Nature WILD

For Kids
Who Love Nature
· Spring 2020 ·

NATURE KIDS BC
WWW.NATUREKIDSBC.CA

The Barn Swallow - a tiny powerhouse!

Fractals are everywhere

What are Catkins?

The White Sturgeon - a living fossil

INSIDE...

NatureKIDS BC 20th Anniversary

Leslie Bol, President, NatureKIDS BC

NatureKIDS BC is celebrating the organization's 20th anniversary this year! As the Vancouver club co-leader I have seen moments of wonder, fun, interest, connection and engagement – cracking the ice on a puddle-top, holding a banded bird, feeling the textures of mushrooms, the surprise in tasting licorice fern, and meeting a new best friend. The legacy of the organization is all of these moments multiplied across each club, each Explorer Day, each month and for all the years of programming. What an incredible legacy the founders, staff, volunteer leaders, Nature Mentors and NatureWILD contributors, donors, and partners have given to the children, now adults, who were the first cohort to join **NatureKIDS** BC and all the subsequent members. We look forward to reconnecting with alumni and to soon have a second generation of British Columbians involved with the organization as we continue our mission of getting kids outdoors to play, explore, learn about and take action for nature.

@NATUREKIDSBC /NATUREKIDSBC @NATUREKIDSBC

NatureKIDS BC is **THE** club for children and families who love to be outdoors. Members discover nature on Explorer Days organized by volunteer leaders and guided by experts, participate in stewardship projects, earn Action Awards and receive NATUREWILD magazine 4 times a year.

Come join us! Family membership: **$35** per year. Individual adult membership: **$25** per year. Or subscribe to NATUREWILD magazine: **$20** for 4 issues per year. For more information and to sign up online go to: naturekidsbc.ca

Thank you to our sponsors and supporters who share our vision that all children be connected with nature.

Habitat Conservation Trust Foundation
TD Friends of the Environment Foundation
BCnature
Nature Vancouver
The Gosling Foundation
Y.P. Heung Foundation
British Columbia Conservation Foundation
Elders Council for Parks
naturehood
Nature Canada
The D & B Atkins Charitable Gift Fund
RSPB Wildlife Explorers

• *We acknowledge the financial assistance of the Province of British Columbia*

Paper for NATUREWILD is sustainably sourced and printed by Benwell Atkins, an RR Donnelley Company, Vancouver. Please share NatureWILD with others and give it to your school when you are finished.

Leslie Bol, President
president@naturekidsbc.ca
Executive Director
executivedirector@naturekidsbc.ca
Christina Chowaniec,
Program Coordinator
coordinator@naturekidsbc.ca
Niki Dun, Membership and Office Coordinator: info@naturekidsbc.ca
NatureWILD Editorial Committee
naturewild@naturekidsbc.ca

Design & Production: Alison Garrad

NatureKIDS BC Head Office
1620 Mt. Seymour Rd.
North Van, BC V7G 2R9
Tel: 604-985-3059

QUESTIONS? COMMENTS?

Volume 21 Issue 1, 2020

ISSN: 1492-7241

Cover photos: Peacock: Clive Bryson, B.C. • Barn Swallow: David Shackleton, B.C.
Page 2: Balloons: Bannosuke, istock

Frabulous Fractals!

By Brian Herrin

A **fractal** is a shape or pattern that appears in natural objects and repeats itself over and over. The object need not repeat the pattern exactly or at the same size but should show the same "type" of pattern. Another way of saying this is that when you look at the scales of a closed pine cone they are all the same but are of slightly different sizes. A small pine cone scale looks just like a big one.

There are wonderful examples of natural fractals that we can easily see in a cactus or the seed head of a sunflower. We can find fractals in plants like Hens and Chicks, a frost pattern in winter or a fern frond in spring. Chambered Nautilus shells and peacocks are truly 'frabulous' fractals!

