



TLC The Land Conservancy
of British Columbia

Naturalist Activity Book



for Kids

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What is a Naturalist?

Nature is a word we hear a lot throughout our daily lives: how it's being impacted, how important it is, but what exactly is nature?

Nature is all around us! From the moment we wake up, we are surrounded by the natural world. It can sometimes be hard to recognize because humans as a species have modified the natural world to suit our needs. Your house, apartment, bed, food, and clothes are made from the plants and animals that live on this planet with us!

Many of us buy our clothes and foods from urban centers far removed from the soil, plants, and animals that make them up. Because we spend a lot of time in cars, buses, watching TV, or playing on our phones, it can be hard to remember that nature and you are intricately woven into the web of life. Regardless of where you live on this planet, you benefit from the natural world and if you are naturally conscious, the natural world can benefit from you.

Bear with us and take a moment. Breathe in for 5 seconds... hold it for 5 seconds... and breathe out for 5 seconds. The air rushing into your lungs has been in countless other animals and plants, from the dandelions growing out of a concrete sidewalk, to the dog down the street. The water you drink from the tap? It was once a cloud, part of a lake, locked up in a glacier, or inside a giant tree! Both air and water are recycled within the natural world that we are a part of.

This activity book is designed to help re-connect or further connect us to the natural world. If a naturalist is anyone who engages with nature, we are all naturalists! When you jump in puddles, watch the ants carry away bread crumbs, look out at the trees through your car window, or simply play outside, you are engaging with nature! Within these covers are activities, thought experiments, and other fun exercises that will help nurture your inner naturalist.

Best wishes and we hope you have fun,

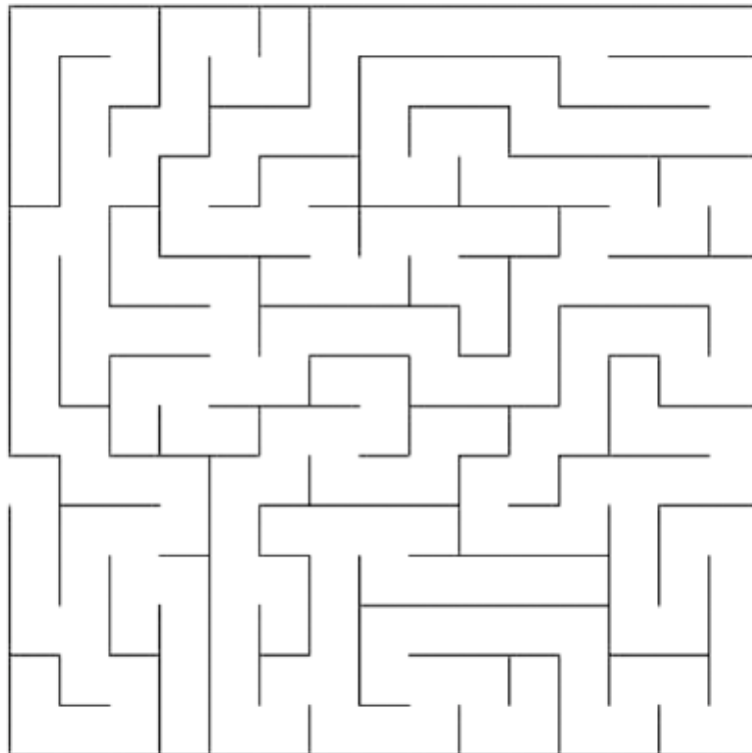
Your friends at TLC

Spring

At about the same time that this activity book comes out, the season of spring will be just around the corner! From March 20 to June 20, the slow melt of snow, and longer and warmer days signal to plants to grow, flowers to bloom, and for animals to give birth. You may be wondering, *why do the seasons change?* The answer lies within the tilt of Earth! In the spring, the upper half of earth, or the northern hemisphere, starts to lean towards the sun. As it leans, it gets more and more sunlight and heats up! As the snow melts and the soil gets warmer, plants **EXPLODE** in numbers and become available to feed a variety of grazing animals.



Help the raccoons find their aquatic friend!



Enter
here >



Leaf and Flower Press

Leaves and flowers can be the most beautiful thing about spring as the grey skies depart and the ground grows green beneath your feet. It's no wonder that the famous poet Emerson said, "*the earth laughs in flowers.*"

Directions:

Go to your favorite green space that has a lot of the same type of leaf or flower. Remember, do not take rare species or flowers that you only see one or two of. The rule is that you should only pick one of every 100, so go to a place that has a lot of flowers or leaves!

Once you have found your specimen, carefully snip or pick the flower and leaf; keep it safe!

Once you are home, take your flower or leaf and lay it carefully on 3-4 pieces of newspaper, make sure the petals or leaf is as flat as possible, with no folding!

Then you want to sandwich your flower or leaf between another 3-4 pieces of newspaper (the more the better!) and pile a lot of books on top so that you can squeeze all the water out of your specimen.

If the leaf or flower has water in it, mold can easily get into your specimen...

