we also consider if it is worth the risk, but also how far we are from help, etc.
- **Extension / Differentiation:** You can use an actual risk assessment matrix and have students work independently or in partners, and possibly present to the group. Or have students take turns leading the risk assessment.

\*\*\*\*As the teacher, you still need to make the final decisions regarding risk assessment!

### The Natural Cycle

- Adapted from *Coyote’s Guide* which should be in all school libraries.

- **Materials / Prep:** Prepare a series of cards (8.5 x 11 cardstock) with each of the 8 cardinal directions on it, and another set of cards for each layer of meaning that you want to introduce:
  - Directions
  - Times of day
  - Seasons
  - Stages of Life
  - Qualities of the 8 directions / energy levels
  - Learning cycle
- **Activity:** Get students sitting in a circle and ask them to point in the 8 cardinal directions. Ask them what comes to mind when they think of each of those directions. Place the cards for the 8 directions in front of students in the correct orientation. Introduce as many new layers of meaning as you would like, for example “Here are the different stages of life (Infant, Toddler, Child, Adolescent, Young Adult, Adult, Elder...) and where would they fit in the circle?.” Discuss.
- **Extension / Differentiation:** This can be connected to Indigenous teachings through the integration of the Medicine Wheel teachings. The complexity of meaning for each direction will be differentiated depending on your group.

You can get students to reflect on this afterwards with a journaling activity about what they are planning and hoping for in each stage of their lives.

## Peep Village

- **Materials / Prep:** A “peep” constructed by the students, which is a small person figurine.
- **Activity:** Students use different materials to construct a peep. This activity can be as simple or as complex as you want and can either just take a day or can last multiple weeks. Students take their peeps to an outdoor area and have to build them a shelter. Eventually you can turn all the individual shelters into a community. Each peep homestead has resources that they share or trade, each peep provides a service to the community, etc.
- **Extension / Differentiation:** The students can also journal about their peeps by writing a diary of their time on the homestead, or they can write character backstories.

## Survival Techniques in the Outdoors

- **Materials / Prep:** Depends on follow up activities.
- **Discussion:** There is a rule of 3 when in the outdoors and this helps students remember what things they need to prioritize if lost or trying to survive in the outdoors. You can survive 3 minutes without air, 3 hours without shelter, 3 days without water and 3 weeks without food. Students should ensure they are in a safe location where they can have access to air (away from water or avalanche/tree wells), then they need to stay where they are and build a shelter where they can stay warm, then they need to find a source of water and possibly food.

- **Extension / Differentiation:** Discuss / design signaling techniques (eg. 3 whistle blasts), which colours are easiest to see from above, etc.

## Fire Building

- **Materials / Prep:** Gathered lichen, leaves, twigs, kitchen peeler (I always carry peelers with me because they are a safe alternative to a knife - students can peel cedar and get very good fire starter materials), matches.
- **Activity:** When gathering materials for a fire, teach students to collect items the thickness of hair (tree lichen, dried leaves or shredded cedar), the thickness of your fingers, and the thickness of your wrists.

After they have all those materials, they learn how to build a Teepee fire. To prepare your fire, make sure they learn how to build a fire guard around the fire - either with rocks or exposing the ground to dirt.

They get 3 matches, which is 3 chances to start their fire. If they fail, they go and help another group where they can share what they learned in their failures.

- **Extension / Differentiation:** You could use flints / strikers to make a spark, or even try to make bow drills with older students (<https://www.wildwoodsurvival.com/survival/fire/bowdrill/pmoc/basicbowdrill.html>).

## Fort Building and Winter Shelter Building

- **Materials / Prep:** Loose parts found in nature.
- **Activity:** Beforehand we research and learn about the different shelter styles and their benefits (lean-to, teepee, debris shelter, snow quinzee, etc.). Students usually brainstorm their plan once in the field and they can see what materials they have to work with. This is a fun activity to do in the Fall, then students can return to their shelters throughout the year and add to it or see how it holds up to weather such as snow or rain (although this warrants a conversation about whether it is appropriate to leave shelters standing).
- **Extension / Differentiation:** For younger students, they can build a shelter large enough to hold a doll or lego character. Older students can build full-scale shelters, and could attempt a quinzee with proper instruction.