Fractals can happen on a big scale like ripples on the beach or tiny like the eye on a housefly!

For fractals in plants, check out the broccoli in the grocery store or you could even grow fractals by planting a few Hens and Chicks (*Sempervivum sp*) in a pot. Soon you will be able to share your Hen's fractal babies with your friends and teach them a new word! Fractals are everywhere!

Photo credits: background: TangledTree Studios, istock • fircones: DukeAsh, CC • cactus: wikipedia • frost, sand & fern: Rosemary Taylor, B.C. • hens & chicks: PurpleOwl, CC • sunflowers: Nic Baccante, B.C. • nautilus: Makro_Wayland, CC • house fly: Wikipedia • peacock: Clive Bryson, B.C.

Spring Birthdays

In our region, most animal birthdays happen in the spring. It is a good season for newborns. The days are warmer and longer. And there is a lot of food: fresh grass and leaves and newly hatched insects.

Black Bear

Around November, the mother bear retreats to hibernate in a den where, in mid-winter, she gives birth. Her cubs are bald and blind and weigh just 300 grams. You probably weighed ten times that when you were born! The mother is not deeply asleep. She remains alert, responding to the cubs' cries and making sure they can nurse.

Mountain Goat

Some time in late May, the mother goat or nanny finds a quiet place to give birth, usually on a mountain ledge – a place that predators cannot easily reach. She has just one baby or kid. The goat kid can stand and even climb within a few hours. And in just a few days, it can follow the mother over rough mountain tracks.

Pacific Tree Frog

The Pacific Tree Frog needs the rains of early spring to fill up the puddles and ponds where it lays its eggs. About a week after the eggs have been laid, tadpoles wriggle out of the sticky egg mass and start swimming. The tadpoles don't look like frogs until they are about three months old, when they start developing four limbs. The tiny froglets – just 1 cm long - stop eating for a few days so that they can change their diet: as tadpoles they ate only plant matter, but as frogs they will eat spiders, beetles, and ants.

Hummingbirds

The Anna's Hummingbird starts her nest in mid-winter. She builds it by herself, with no help from the male. She collects material like the fluff from bulrushes, binding it together with spider web. Even after her eggs are laid, she continues to work on the nest, adding lichen to the outside. By late February, she will be sitting on the eggs. In two or three weeks, the eggs will hatch, and by the end of March, the young birds will fledge - their feathers will be strong enough that they can fly.

Spring Births On The Ranch

In early spring the rancher brings the pregnant cows close to the barn in order to keep an eye on them as they start to calve. Calving is a busy time. The rancher needs to check the herd two to three times a night. Have any calves been born? Does a cow need some help? As soon as the newborn starts suckling, and if mother and calf are healthy, they can go back into the field.

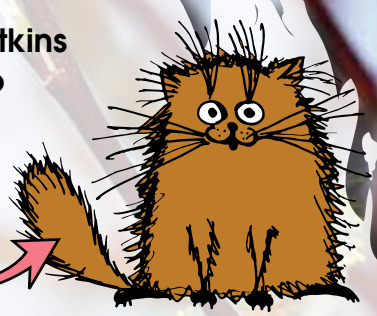
Ladybug

In spring, the female ladybug starts laying small clusters of eggs on a leaf with aphids, so there will be food when the larvae hatch out. A ladybug larva looks like a beetle. It has orange and brown markings. And It is hungry! It can eat hundreds of aphids in a day. As the larva grows, it moults or sheds its skin four times. About a week after hatching, the larva forms a pupa and attaches itself to a leaf. The pupa looks like it is asleep, but inside big changes are happening. After a few days, out comes an adult ladybug. At first, it is pale and soft. It stays still for a few hours until its shell hardens and turns bright red or orange.

Photo credits:
Background & cartoons:
Helin Loik-Tomson, ayutaka - istock
- bears, goats: skeeze, CC
- tadpoles, ladybug, larva: wikipedia
- Tree Frog: GregTheBusker, B.C.
- hummingbird: Wikipedia
- spring calf: Cya Solecki, B.C.