Check back in 4-5 days. Hang up the pressed specimen in your room, put it in a shoebox for safe keeping, or do whatever you would like with your work of natural art!





to Bee or not to Bee

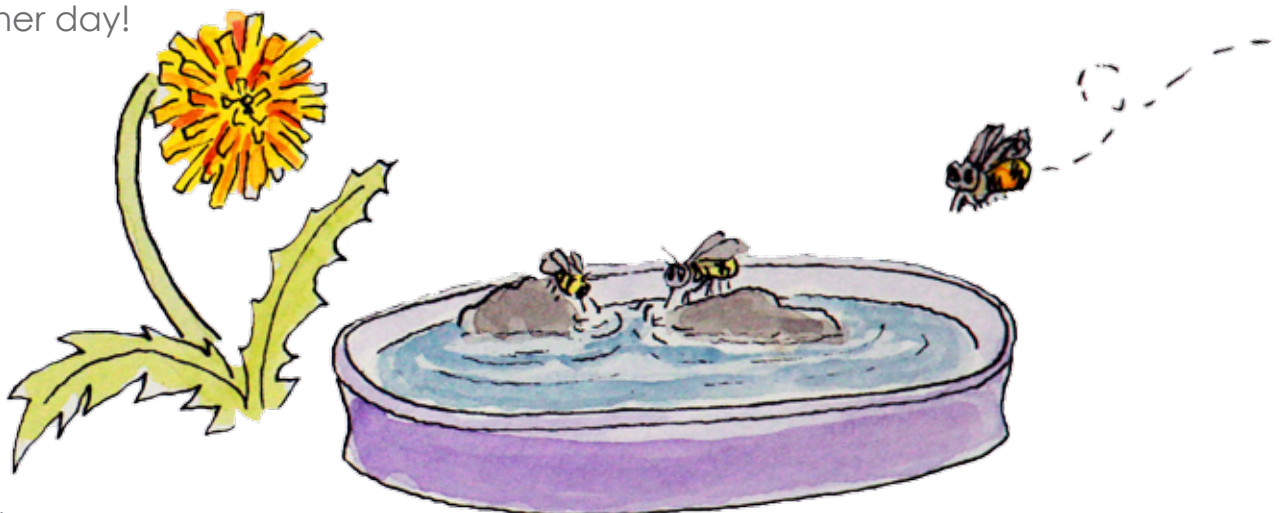
As flowers bloom and our landscape is paraded with yellows, reds, purples, and blues, bees start to come out to pollinate flowers. You probably know what bees look like, but did you know that B.C. has about 500 species of bees? Bees come in all shapes and sizes and specialize in pollinating all types of plants, from orchids and daffodils, to dandelions and paintbrushes. They buzz around all day, collect pollen, and help plants reproduce and produce seeds! In fact, orchards throughout B.C. and the U.S.A. use bees to increase the number of fruit they can sell. Next time you are drinking juice or eating an apple, think of the bees that helped that fruit grow!

Urban Fact: Bees do well in an urban environment if they have a diversity of flowers, including dandelions, and some leaves to hibernate in! Numerous different Queen bees do not form honeycombs to overwinter but find dead pieces of wood or layers of leaves to sleep over the winter.

Activity: Create a bee friendly pond and flower bed!

Native plants are the best for our native pollinators. Plant these around your backyard if you have one or on your windowsill.





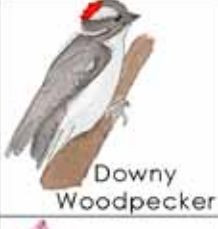









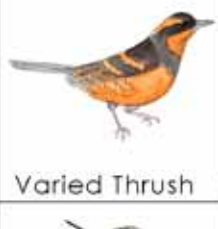







Bees need water just like us! They use water to dilute their honey, drink, help digest, and feed their babies. To make a bee pond you need a shallow dish made of a permanent watersafe material (less than 5 cm deep). Put some rocks in the middle to act as landing pads, place in a cool spot in the garden under some leaves, and you're done! Change the water every other day!



Bird BINGO

The forest and green spaces come alive in spring when they are filled with bird songs from dawn until dusk. Even in winter, however, there are birds that hunker down and make do with what is around. These birds are called residents. Why do some birds migrate? Generally, birds migrate North from warmer places to follow insect population booms in the spring. As winter approaches, insects begin to die out and the birds migrate back into warmer places. Interestingly, these migratory birds undertake a predictable route north and south in what scientists call “flyways”. The birds we see in British Columbia come in the flyway called the Pacific Flyway.

B I N G O

 American Goldfinch	 Bald Eagle	 Barred Owl	 Bewicks Wren	 Cooper's Hawk
 Downy Woodpecker	 Glaucous-wing Gull	 Spotted Towhee	 Chestnut-backed Chickadee	 Pacific Wren
 Anna's Hummingbird	 Brown Creeper	FREE  Northwestern Crow	 Ruby-crowned Kinglet	 Red-breasted Nuthatch
 Varied Thrush	 Northern Flicker	 Violet-green Swallow	 Bushtit	 Pileated Wood
 Rufus Hummingbird	 Golden-crowned Kinglet	 Red-winged Blackbird	 Dark-eyed Junco	 Turkey Vulture



Summer

Summer is the season that occurs from June 21 to September 21 and is the hottest season for temperatures. Wander up the mountain side and be surrounded by meadows or explore the valley bottoms for berries, fish, and waterbodies.

