



# GO DINOSAUR HUNTING!

Did you know that, millions of years ago, dinosaurs lived right here in B.C.? In fact, you could be living in the same place as *Allosaurus*, *Ankylosaurus* or even *Tyrannosaurus*!

We've mapped out some of the major dino finds in B.C. – and a few other amazing fossils – and asked a real-life paleontologist (a dinosaur scientist) for tips on how YOU can start searching for dinosaur bones. While hunting for fossils, be on the lookout for birds, mammals and other wildlife too.



Tiny sea creatures called ammonites lived at the time of the dinosaurs – and their fossils still show up on beaches today!



Fossils of trilobites – or 500-million-year-old bugs preserved in limestone shale – are scattered around parts of B.C.

Near the Alberta border, paleontologists unearthed the most complete dinosaur skeleton ever found in B.C. The hadrosaur's (duck-billed dinosaur) missing head may have been eaten by a tyrannosaur, who left behind 60 teeth!



RICHARD MCCREA

The Flatbed Creek Track Site in Tumbler Ridge was first discovered by two boys, ages 8 and 11, who had gone tubing down the creek. When they scrambled up some flat rocks, they found themselves standing in dinosaur footprints!

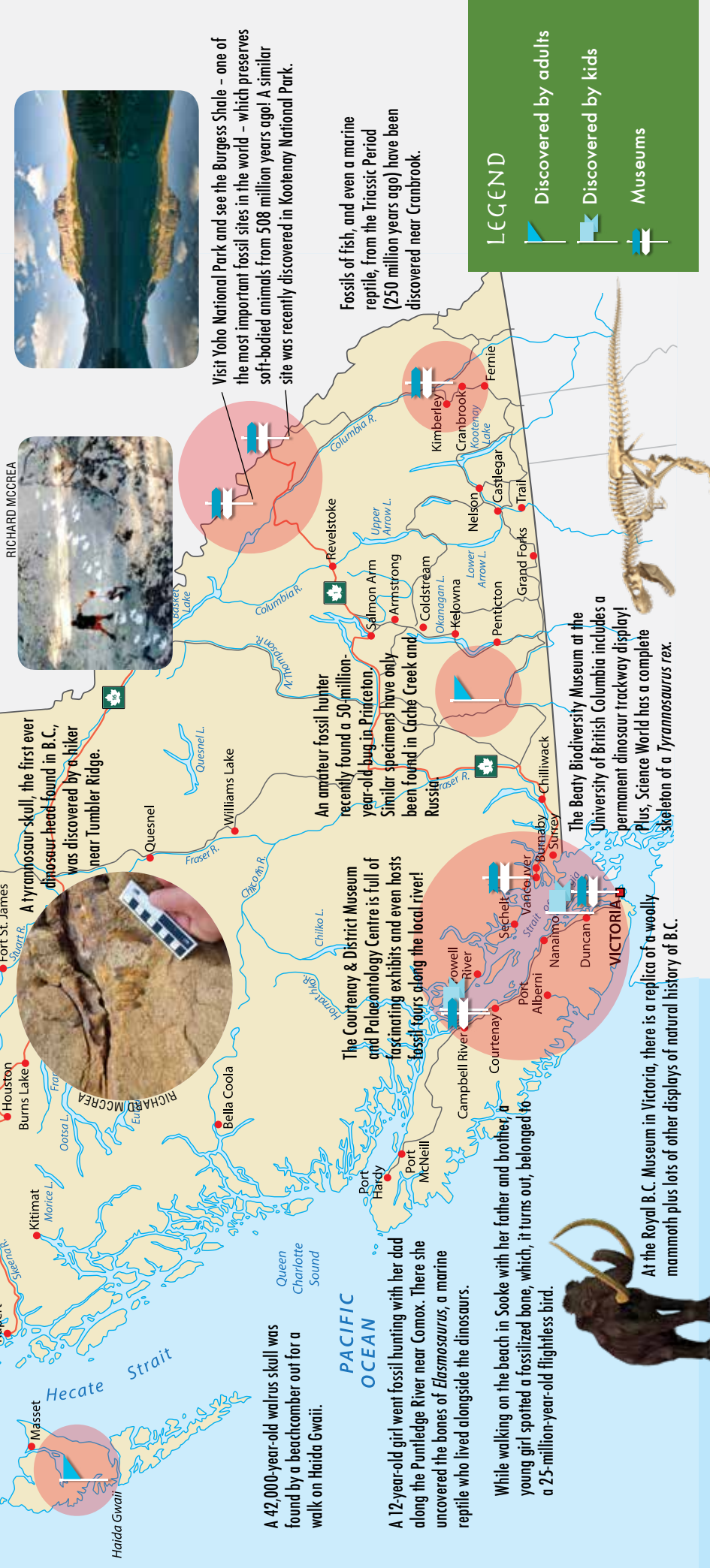


A seven-year-old boy attending a family picnic in Taylor spotted a mammoth tooth from the Ice Age!