Catkins

What are catkins and what do they do?



The name 'catkin' comes from a Dutch word 'katteken' that means 'kitten' because a catkin looks rather like a kitten's fluffy tail.

Catkins are the male flowers of several species of trees in B.C. They provide the pollen to fertilize the female flowers, which are often on a different tree. Bees don't collect pollen from catkins, so the only way the pollen can get to the female flowers is by floating through the air.

This is a very chancy way of landing on target, so the catkins produce thousands and thousands, even millions, of pollen grains. In this way at least some will find the female flowers. Although catkins are flowers, they do not have petals as these might block the wind coming through to pick up and drop off the pollen.

Many people really notice when catkins come out in the spring. They start sneezing because they are allergic to the clouds of pollen in the air that they can't help breathing in.

Hazel catkin - look for the female flower.

Catkin-bearing trees are found all over B.C. Very likely you have seen **hazel** catkins - one of the first signs that spring is on its way - and perhaps you have gathered the nuts in the fall (if you can get to them before the squirrels do!). Hazel catkins have a tiny female flower on them as well, which needs to be fertilized with pollen from a different tree.

Can you eat catkins? No! They taste very nasty and are probably poisonous.

Willow also have catkins. There are many native willows that are native to B.C. but the Weeping Willows which we often see in parks are not native. They come from China.

'Pussy willows' have thick catkins about 5 cm long which turn into a white fuzz.

Pussy Willow catkins really do feel like cat's fur when you stroke them.

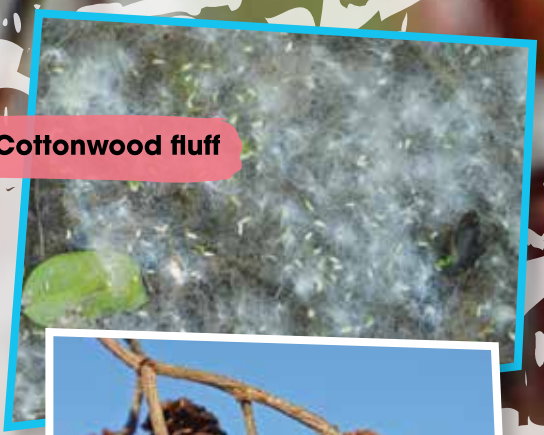
Pussy Willow

The leaves of the willow are good caterpillar food, so if you are growing a butterfly garden, include a willow. Willows love water - a soggy spot in your garden is a good place for one.

Male alder catkins

Cottonwood catkins produce hairy capsules which split open, sending out seeds covered in fluffy white hairs that look like cotton. The ground below the tree is often inches thick in cottony fluff - that's how the cottonwood got its name!

Alder trees have both male catkins and female flowers (sometimes called cones). Alders are about the worst for allergy sufferers! Other trees that have catkins are **birches** and **aspens**.



Cottonwood fluff

Female alder catkins

What You Can Do: by Dr. Doowitt

When you go walking through woods this spring, go on a catkin hunt and see how many different species you can find. Observe how the catkins from each kind of tree are different from those on other trees.

1. Do they hang up or down?
2. Are they smooth or rough?
3. What colour are they?
4. Are there different types on the same tree?
5. Are they single or in clusters?
6. Do they have pollen on them?
7. Are they ready for the wind to blow through?

Bring a little bag with you to collect some catkins and when you get home look at them through a microscope or magnifying glass. Have a close look at the catkin and the pollen. They are beautiful miniature worlds to be observed.

Another treat is to carefully gather some cottonwood fluff and actually grow some of the seeds! I put mine on some soaking wet paper towelling and separated the seeds by about 1cm. They are very small, and I used tweezers to pick them out of the fluff. Mine germinated the next day! Hey, why not grow a cottonwood tree!