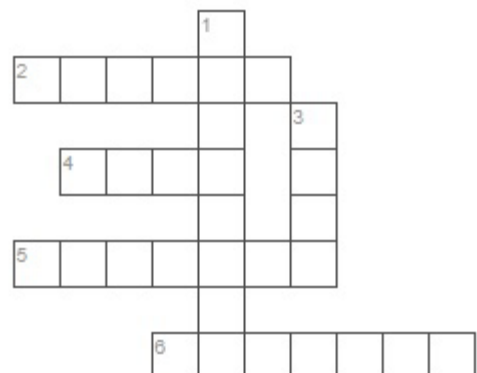
Across

- 2 a field with flowers
- 4 a type of pollinator
- 5 an activity that involves sleeping in a tent
- 6 edible fruit that grow on bushes

Down

- 1 first day of summer is also known as
- 3 an animal that starts life in water and grows legs

Crossword Puzzle



Answers on Page 20

Moss Rehydration

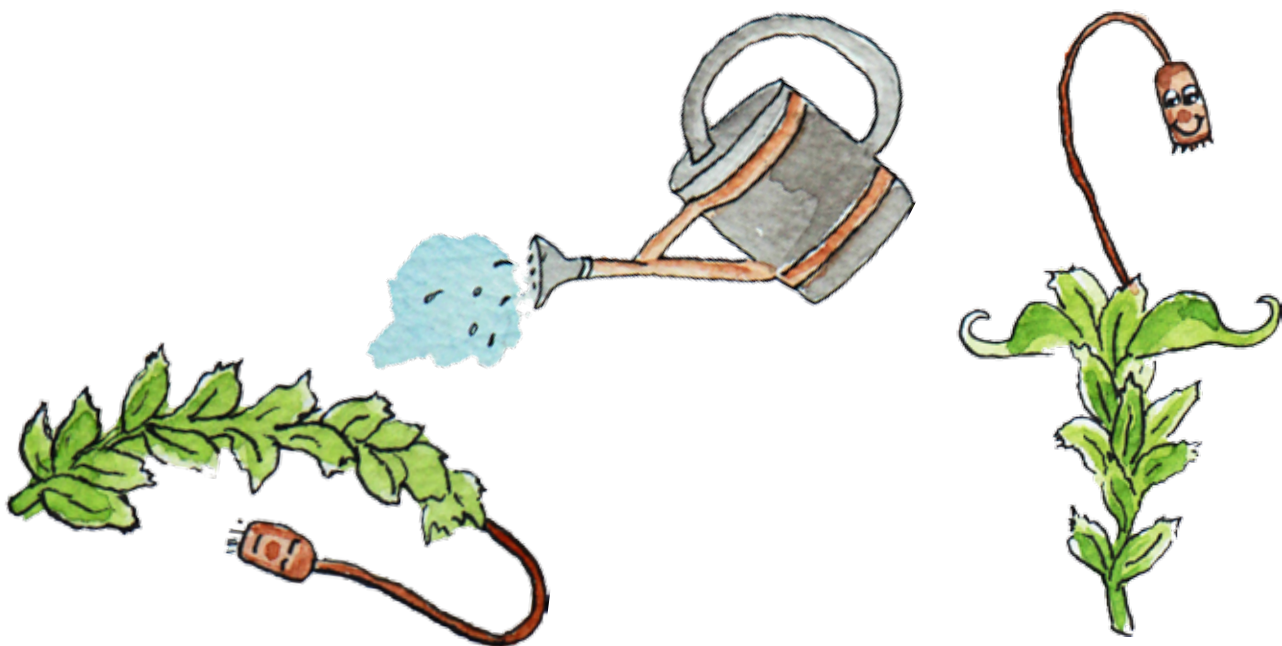
Moss may not look like much to the everyday hiker, but they are critical for ecosystem development as they slowly break down rocks over thousands of years, make soil, and eventually create an environment that allows shrubs and trees to grow! They break down rocks by releasing acid that combines with water to ever so slowly break down rocks. However, in the summer moss dry up almost completely, stop growing or photosynthesis, and appear dead! Do not be fooled though, this is how moss have survived for almost 470 million years! They were the first land plants, do not have roots, and watched as other plants, trees, and flowers started to grow in the environment they helped create. These senior citizens should be treated with the utmost respect!

Activity: Moss revival!

Remember, moss does not have roots and has to rely on rain, streams, or lakes to provide it with water. In summer, moss will dry up for months at a time before rain wakes it up from its slumber.

Take a glass of water and find a moss patch. Touch the moss and draw what it looks like!

Pour the water on the moss and wait a minute. What changed?



















Plant BINGO

All across B.C. plants form the base of the food chain and are critically important to our ecosystems. But if you travel from the coast to the foothills of the rocky mountains, there are vastly different plant species! This is because of the climate, or how warm and wet it usually is around your home town! Some plants like the cold and others do not, so you can find plants on the coast that you cannot find anywhere else!