## ENGLISH LANGUAGE ARTS

### Haikus and Photography

- **Materials / Prep:** Phones or point and shoot cameras, paper, pencils. Pre-teach the haiku model of poetry.

- **Activity:** Students find a special place outside, they take a photograph of that place, and write a haiku poem about it. Once the photograph is printed or developed the students can learn calligraphy to write their poem underneath the photograph for a nice presentation.
- **Extension / Differentiation:** You can do this with more complex forms of poetry.

## Found Items Poetry

- **Materials / Prep:** Found items outside.
- **Activity:** Students choose a found item - either from a prepared pile or from nature - and they spread them out in an area, then form a circle around them. Once a poem structure is established (Haiku, 3 descriptive words, limerick, etc.) the students silently choose an item with their eyes, then say their poem about that item out loud, the rest of the group tries to guess which item they are talking about.
- **Extension / Differentiation:** These poems can be recorded and edited, etc. later on.

## Méttissage (*“The Weaving of a cloth from different fibers.”*)

- **Materials / Prep:** Clipboards, paper, pencils.
- **Activity:** Méttissage is a writing technique for weaving different voices together into one cohesive writing piece. Have students in groups outside, give them a prompt and a timeline, ask each student to write a piece independently, based on that prompt. Then instruct them to get in groups and figure out how to weave their writing together - they could just take turns integrating one sentence at a time, or collaboratively decide how their writing best fits together. Their goal is to create one cohesive piece of writing based on the prompt. Have them present their shared pieces to the group.
- **Examples of Prompts:**
  - Describe your childhood.
  - What is unique about the place that you are sitting?
  - Your most sacred or special place in nature.
  - How have humans adapted to their environment in this area?
  - How has nature been modified in this area?
- **Extension / Differentiation:** This can be more a form of poetry, or a summary of a nonfiction topic or prompt. This can be extended to any subject area, so the writing could be a culminating piece at the end of a cycle of learning about a specific topic.

## Clue Poetry

- **Materials / Prep:** Clipboards, paper, pencils, laminated cardstock with poem examples.
- **Activity:** Get students to do sit spots somewhere in a natural environment. Ask them to write a poem during their sit spot. The poem should be written in the first person, from the perspective of a natural object or species, without giving away the identity of that object or species.

Students come back together and present their poems to the class, and the class needs to guess who or what the character in the poem is.

○ **Example:**

I am part of a never ending cycle.

I take things away and I bring them back.

I fall, but never climb.

I am every colour of the rainbow or no colours at all.

I am an artist, a carver to be more exact.

I am both gentle and powerful.

(Answer: Creek or water)

- **Extension / Differentiation:** You can give them more complex criteria - length, rhyming scheme, etc.

## Mountaintop Slam Poetry

- **Materials / Prep:** Paper, clipboards, pencils. Share examples of spoken work and slam poetry in the classroom.
- **Activity:** Give students a prompt over lunch and give them a chance to have a sit spot or time to reflect and create.

After everyone has had time to write, set up a natural amphitheatre spot for everyone to take turns sharing. There is something about being outside, maybe on top of a mountain, that gets rid of inhibitions!

○ **Examples of Prompts:**

- You are a rock tumbling down from the summit of Red. Tell it's story.
- You are a water droplet melting off of a snowfield on Old Glory. Tell it's story.
- A species in the ecosystem.
- A raindrop.
- Free write.

- **Extension / Differentiation:** You can give them more complex criteria - length, rhyming scheme, etc. This can even be a great venue for a culminating Ted Talk style project.