Reference: *Tree Book - Learning to Recognize Trees of British Columbia (Ministry of Forests).*

Photo credits: background: m-kojot, cat: Kudryashka - istock • alder: wikipedia • cottonwood: EnLorax G. Edward Johnson, CC • Hazel catkin: Wikimedialmages, CC • remainder of photos: David Shackleton, B.C.

Barn Swallows

By Susan Fisher

Note the forked tail

Gathering mud to build a n

If you see a bird flying fast and low over a pond or field, chances are it's a Barn Swallow. The Barn Swallow is a tiny powerhouse - at 18 grams or so, it weighs less than a cookie, but it can fly more than 70 km per hour. It also is a long-distance flyer: every year, the Barn Swallows that breed in B.C. travel to Mexico and Central America for the winter. That's a round trip of 9,000 kilometres!

When the Barn Swallow is flying, it usually looks dark against the sky. You may not be able to see its beautiful dark blue head and russet sides, but you can still identify this swallow by its forked tail.

Barn Swallows fly closer to the ground than other species of swallow. They often fly so near to cars you think they must surely be hit, but they are just hunting any insects that were stirred up by the moving car.

The Barn Swallow is found on every continent except Australia and Antarctica. But around the world, the number of Barn Swallows has fallen sharply. There are only half as many now as there were when your parents were children. In Canada, the Barn Swallow is listed as a threatened species.

Just fledged baby Barn Swallow

Why is the Barn Swallow in trouble? Researchers think that is because there are fewer insects. Swallows are **aerial insectivores** (insect eaters): they eat insects that they catch while flying. They cannot eat seeds or grass or pollen, as other birds do. Barn Swallows have very weak legs and hardly ever walk, except to collect nest material or harvest newly hatched insects on muddy ground.

But why aren't there enough insects for the swallows? Scientists blame pesticides and land-clearing, which destroy insect habitat. Pollution of streams and destruction of wetlands may also be hurting Barn Swallows. Researchers have found that Barn Swallow chicks grow bigger and stronger if they are fed aquatic insects that spend part of their lives in water.

Caddisfly

These aquatic insects - such as dragonflies and caddisflies - are rich sources of Omega-3 fatty acids which are very important for developing nerve tissue, the heart and the immune system. When humans pollute streams and drain wetlands, they may be destroying the most valuable food source of the Barn Swallows and many other creatures.

Things you can do to help Barn Swallows

1. In the SalmonWILD issue of Fall 2019 we showed you how to check if the streams where you live are healthy and have the insects Barn Swallows and other creatures need for food. (If you do not have this issue, email us at naturewild@naturekids.bc.ca and we will send you the information.) To help with checking and cleaning up the stream, contact your local chapter of Pacific Streamkeepers Federation (**pskf@direct.ca**).

2. Another way to support Barn Swallows is to help them build a good home for their family. Dr. Eucan DooWitt shows you how you can do this. See page 14.

Swallows on coconut nest

Sitting on eggs

Photo credits: background: phatthanit_r, Sander Meertins - istock • Barn Swallow in flight, collecting mud: David Shackleton, B.C. • young Barn Swallow: Clive Bryson, B.C. • Caddisfly, Barn Swallow feeding nestlings: Rob Alexander, B.C. • coconut: Matthew Howard, CBC, with permission

The White Sturgeon

Did you know that one of the largest, heaviest and most ancient freshwater fish species in the world lives in British Columbia's lakes and rivers?