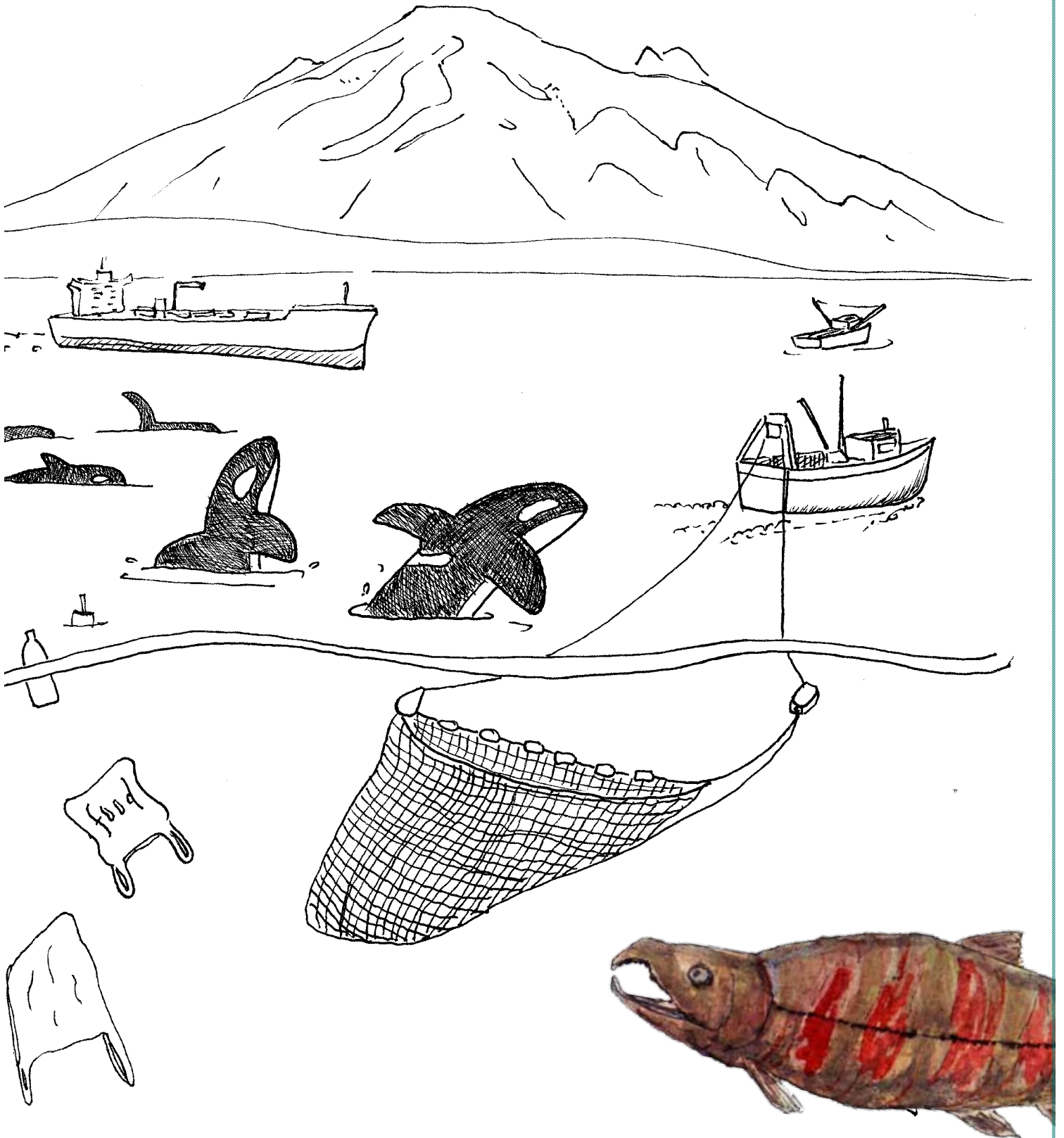
Throughout the province, pesky garden escapees are impacting our surrounding parks and environments. These plants can cause a lot of problems for the vegetation that was already there, and in some cases they can completely displace native species. For example, lesser periwinkle, common tansy, orange hawkweed, or blue weed! Learn to ID some of these common garden ornamentals to avoid planting an invasive species!

B I N G O

 ● Butterfly bush	 Miners lettuce	 Arbutus	 Maple	 Nootka rose
 Vanilla leaf	 ● Yellow Flag iris	 ● English ivy	 Kinnikinnick	 ● Periwinkle
 Labrador tea	 Stinging nettle	FREE	 strawberry	 ● Gorse
 Devil's club	 ● Policeman's Helmet	 Cattail	 ● Daphne	 ● English holly
 Skunk cabbage	 Thimbleberry	 ● Giant hogweed	 Licorice fern	 Bluebells

● Invasive species

What do you see that should not be here?



River Critters and Plant Scavenger Hunt

To be a streamkeeper, one must visit their local stream and get to know who lives inside it, who depends on it, and who shapes it! Plants on the stream bank help protect it from erosion as their roots hold the soil in place. Sword ferns, red alders, red osier dogwood, and others help shade streams to keep water cool while stopping the soil from dropping into the river. These plants sometimes fall into the stream and are very important habitat for baby fish species that are hiding from predators as well as feeding a host of insects. Big logs may seem like they are getting in the way of the river, but they help form big deep pools that baby salmon and trout species love. Let us see how many different species there are in your local stream!

Mammals

Mink – Look for a weasel looking animal with a brown-dark brown coat. These creatures are always found near a body of water. They love to eat fish, crustaceans, amphibians, small mammals, and sometimes birds.



Deer – Go to the mud and check it out for prints! What do you see? Do you see the split-hoof marks of a deer? A big paw of a bear? Small paw of a mink or weasel?



Birds

Kingfisher – Kingfishers are small blue birds that eat small fish. They commonly fly up and down streams and perch on an overhanging branch before diving spectacularly into the water after spotting a fish. They make their nests in the bank and mud that is beside the stream so keep an eye out to where it seems to disappear! Listen for its rattling or chittering call!