## Outdoor Read-Aloud

- **Materials / Prep:** Find books, find a good spot, bring sit mats if you like.
- **Activity:** Take your class outside and read to them!
- **Extension / Differentiation:** Have students read to each other. Have them use natural objects to act out a story.
- **Resources:**
- Legends of the Forest Series - local author, Darcee O'Hearn  
<https://www.legendsoftheforest.ca/>
  - Heart of the River - Eileen Delehanty Pearkes  
<https://www.edpearkes.com/book/heart-of-the-river/>

- Not Extinct: Keeping the Sinixt Way - Marilyn James and Taress Alexis
- The Elders Are Watching - David Bouchard
- Natural Curiosity Pinterest Board has so many ideas  
<https://www.pinterest.ca/naturalcuriosity/?eq=natural%20curiosity&etslf=12573>
- Outdoor Environmental Ed Picture Books  
[https://docs.google.com/document/d/19csAhEbSPI-wjKRmrD\\_JfW1N-6Yorc5KwDajZ2UGkMo/edit?ts=5ccb2f04](https://docs.google.com/document/d/19csAhEbSPI-wjKRmrD_JfW1N-6Yorc5KwDajZ2UGkMo/edit?ts=5ccb2f04)
- Link to a compilation of library books K-12  
[https://docs.google.com/document/d/19csAhEbSPI-wjKRmrD\\_JfW1N-6Yorc5KwDajZ2UGkMo/edit?ts=5ccb2f04](https://docs.google.com/document/d/19csAhEbSPI-wjKRmrD_JfW1N-6Yorc5KwDajZ2UGkMo/edit?ts=5ccb2f04)

## MATH

### Species Inventory

- **Materials / Prep:** Pencil, paper and a clipboard.
- **Activity:** Students walk around the neighborhood counting birds and/or plants and trees. Students compile their data and graph it.
- **Extension / Differentiation:** You can do this as a seasonal activity and compare the graphs across the seasons. Students can also use the data that they have collected for other math activities, such as ratios, fractions, percentage, and charts.

### Monoculture / Diverse Culture

- **Materials / Prep:** Pencil, paper, clipboard, and a hula hoop or large piece of rope/string for each student.
- **Activity:** Students use the string or hoola hoop and put down in 2 different areas - one that is a monoculture and another area that is more diverse. Students count the species in a diverse area and make observations about the difference between that and a monoculture.
- **Extension / Differentiation:** You can also incorporate different measurement activities such as estimation, ratio, percentage, fractions, etc.

### Forest Math

- **Materials / Prep:** Measuring tape, pencil, string, clipboard, paper.
- **Activity:** Take your measurement unit into the field. Plot a section and figure out fractions, ratios and percentages of different species in the plot. You can also find the circumference and volume of trees and calculate board feet.
- **Extension / Differentiation:** You could also use clinometers to do trigonometry and find out the height of trees. Or use apps like Slope to figure out angles, etc.

### Angles in Nature

- **Materials / Prep:** Nature journals, phones / tablet with angle app downloaded (Angles in Photo, Slope, etc.)

- **Activity:** In a nature journal, draw, label, identify and estimate angles in nature or in the community including the slopes of man-made structures (eg. roof) and natural slopes (eg. hillside). Then use the app “Angles in Photo” to compare actual angle to estimation.
- **Extension / Differentiation:** Use a clinometer to measure slope angles, or make your own clinometer (<https://www.wikihow.com/Make-a-Clinometer>).

## Floating Boats

- **Materials / Prep:** Loose parts (eg. egg cartons, string, cups, plastic containers, etc.), timing devices (watches, phones, stopwatches, etc.), and optional measuring tape or a 1 meter length of rope. Find a good creek (small enough that it is not a safety issue, but with enough consistent flow that you can measure the water velocity).
- **Activity:** Put students in groups or let them choose, give each group all the same set of loose parts and some kind of timing device. Give them boundaries and a timeline. Ask them to use their loose parts to figure out how to determine stream velocity (m/s).