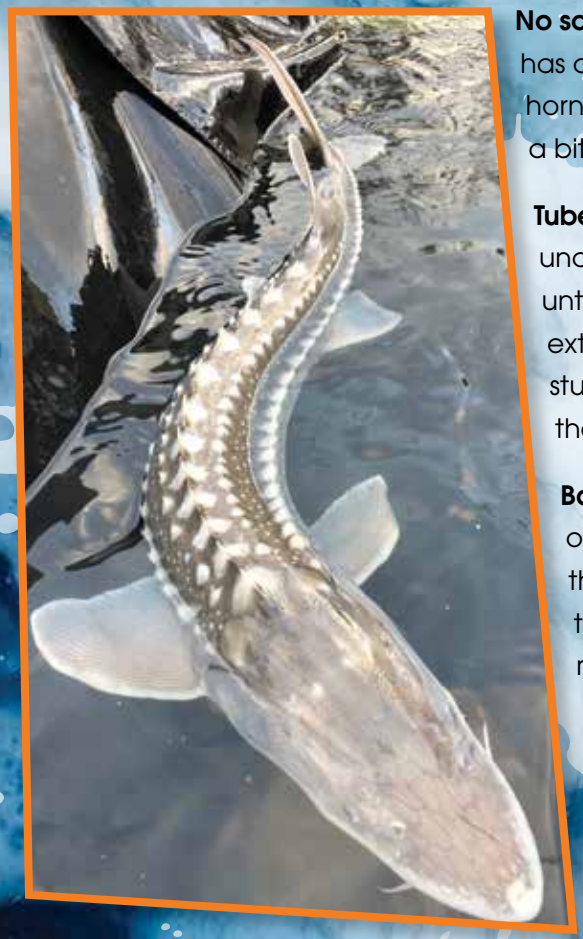
A living fossil

The sturgeon is sometimes called a 'living fossil' because it evolved more than 100 million years ago and has not changed much since.

When fish first evolved, they did not have jaws. They sucked up their food. They also did not have a backbone. Instead, they had a rod made of cartilage (the same flexible material your ears are made of). That rod is called a ***notochord***.

Most fish today have developed a backbone and jaws, but the sturgeon still sucks up food and has a notochord, not a backbone, just like its ancient ancestor.

Here are more ways in which the sturgeon is not like other fish:



No scales: A sturgeon doesn't have scales. It has a bony skull plate and five rows of ***scutes*** - horny plates that look like armour. Its skin feels a bit like sandpaper.

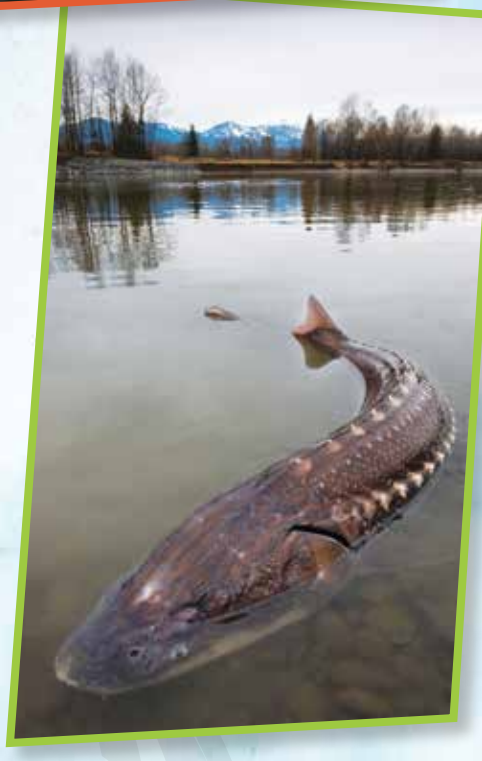
Tube Mouth: A sturgeon's mouth is a tube on the underside of its head that stays tucked inside until the sturgeon finds food. Then the tube extends out and 'vacuums' up the food. The sturgeon spits out any non-food, like gravel, that it accidentally sucks in.

Barbels: A sturgeon has four sensitive whiskers, or ***barbels***, that stick out of the snout in front of the mouth. Sturgeon have poor eyesight, so they use the barbels to find food, especially in murky water.