Bald Eagle – Once endangered by rampant use of pesticide and other harmful contaminants, the eagle is now flourishing under protection. This bird is easy to spot! Go to your local stream or lake and listen for its iconic call composed of a series of high whistles.

Insects

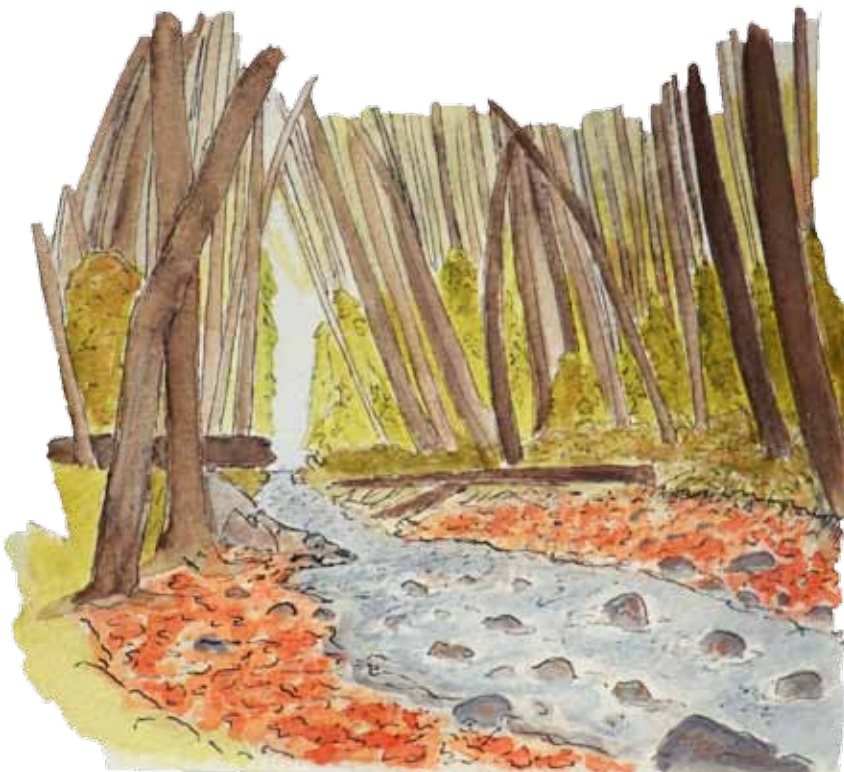
Caddisfly Larvae – In spring insects come out to play and grow. In the slow-moving parts of your stream where you can clearly see the bottom amongst the rocks, go and be very still and try to glimpse the magnificent caddisfly larvae. This larva makes its shell or home out of different rocks bound together with silk!



Dragonfly – As larvae or an adult, dragonflies are voracious predators! They are at the top of the food chain in many aquatic systems and large nymphs can even grab fish with their lower lip (labium) which has hooks at the end. As an adult, dragonflies use their legs as a basket to catch other insects flying mid-flight! Wait for springtime and watch the water's edge for the emergence of adults!

Amphibians

Western Toad – Western toads have calling and non-calling populations! It has a range throughout B.C. and goes back to the same pond it was born in to mate! Human caused fragmentation of continuous forests have impacted the large individual ranges of this species. They form big aggregations in the spring as well as share communal ponds.



Pacific Chorus Frog – These cute tan and green frogs are less than 5 cm long but sing like they are in the shower! They have a conspicuous dark band that runs over their eyes, giving them a masked appearance. They use a variety of water bodies and often show up in rural places far from their pond on non-spring days. The sticky pads on their feet make them formidable and agile climbers.

Fall



Fall is the season of change; with a spectacular event of colours from the deciduous trees, frosts come late and temperatures begin to cool as the Earth tilts away from the sun and signals to all living bodies that cooler and leaner times are ahead. Fall is a spectacular season as leaves fall off trees, fertilize the soil, and mushrooms begin to emerge from the soil below.

Word Search

D L L E A V E S E R C C N E E N Y E
E D A P L C D P O B I O H E S I H V
C J U D X R C M Y B F N A S E Z S E
I K T Y P N I V K G R S R A A H P R
D M U S H R O O M S O E V L S C G G
U V M K J X X W V E S R E M O W T R
O H N H I K I N G O T V S O N Z I E
U Q O R W K N B R Z F A T N Q G E E
S J K L C J G M W D C T G R Q R P N
J E X P L O R E U B N I W U I S I X
H A M I G R A T I O N O C N W X M P
I E N P N P F Z C O D N G K S P B N

AUTUMN
CONSERVATION
DECIDUOUS
EVERGREEN

EXPLORE
FROST
HARVEST
HIKING
LEAVES

MIGRATION
MUSHROOMS
SALMON RUN
SEASON

Find the following words in
the puzzle hidden





The Bug Collector

This activity is for all budding entomologists (bug scientists) and is best done in the early fall. Many bugs of all shapes and sizes are nocturnal and sneak in shadows unknown to humans. But with a couple of tools and tricks, we might be able to catch our pick!

Activity: 1. Get a cup that is around 10 cm deep and dig a 10 cm hole in the ground.



2. Place the cup in the hole and fill the cup with a 2-3 cm layer of dirt



3. Cover the edges as best as you can and check the cup the next morning.



Who have you found?