Make sure to emphasize the “Leave No Trace” ethic and make sure that all loose parts are cleaned up and taken with them at the end of the activity.

- **Extension / Differentiation:** With younger students, you can just use leaves as “boats” and run a series of trials as a group in order to demonstrate how to determine stream velocity.

With older students, you can get them to play with units and do unit conversions to determine velocity.

## PHYSICAL EDUCATION

### Camouflage

- **Materials / Prep:** Scout out an area that has lots of natural hiding spots - leafy shrubs, fallen logs, varying sized trees, hollows, etc.
- **Activity:** Remind students that running through forested areas has some risks, and that they need to still watch their footing, and choose safe routes during a game.

Ask students what all animals need to survive - food and water, etc. Ask how prey protect themselves from predators. Ask them to give you an example of a predator - prey relationship in the local ecosystem (eg. cougar and hare).

Get one volunteer to be your predator. They need to choose a spot, usually in the middle of the area, on the path. They can rotate, but one foot is always stuck on the spot. They cover their eyes and count to a specified number (maybe 30 to start, depending on how challenging the area is), all of the “prey” run and find a place to hide or be camouflaged. After the “predator” finishes counting, they open their eyes and catch as many “prey” as they can by yelling out who they have seen by name, or description of clothing. Those “prey” come back to a designated decomposition pile.

Then the predator counts to a lesser number, all the prey need to move closer, and then the predator tries to find people again. You can keep going until there is only one “prey” left.

- **Extension / Differentiation:** You can make it more interesting with adding the element of water, but students will be running a lot more, so make sure to point out risks, etc.

After you have the predator choose a spot, also designate something close by that can be the “water” - a tree or a downed log works well. When the predator is about to count again, they yell “Water, 20 seconds.” All the prey need to run back and touch the water and then go back and hide before the predator is finished counting. Continue decreasing the amount of time that is given each round.

This can lead to some great discussions about how predators will sometimes spend time around a water source because it is a natural spot to catch prey, and why it is so important for prey to be camouflaged.

This can be a great jumping off point for an inquiry about animal camouflage, or adaptations.

## **Predator-Prey-Protector**

- **Materials / Prep:** Large open area. This is a great warm up game or a game to play when people are cold and need to move around.
- **Activity:** Have the group stand in a circle. Everyone needs to silently look around and choose one person who will be their predator and one person who will be their protector. No one should tell anyone who they have picked.

When the game starts, tell everyone that they need to move around in order to always keep their protector between them and their predator. Because everyone has different protectors and predators, everyone will just be constantly running around trying to keep that configuration.

## **Squirrel Tails**

- **Materials / Prep:** Strips of fabric - enough for 2 tails per person (these double really well as blindfolds for other activities).
- **Activity:** Mark a playing area about 50 ft X 50 ft and have each student stick 2 tails into the back of their pants. Students try to steal one tail at a time and add them to their tails. Once you are all out of tails you need to sit down on the ground. Someone can give you a tail to help you get back into the game.
- **Extension / Differentiation:** Make the playing area larger.

## **Fighting Over Prey**

- **Materials / Prep:** Some kind of objects that can be thrown - colourful bean bags, hacky sacks, sticks, balls. Large open area, grassy and even is best.

- **Activity:** Get students in pairs and have them choose an animal to be, no pairs can have the same animals. Sometimes making a list of all the chosen animals will help. Get people to line up in two rows with partners facing each other about 15 m apart.

Stand in the middle, but to the side of the rows. Throw some “prey” (eg. bean bag) into the middle and yell an animal. The two partners who are that animal need to run into the middle and try to be the first to grab the “prey” and run back to their line. If the other partner tags them, they have to drop the prey and try and chase that person and tag them to get them to drop the prey, and back and forth until one of them makes it back to their line.

To make it more complex, start throwing prey and yelling multiple animals at a time.

- **Extension / Differentiation:** Make the playing area larger. Yell out clues instead of the animals’ actual names - “silently stalks their prey” for cougars.