Feeding: Using its snout and a swish of its tail, the sturgeon stirs up the soft bottom of the lake or river and uses its barbels to detect crustaceans and small fish. Sturgeon don't have any teeth so they can't grab hold of prey. But big sturgeon can swallow very large prey items including whole salmon.

How big do sturgeon grow?

The sturgeon is one of the few animals that keeps on growing as long as it lives. Those in BC waters may live over 150 years, grow to 6m in length, and weigh up to 635 kg. The largest sturgeon ever caught was over 5 m in length and weighed almost 700kg. A huge sturgeon caught in the Fraser River was almost 4 m long and weighed 500 kg, so it must have been very old!



Breeding

Even under the best of conditions, sturgeon produce very few offspring. This is why:

1. They grow very slowly. Male sturgeon do not mature until they are 12 to 18 years old. Females mature at 25 to 30 years old.
2. Females only spawn (produce eggs) every 6 to10 years in the wild.
3. Female sturgeon do not dig a nest or **redd** in the gravel for their eggs (as salmon do). Instead, the male sturgeon swims beside the female and releases his milt (sperm) at the same time that the female releases her eggs into the water. This is a very hit and miss way of reproduction as an egg gets fertilized only if it happens to make contact with some milt as they get mixed together in the fast-flowing river.

Where do White Sturgeon live?

In B.C. sturgeon are found in the Nechako, Fraser, Columbia, and Kootenay rivers. The White Sturgeon of the lower Fraser River is the last truly wild population in the world.

First Nations

First Nations consider the sturgeon to be sacred. Indeed, it must have been wonderful to live on a river that was home to these huge fish.

Many different First Nations used to come together in the spring at sturgeon spawning sites to share in the harvest. Some traditional sturgeon spawning sites have been used for over 3000 years.

Fishing for sturgeon

Like so many other species, sturgeon were overfished once Europeans came to BC. They have also been harmed by pollution, gravel removal, and particularly by dams in rivers which divert water or make it too shallow for sturgeon to breed. It has been illegal to harvest (catch and eat) sturgeon since 1994.

These days, people still fish for sturgeon in the Fraser River but it is a catch-and-release fishery. They can take a photo and then put the sturgeon back in the river.

Many thanks to Sarah Schreier and Wayne Salewski at the Nechako White Sturgeon Recovery Centre in Vanderhoof, B.C. for assistance with text and for providing photographs. https://www.nechakowhitesturgeon.org/

Odd-Bod Birds

There are about 18,000 species of birds in the world! Here are a few of the more unusual ones.

The **Magnificent Frigate Bird** (*tropical seacoasts*) is a fork-tailed black bird with a wingspan of over two metres. Frigate birds can fly for 10 days non-stop and can sleep while flying. An agile flyer, it snatches food off the surface of the ocean and steals food from other birds. In breeding season, the males inflate their red throat patches to attract a mate.

The **Pelican** (*North America* and *Australia*)

"A wonderful bird is the pelican;
His bill will hold more than his belly can."

This well-known verse is almost accurate. The pelican actually uses its bill to catch fish, then stores them in its throat pouch before swallowing them. Indeed, on a busy fishing day, the pelican can hold up to 13 litres of fish in the pouch hanging below its bill.

The **Bee Hummingbird** (*Cuba*) is the smallest living bird – it is only about 6 centimetres head to tail. It beats its wings about 80 times per second, so fast that the wings look like a blur to human eyes. As it flits from flower to flower seeking nectar, it also picks up pollen and pollinates the flowers it visits – up to 1,500 flowers a day!

The bee hummingbird nest, made of spider web and lichen, is a tiny cup only the size of a quarter!

The **Flightless cormorant** (*Galapagos Islands*) is the largest cormorant but it has lost the ability to fly. Swimming like a seal, it catches fish under water. It is only one of the very strange animals that have evolved in the isolated Galapagos Islands. Observing these animals inspired Charles Darwin to develop his theory on the Origin of Species.