A "dinosaur highway" with hundreds of footprints of ankylosaurs, brontosaurus and thetznosaurs (dinosaurs with claws nearly a metre long) was found just west of Hudson's Hope.



RICHARD MCCREA



## Dinosaur hunting safety tips!

- Go fossil hunting with an adult. If going with a friend, make sure your family knows exactly where you are headed.
- Bring water, snacks, sunscreen, mosquito spray, a fully charged phone and a map or GPS.
- Be careful in bear country: the adult with you should have bear bangers or bear spray, and everyone should carry bear bells.
- Wear sturdy shoes, watch out for unstable rock (above your head and below your feet!) and don't hurt yourself trying to carry a large piece of rock with a fossil in it.

## PALEONTOLO-TIPS!

Dr. Lisa Buckley, a paleontologist at the Peace Region Paleontology Research Centre in Tumbler Ridge, has this advice for fossil hunters:

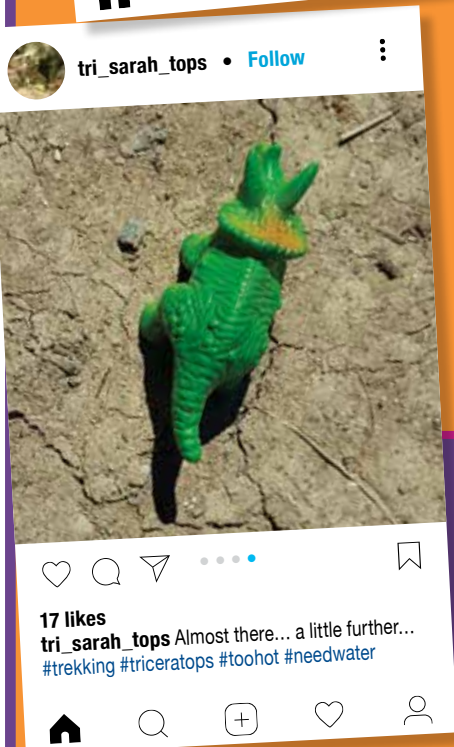
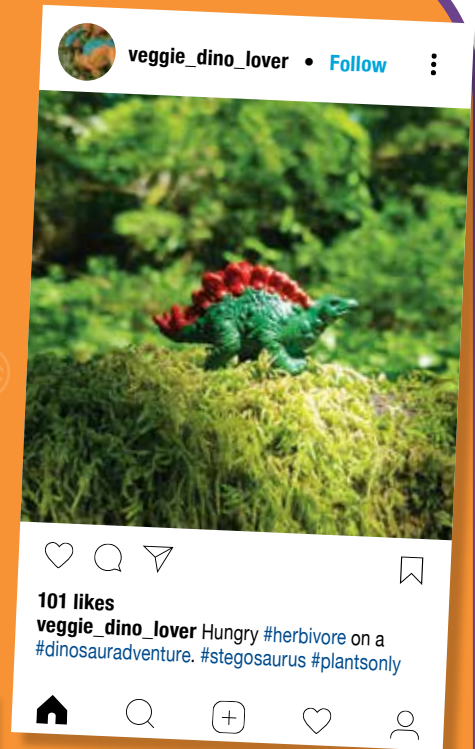
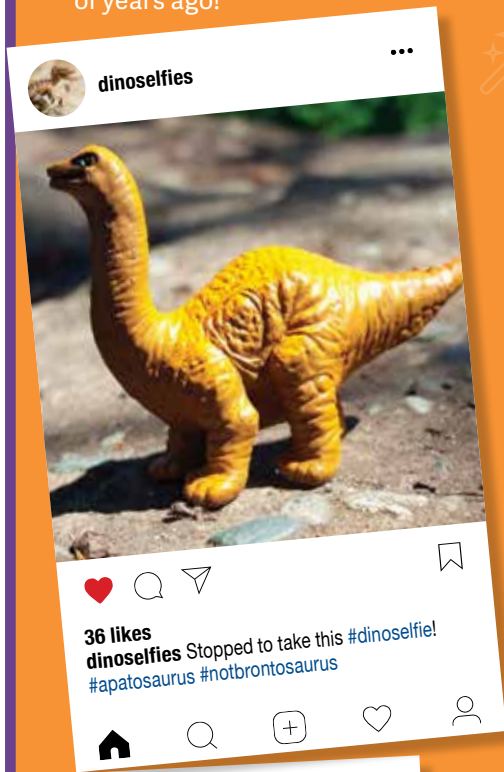
"Focusing on keeping eyes open for exposed, layered rock (sedimentary) is key for finding places that have fossils. Sandstones are good for footprints and bones. Thinly layered and dark grey/black rocks are marine and good for fish and shells, or for swamp and lake deposits that have leaf impressions. Loose sand and gravel banks are good for Ice Age fossils, like bison and mammoths. If there's a large, flat exposure of rock, that's definitely worth checking out for footprints."