## Outdoor Yoga

- **Materials / Prep:** A nice grassy / soft spot outside that is relatively flat. Mats are optional.
- **Activity:** Lead students through various yoga poses. There are many nature yoga posters and examples that can be used based on a different theme such as nocturnal animals or a different season (<https://www.kidsyogastories.com/yoga-for-spring/>).
- **Extension / Differentiation:** Get students to teach or demonstrate new poses to their peers.

## SCIENCE

### Carbon Dioxide Game

- <https://greenteacher.com/the-carbon-dioxide-game/>
- **Materials / Prep:** Something to make a large circle, big enough for students to stand at least fingertip to fingertip around (rope), and something to make a smaller circle in the middles (rope or hula hoop, etc.), Human Activity Cards (printed off from the link above). It works best if you are able to lay out the ropes ahead of time.
- **Activity:** This game demonstrates the greenhouse effect by showing how CO<sub>2</sub> in the atmosphere traps heat and insulates the Earth. Have students stand around the large outside circle. Ask them what they think the larger and smaller circles represent. The larger circle is the atmosphere and the smaller circle is the earth.

Ask them what they know about the atmosphere and the greenhouse effect. Explain that the sun’s radiation comes through the atmosphere to the earth. Some of that radiation is absorbed into the earth’s surface, depending on the colour of the surface (about 70% is absorbed by darker surfaces). Some of the radiation is reflected back

into the atmosphere (around 30% by clouds, ice / snow, white surfaces, etc.). Some of that heat escapes from the atmosphere, some of it is trapped in the atmosphere by greenhouse gases. Ask students what naturally causes greenhouse gases to be released into the atmosphere (eg. ruminant digestion, respiration, volcanic eruptions, etc.). These naturally occurring greenhouse gases trap that heat in the atmosphere and it warms it up, just like in a greenhouse. Discuss that if we didn't have the natural greenhouse effect in our atmosphere, earth would not be livable.

Get 6 volunteers to represent the naturally occurring greenhouse gases in the atmosphere. They have to pick a spot in the atmosphere. They are allowed to rotate 360°, but must keep one foot rooted on the spot. Everyone else around the outside of the circle represents radiation and when you say go, they all need to try to run in to touch the earth and run back out to the outside of the atmosphere without getting tagged by the greenhouse gases. If you get tagged, you need to sit down somewhere in the atmosphere to represent trapped heat.

- **Extension / Differentiation:** You can extend this to teach about climate change and human caused greenhouse gas emissions, by including the human use cards and all of the ways that humans impact greenhouse gas levels in the atmosphere. The cards focus on CO<sub>2</sub>, but you can discuss the different types of greenhouse gases and their sources.

This can be a lead of activity for an exploration of climate change. You could even ask older students to come up with their own examples of human activities that either increase or decrease greenhouse gas levels.

This is great for Social Studies as well in order to introduce the idea of climate change and how humans affect their environment.

## The Incredible Journey: Water Cycle Activity by Project Wet

- <https://www.projectwet.org/resources/materials/discover-incredible-journey-water-through-water-cycle>
- **Materials / Prep:** Water cycle cubes, optional string, beads, bowls for beads at each station.  
<https://drive.google.com/file/d/1XhKxvBJ2Ny9FPiVIQDTqV9USQx4t0YGv/view?usp=sharing>
- **Activity:** Students become water droplets and with a roll of the dice travel through different stages of the water cycle. Each student will have a different journey. Share and reflect on their experiences.
- **Extension / Differentiation:** You can have a bowl of beads at each station and a different colour bead to represent each different stage of the cycle, when students travel to a station, they put that colour bead on their string. Everyone will have a unique bracelet at the end showing their unique journey through the water cycle.

Students can write a story from the perspective of a water droplet and how they move through the cycle.