Photo credits: Background: nadtytok, istock • frigate: Phalacrocorax_harrisi & Apouf, CC • pelican: Wikipedia & nettiebee • hummingbird: Mellisuga_helenae & Reddit • cormorant: Phalacrocorax_harrisi

The **Tawny Frogmouth** (*Australia*) is not an owl though it looks like one, but it does have a froggy looking face. It is a night-time bird and doesn't move around in daytime. If it feels threatened it will cock its head, blending in with the trees and looking like a stump or broken branch.

During the day Tawny Frogmouths do not hunt for food, though they might sit with their mouths open, snapping shut when an insect goes in. At night they hunt for an amazing variety of food - moths, spiders, worms, slugs, snails, bugs, beetles, wasps, ants, centipedes and scorpions.

The **Sage grouse** (*Canada*) has long, sharp spiky tail feathers and a royal looking chest, with a magnificent white ruff. Each spring males congregate in ***leks*** and perform a "strutting display". Groups of females observe these displays and select the most attractive males to mate with. The same lekking ground may be used by grouse for decades.

The **California Condor** (*USA*) is the largest North American land bird and definitely the ugliest. This huge bird has a three-metre wingspan and can soar for almost five kilometres without flapping its wings. California Condors became extinct in the wild but there were some in captivity. These condors reared enough young so they could be reintroduced into the wild. Once again there are wild Condors flying in California and Utah.

The **Ostrich** (*Africa*) stands almost 3 metres tall. It is the largest living bird and lays the largest eggs. It can run at up to about 70 km/h, the fastest land speed of any bird. It covers 3 to 5 m in a single stride. The Ostrich has huge feet with just two toes on each foot. The larger, inner toe looks like a hoof. With its powerful kick, an ostrich can disembowel or kill a predator (such as a cheetah or hyena) with a single blow.

Photo credits: frogmouth: Zesty & Wikipedia • sage grouse: Wikipedia • California condor: Szmurlo & San_Diego_Zoo-8a • ostrich: Wikipedia & cocoparisienne

Have a Nature Question?

ASK AL

Al Grass has worked as a career park naturalist and ranger throughout B.C. Now he is a well-known nature tour leader and photographer. Al especially likes birds, insects and spiders. Photo Credit: Robert Alexander, B.C.

How Did The Nuthatch Get Its Name?

In British Columbia there are three different Nuthatches - White-breasted, Pygmy and Red-breasted. We mostly see the Red-breasted Nuthatch with its "yank-yank" voice in coastal parts of the province. The other two are found in the province's interior.

Nuthatches go head down on tree trunks, poking for insects.

Nuthatch and hatchet (a small axe) both mean to "chop". A Nuthatch's beak is like a little chisel which is used to "chop" nuts and seeds. Peanuts (without shells) are a Nuthatch favourite.

Did you know that a group of Nuthatches is called a "jar"? Nuthatches are wonderful birds - full of character and charm.

Photo credit: Al Grass, B.C.

Using A Coconut To Make A Barn Swallow Nest

A Family Project – By Dr. Doowitt

WHAT YOU CAN DO!

1. All the materials needed except for the power tools (jig-saw and 4.5mm drill).

2. Choose a spherical coconut that has been husked. Drill out the 3 holes you can see and pour out the milk.

3. Starting at a hole, use an electric jig-saw to cut the coconut shell in half then into quarters. Use a strong spoon to remove the coconut meat.

4. Attach the strapping as shown.

Voilà! your nest is ready to put up inside an open shed, or under the roof overhang.

'With many thanks to Marjorie Cutaran and Adam Macfie of Grenfell, Saskatchewan who gave me the idea, to Stephen King from University of Regina and to Alex Soloducha and Matthew Howard from the CBC.'