Be sure to release your little friends carefully after observing.

Leaf Stencil



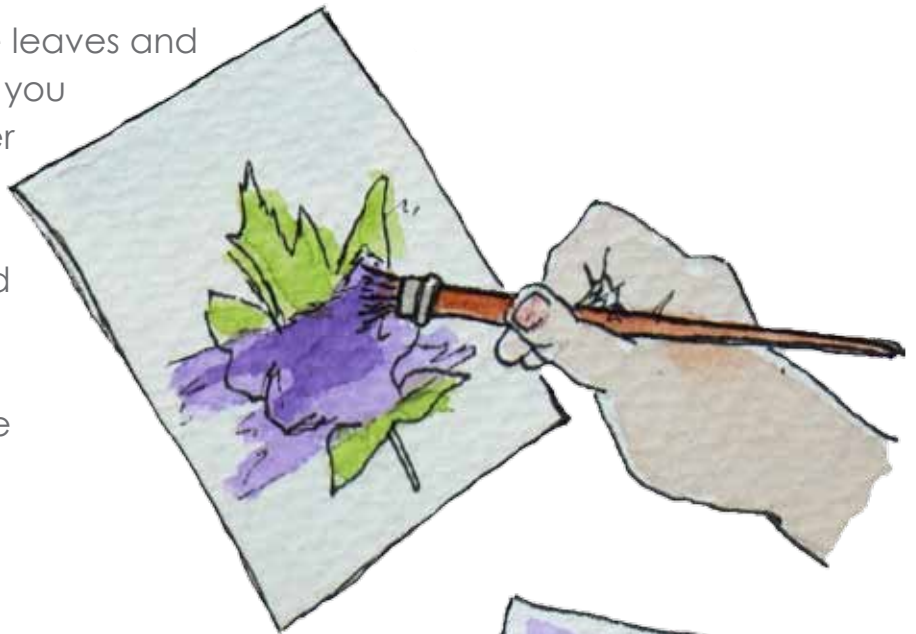
A classic activity that can get quite creative, paint a leaf and paste a leaf, what ever is illustrative!

There are two ways you can complete a leaf stencil, or combine and choose to forge your own way.

- Collect 5-6 leaves from the ground of various sizes and shapes
- Prepare all your painting supplies like colours and brushes and a big piece of paper

Method 1:

- Paint one side of the leaves and stick them wherever you choose on the paper
- Overlap them if you wish!
- Press down hard and then release
- Leave the leaf for a minute or two before removing



Method 2:

- Place your leaves across the page
- Paint the paper in all sorts of colours, overlapping with the leaves. Maybe use the brush to flick the paint for a fun change!
- Leave the paint to dry
- Carefully remove the leaf prints!



Mushroom Hunter



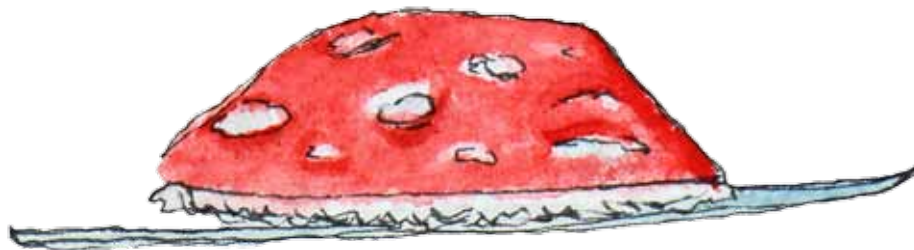
Mushrooms are neither animals nor plants, but a kingdom of their own: fungi. Did you know that fungi are more closely related to animals than plants? Who knew!

Mushrooms love the rain and moistness that fall provides. Many are edible and many are not, and many just taste bad... While you can touch any mushroom you want, many are inedible or poisonous so you should never eat them unless a trusted adult tells you it's ok.

Activity: Spore prints

Mushrooms come in a variety of shapes, sizes, and colours, and one way mushroom enthusiasts group them is based on their spore colour! What is a spore? It is how they reproduce and grow tiny babies! Spores are stored in the gills of a mushroom which are located underneath the cap.

- Method:**
1. After a rainy day, go out into your backyard or nearby forest, and search for some mushrooms.
 2. When you find a sizeable patch, collect one or two mushrooms. The cap has to be fully open for this to work!
 3. When you are back at home, snip off the stalk carefully and lay just the cap face down on a piece of white, brown, or black cardboard paper (or regular paper).
 4. Place a cup overtop so the wind does not blow anything away.
 5. Check after 24 hours and see what colour prints the mushroom leaves!