## Luge Tracks made out of Snow

- **Materials / Prep:** Avalanche shovels and garden shovels (have the students bring in small shovels), field hockey balls or bocce balls.
- **Activity:** This activity is a perfect field activity for studying forces - especially gravitational force. Students build a luge track for the ball to roll down. The ultimate goal is to see who can keep the ball in the track the longest. You can add other criteria like: add a tunnel, a bridge, a gap jump, a ramp. Once the Luge Tracks are built, each group showcases their track. Use a timer to see who has the longest time. You can also video the tracks and watch them back in class.
- **Extension / Differentiation:** Try a loopde loop!

## Snowy Solar System

- **Materials / Prep:** Measuring tapes, food colouring / dye, chart of the solar system with scale measurements that students have created prior to the activity. A large, flat snowy field works best.
- **Activity:** Build a “to scale” solar system in the snow on the field, use food colouring or natural dye to colour each of the planets, and stomp out the orbital patterns.

The scale is too great to have planets be to scale in relation to the orbital patterns, but you can make planets to scale relative to each other, and orbital patterns to scale relative to the other orbital patterns.

- **Extension / Differentiation:** Introduce Astronomic Units (AU) of measurement.

## The Web of Life String Activity

- This is a great game to introduce the idea of a food web, and the impact of an invasive species being introduced to an ecosystem.
- <https://eekwi.org/teacher/invasivesguide/Web%20of%20Life.pdf>

## Snakes and Ladders

- An active game to simulate the annual snake migration from the breeding grounds to the hibernaculum (snake den).
- From the teacher resource “Below Zero,” page 131

## Oh Deer!

- A great game to teach the concept of habitat.
- [http://www.beaconlearningcenter.com/documents/313\\_01.pdf](http://www.beaconlearningcenter.com/documents/313_01.pdf)

## Beetles (Better Environmental Education, Teaching, Learning and Expertise Sharing)

- This website has many excellent science-based activities for all grade levels.  
<http://beetlesproject.org>

- The best place to find the activities is to open the Field Instructors tab (rather than the Classroom Teacher) <http://beetlesproject.org/resources/for-field-instructors/>
- There are many student activities to develop exploration routines to focused investigations. There are also videos so you can get a sense of the activity.

## **SOCIAL STUDIES**

### **Mini Civilization**

- **Materials / Prep:** Pre-teach necessary aspects of civilizations. Optional hula hoops or ropes.
- **Activity:** During outdoor time, get students in groups and ask them to create a mini civilization out of natural objects. The civilization needs to include all the aspects of a civilization. You could also give them a hula hoop or rope to create a natural border in which they need to fit their civilization.

This works well after a walk around town in which students have a chance to observe examples of different aspects of civilizations (eg. public works - water, sewer, etc., food systems, art and architecture).

- **Extension / Differentiation:** You can ask them to recreate a civilization that they have already studied.

### **Ethnobotany Plant walk**

- **Materials / Prep:** Plant ID resources (eg. laminated cards, dichotomous keys, books), clipboards, paper, pencils.
- **Activity:** What local plants and trees were used by the First Peoples of your area? How do you identify these plants and trees? What uses did they have? What technologies, medicines and food were they used for? This engages students in connecting to place and the plants and trees that First Peoples used.
- **Extension / Differentiation:** There are many different variations on how to organize this activity. Here are a few:
  - Have laminated pictures of a variety of local plants that students use to ID.
  - Bring plant/tree ID reference books that groups use to identify plants and trees.
  - Teacher points out trees and plants and identify discerning features much like a park interpreter.
  - Scavenger hunt: have pictures/descriptions of local plants that students need to find along the walk
- **Reference Books:**
  - Plant Technologies of First Peoples in British Columbia by Nancy J. Turner
  - Plants of Southern British Columbia Interior by Parish, Coupe, Lloyd
  - The Geography of Memory by Nancy J. Turner

- p.86 “Some Common Wild Food Plants of the Sinixt/Arrow Lakes Indians”