Nature WILD NEWS

Passports to Nature • Reported by Niki Dun

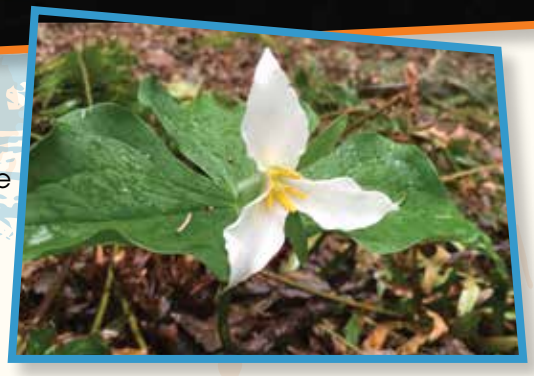
Congratulations to siblings Iona and Mateo (Ridge Meadows) and to Nathanael (Salmon Arm) for sending in their 1st completed Passports! Linden (Nelson) earned two rewards by sending in his 4th and 5th Passports. We were thrilled to award three prizes at once to Shelby (Nicomekl) who has been having great fun out in nature and who sent in Passports 4, 5 and 6! We love receiving your passports and being able to celebrate the time that you spend in the outdoors! **Congratulations, NatureKIDS!**

NatureKIDS Photo Contest 2019

Chosen by contest judge, Ron Long. Ron explains the good points of each winning photo.

First place: Maggie Schobben Trees

The trees in the foreground are what this picture is all about. It is important that you chose only a few trees, so the composition doesn't get confusing. Since the trees are in silhouette it is also important that you have chosen ones that have interesting shapes. The contrast between the dark foreground and the bright background gives the composition a very attractive texture. It is also important that you have the correct exposure for the bright background. Well done!



Second place: Andrew Schutte Trillium

Getting close and filling the picture with the flower was an excellent choice. Your exposure for the white flower is perfect. White flowers often tend to come out over-exposed.

Third place: Graham Jiang Turtle

The angle of the log and the turtle on the end of it make this an interesting composition.

Special mention for most unusual photograph

Alley Reuter is enjoying a **Frogsicle**
Photo credit - Melanie Reuter

"We have been catching bullfrogs which are invasive and eating all our native frog and toad species. We have been freezing them for the Fraser Valley Conservancy for research collection and stats."

Other Contestants:
Caroline Greenwood, Elissa Coe, Sage Millen, Marcello Cuthbert, Maya Wasstrom

Spring has come

by Britta Bentz

Crocus blooms are the first to appear,
They signal the start of a new growing year.
Shoots in bright green burst through the snow.
Sprouting white snowdrops are starting to show.
The sun is not only just bright but warm,
Gone is cold winter and blustery storms.
The sun burns the mist from the thawing bog,
Inspiring a chorus of proud calling frogs.
Further afield in the flowering meadow,
Groundhog appears from his hidden burrow
Slowly awakening from his long sleep,
And groundhog pups are starting to peep.
In the tall grass sits a resting barn owl,
A lurking coyote lets out a loud howl.
Field mice dart swiftly as if in a rush,
They scurry and creep in the underbrush.
Trees in the forest branch out and bud,
Salamanders crawl in the sticky black mud.
A new mother rabbit tends to her litter.
Soft, furry bunnies, they hop and they skitter.
Soon it is time to take off those socks,
Feel the toes warm in the sun on the rocks.
Away with the mittens, the coats and the hat,
Spring has arrived! Three cheers for that!

Britta is the volunteer leader for NatureKIDS Victoria Club

Photo credits - CC: barn owl: Kaz • coyote: skeeze • bunny: dkbach • field mouse: btfrewinphotography • crocus: pixel2013 • snowdrop: manfredrichter • frog: saguari • toes: FeeLoona

Return undeliverable
Canadian addresses to
NatureKIDS BC, 1620 Mt. Seymour Rd.
North Vancouver, BC V7G 2R9

Canadian Publication Mail Sales Agreement 43535012