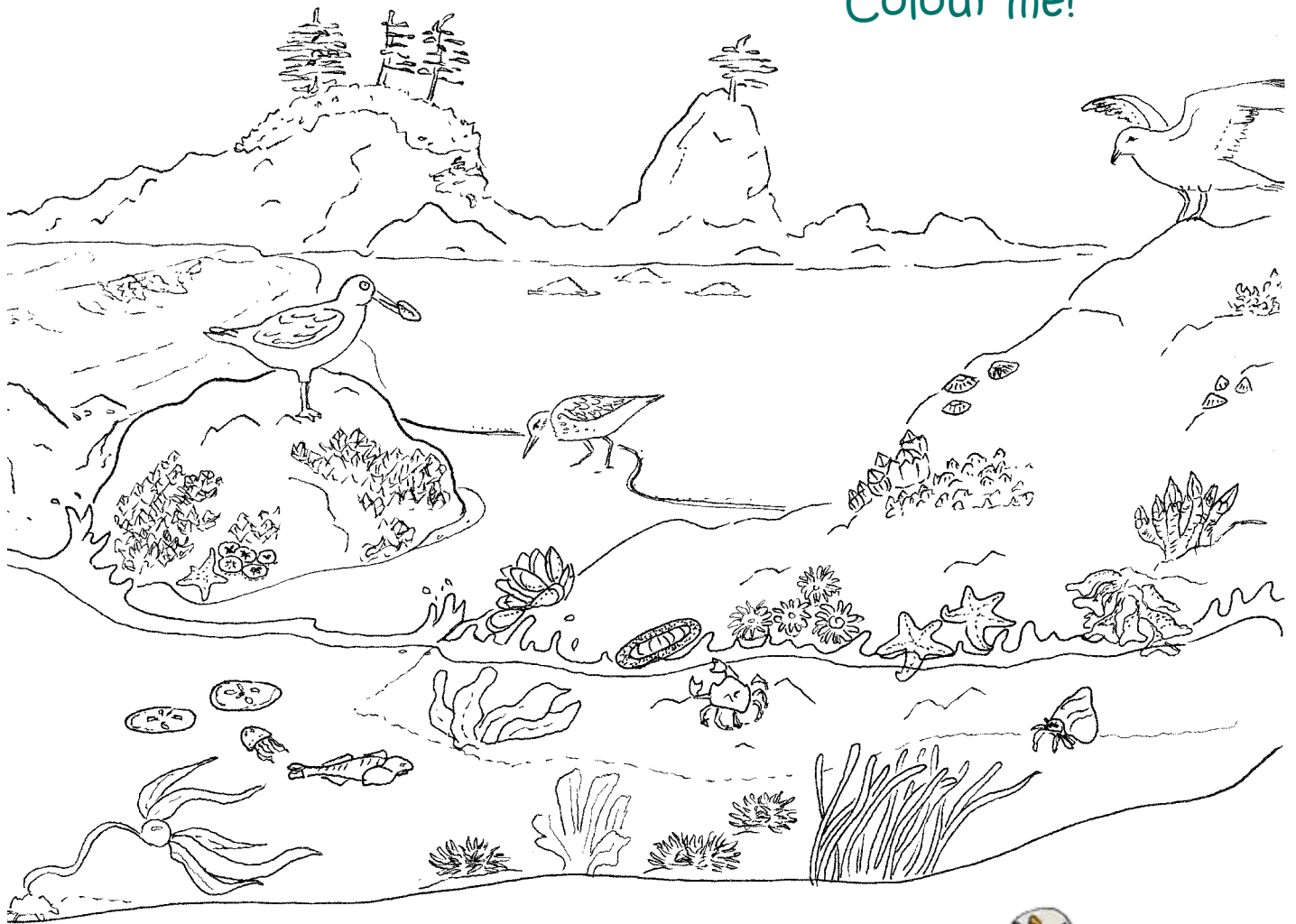


Bonus activity: Try to find different mushrooms and place them throughout the page! See if you can collect black, white, or even purple spore prints and consider adjusting the paper colour so the spores are contrasted!

Winter

Winter is the time to rest. After a long and fun summer of eating the delicious berries in the sub-alpine hunting for the fat salmon in the streams, winter brings frostier and darker days making food and light hard to find. Many animals, like black bears, go into a deep sleep until spring time. This is called hibernation!

Colour me!



How many species in
the intertidal zone
Can you name?



Puddle Explorer

On a rainy day, go get your rubber boots and your jacket, and chase down your favourite set of puddles! Splash in them, jump to the clouds, all the while make sure to be loud! For these puddles are made of water which was once a cloud! Now who said walking on clouds was impossible?



Consider, as you splash and play in the rain, where does this rain go, into the drain? It may go down a drain, or seep into some grass, but eventually it will enter man-made or natural underwater rivers that release this water into the ocean! Water is endlessly recycled on earth and because of this, you could be playing in or drinking water that has been in giant trees, fed a bee, or even a dinosaur ...

How does water get up into the clouds? It slowly heats up and transforms from a liquid into an invisible gas! Once it is in a cloud, it travels across the sky until the cloud is too heavy and it has to release its water. Sometimes they are too heavy to climb mountains and are forced to stop. This is why cities like Vancouver get so much rain; they are stuck between the ocean and mountains. After a rain, the cycle repeats!



Did you know that about 97% of water on earth is salt water, 2% is fresh water made into glaciers, and only 1% remains as fresh water available in lakes and streams?

Because we have so little fresh water that is available to us, what are some ways you can conserve water in your every day life?

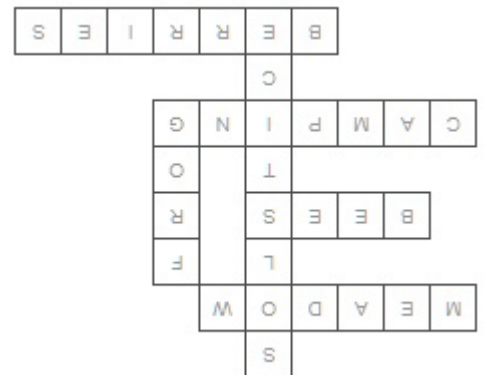
Sit Spot



A sit spot is an activity that focuses our senses to a specific place near our house. It allows us to observe the natural world throughout the seasons and become intimately familiar with its changes.