## **Fishing for the Future**

- This is a great activity to introduce the concepts of sustainability, and of renewable vs. non-renewable resources.
- You can do the activity with balls instead of candy to make it less disruptive!
- <http://resources4rethinking.ca/media/Fishing%20for%20the%20Future.pdf>

## **DEBRIEFING**

- More reflection and debriefing = more meaning
- Many different ways of debriefing
  - Choose a focus question or prompt, or ask for a one word take away
  - Talking Stick or Rock
    - Pass an object around the circle and everyone takes a turn to talk when they have the object.
  - Pass the Knot
    - Rope tied in a circle with everyone holding on, pass the knot around and it's your turn to speak when you're holding it.
  - Rock, Stick, Leaf
    - Share something that “rocked”, something that will really “stick” with you, and something that you want to “leave” behind.
  - Grab Bag
    - Have a bag of random objects (eg. bouncy ball, paperclip, nut, bolt, puzzle piece, etc.). Go around the circle and student choose an object without looking. They have a minute to think about it, then they have to make a connection between the activity or learning and the object they have chosen.
  - Journal Reflection
  - Other ideas:
    - <https://www.playmeo.com/type/debriefing-activities/>

## **USEFUL WEBSITES FOR ACTIVITY IDEAS**

- Columbia Basin Environmental Education Network (CBEEN)  
<https://cbeen.ca/education-resources/>
- Project Learning Tree  
<https://www.plt.org/sample-lesson-plans>
- Outdoor Classroom Day  
<https://outdoorclassroomday.com/resources/lesson-ideas/>  
<https://outdoorclassroomday.com/2018/01/17/seven-everyday-outdoor-lesson-ideas/>
- Playmeo  
<https://www.playmeo.com/activities/?subscription=free>

- Canadian Wildlife Federation  
<http://cwf-fcf.org/en/resources/for-educators/lesson-plans/>
- David Suzuki Foundation  
<https://davidsuzuki.org/take-action/act-locally/connecting-youth-with-nature/>
- Canadian Parks and Wilderness Society  
[https://cpaws-southernalberta.org/wp-content/uploads/2018/06/5min\\_Fieldtrips.pdf](https://cpaws-southernalberta.org/wp-content/uploads/2018/06/5min_Fieldtrips.pdf)  
<https://cpaws-southernalberta.org/resources/>
- Alberta Council for Environmental Education  
<https://www.abcee.org/eerc?page=8>
- Project Wet  
<http://portal.projectwet.org/>  
[https://www.discoverwater.org/ /](https://www.discoverwater.org/)
- Habitat Conservation Trust Foundation  
<https://www.hctfeducation.ca/lessons-more/>

## Creating a Thriving Class of Learners: Using the Outdoors to Foster Performance

Kootenay Columbia Environmental Educators (KCEE)

<https://www.sd20.bc.ca/kcee/>

Matt Gale [mgale@sd20.bc.ca](mailto:mgale@sd20.bc.ca)  
 Laura Jackman [ljackman@sd20.bc.ca](mailto:ljackman@sd20.bc.ca)

This workshop will teach participants how to use outdoor learning to foster individual learners' personal growth: self-regulation, risk-taking, resiliency and taking responsibility. Teachers will be guided through a series of activities and experiences that foster a high-performance community of learners.

1. **Setting the Tone for the Day** - 8:45-9:10
  - a. Teacher Self Reflection (Where are we from?/Where have we been?)
    - i. In pairs - use natural objects to build an art project that reflects your teaching style
    - ii. Reflect - how does working through a group activity with people you don't know make you feel? This is how students feel quite often!
    - iii. We will move through a series of activities that help to create a culture of supportive risk-taking, with the aim to build mutual respect and compassion that will inform each individual student's risk level (social, emotional, physical).
    - iv. Pre-teaching - Activity - Debriefing
    - v. Where are we now and where are we going?
      - Reference medicine wheel infographic (Ami)
    - vi. Positive Class Culture = trust (including proximity) + communication + collaborative problem solving
2. **Trust** - 9:10-9:40 - Series of activities to facilitate trust and develop an awareness of sharing personal space to accomplish shared and personal goals. Emphasize *Challenge by Choice* and *Right to Pass*.

- a. Trusting Yourself
  - i. Awakening the senses - Meet My Rock (Ami)
- b. Trusting a Partner
  - i. Eyes closed object retrieval - Partner Eyes Closed Walk, retrieve object and shoot into hoops, tell your partner one thing you appreciated about their communication, one thing that could have been better. Switch partner for next activity and share what they appreciated / needed in terms of communication. (Matt)
  - ii. Splat - bean bag retrieval and eliminate pairs, by tossing a bean bag at another group (Matt)
- c. Trusting a Group
  - i. Zipper or Run of Faith (Ami)
  - ii. Wind in the Willows (Matt)
  - iii. Trust Falls/Safety Net (emphasize this is about the net not the faller) - Both
- d. How to manage behaviours? Give leadership to students requiring attention, or give them a specific task like timing or recording (ownership).

3. **Communication** - 9:40-10:10- Series of activities to facilitate communication and acceptance of self and others, not just step by step, but sideways activities

- a. Communication Breakdown Line
- b. Levitating Stick (Ami)
- c. Shrinking Island (Matt)
- d. Hula hoop or knot pass (Ami)
- e. Slide Puzzles (Matt)
- f. Yurt Circles - shapes, trust (reference Full Value Contracts, metaphor for individual and class learning goals) (Both)
  - i. Great resources online under "Racoon Circles" or "Yurt Circles"

Break - 10:10-10:20

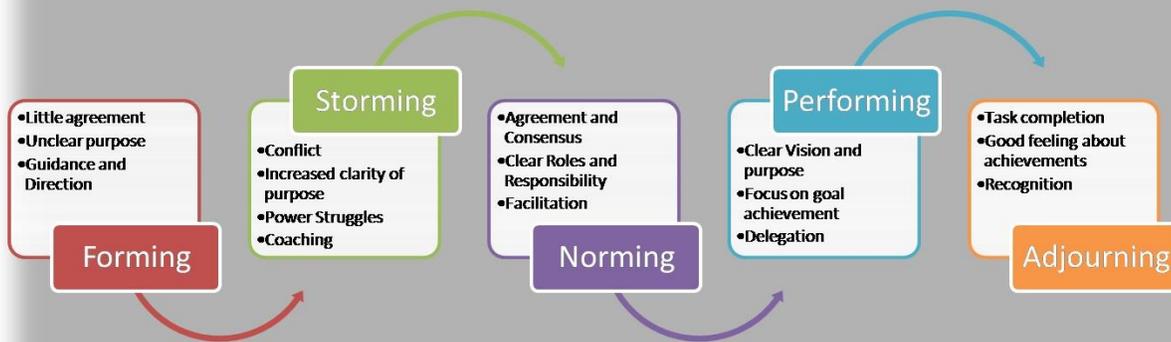
4. **Collaborative Problem Solving / Initiative Activities** - 10:20-10:50

- a. Risk Assessment - What if? (But remember you are still the final word)
- b. Island of Lava
- c. Curriculum linked problem solving
  - i. Model of an ancient civilization (complexity for differentiation)
  - ii. Design Challenges

10:50-11:15

5. **Year-Long Progression**

- a. Throughout the year, you may need to do some maintenance and go back and rebuild the culture in your class.
- b. Remember that a group can go through a progression of **Forming - Storming - Norming - Performing** a few times a year.



## 6. Transferring to other learning

- Referencing activities
- Building resilience
- Culminating experiences - what is something you can do when you apply this material back with your class?
- Curricular links

## 7. Rock, Stick, Leaf Debriefing

- What rocked?
- Something that is going to stick with you? Your take away? How can you use this?
- What do you want to leave behind (attitude, perception, negative, etc.)?