Method:

1. Choose a spot nearby that you can sit undisturbed for a flexible amount of time.
2. Once there, sit down and clear your mind of thoughts.
3. Focus on what you can see, what you hear, and what you smell.
4. You can sit for 5 minutes to an hour, depending on what's best for you.
5. The key is to repeat this as many days as you can so that you become aware of all the small things that go unnoticed in everyday life.
6. Keep a journal to record what changed from when you started to when you stopped.



Xylem and Phloem Celery Activity



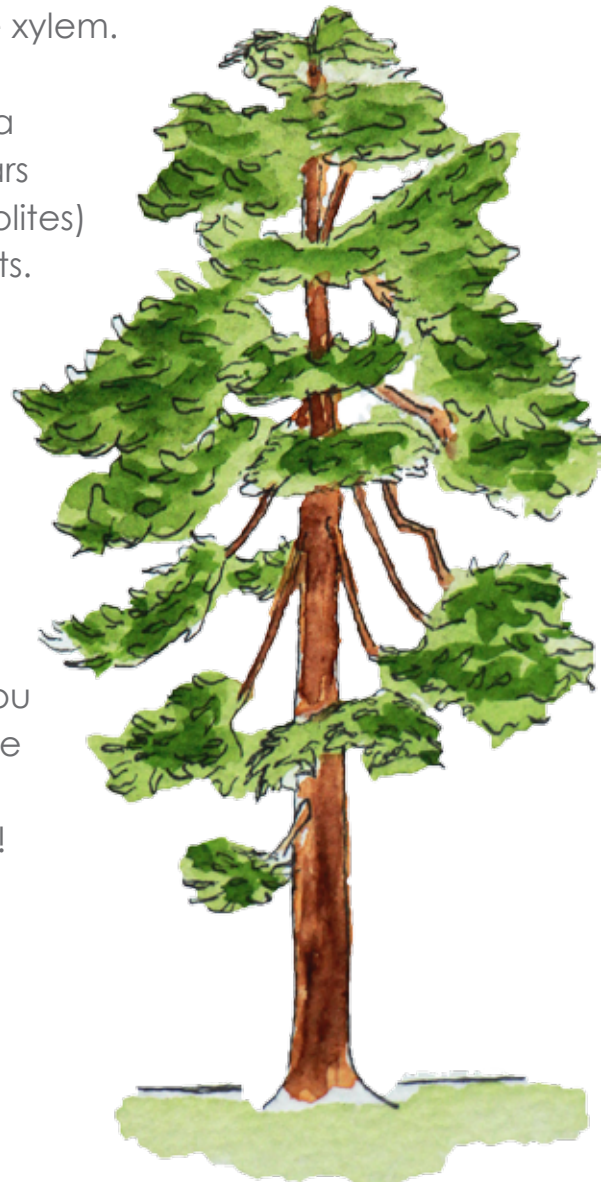
For as much as we depend on plants to fuel our bodies, the animals around us, and even our cars, how plants work can be very confusing! This lesson is to teach you all about the xylem (xi-lum) and phloem (flow-um).

Picture a plant for a second, or a tree for that matter. All plants are made up of three parts: **ROOTS**, **STEMS**, and **LEAVES**. The roots help the plant stay in one place and not get blown over; the stem helps the plant grow taller and reach the light; and the leaves are the solar panels that produce sugars for the plant. Plants need water: they get their water from their roots where it flows up into the leaves through the xylem. The xylem **ONLY** transports water and it only transports water from the soil to the leaves (a one-way street). The phloem transports sugars (and other things like hormones and metabolites) down from the leaves into the stem and roots.

To show you how the xylem works, all you need is a stalk of celery.

Method:

- Cut the celery stalk at the base about 3 cm from the bottom
- If you look very closely on the underside, you can see a few circles that make a semi-circle
- These circles are the xylem and it is surrounded by a couple of layers of phloem!
- If you want to visualize the xylem, cut the celery and leave the stalk in some food colouring and water for a day and check it
- You should see a streak of colour going up the stalk!





Reflection

Reflecting is a very important activity that can be forgotten about when we are busy running around! For this activity, all you need is a pencil, paper, and your mind.

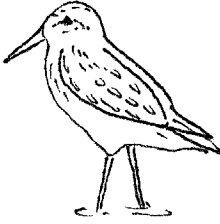
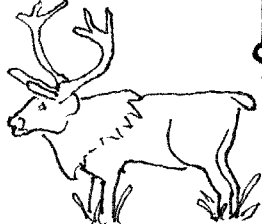
- o Think of all the fun things you have done this year that relate to being a naturalist.
- o Maybe it was a cool beach you visited, maybe you saw lightning for the first time, or anything that was memorable!
- o What are five to ten things you learned this year about the natural world?

Submit your answers for a chance to win a prize!

Submit photos of your experience with the activities in this Naturalist Activity Book for your chance to win fun prizes like plush toy critters and TLC apparel.

Email membership@conservancy.bc.ca with your pics or share via Facebook, Twitter, or Instagram tagging us @TLC4BC and including #Naturalist

Colour us!



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in nature...



... and you could WIN!

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