Dr. Buckley had plenty more great ideas and they are on our website at [spca.bc.ca/fossil-hunting](http://spca.bc.ca/fossil-hunting). Visit the Centre this summer and learn even more!

# Insta-dinos!

Whether you're taking a family road trip this summer or plan to play in your own backyard, park, forest or beach, nature is everywhere. Bring your favourite dinosaur into the "wilds," wherever you are! If you don't have any dinosaur figurines, most dollar stores sell them for the cost of a slushee.

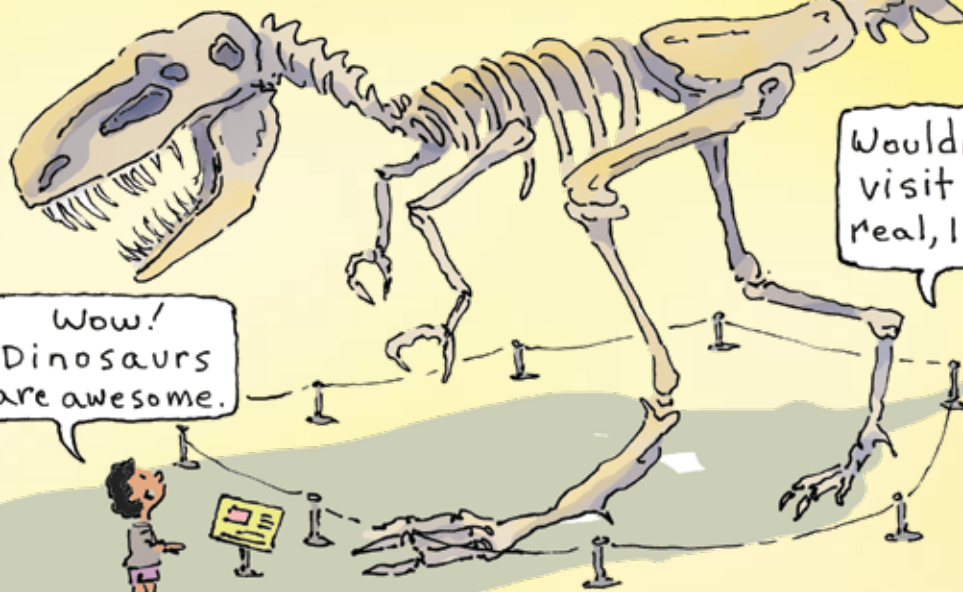
We had some fun with Instagram-inspired photo shoots in our own backyards, and got creative writing captions to describe our images. It's exciting to imagine that real dinosaurs walked in these very spots, millions of years ago!



## INSTA-DINO CONTEST

Send us your own "Insta-dino" photos and captions along with your name, age and address to [kids@sPCA.bc.ca](mailto:kids@sPCA.bc.ca). Our favourite photo and caption will win a National Geographic Wildlife Wow! Tyrannosaurus rex action figure! Contest ends August 31, 2018. For kids ages 13 and under.

COULD WE KEEP  
DINOSAURS IN  
ZOOOS?

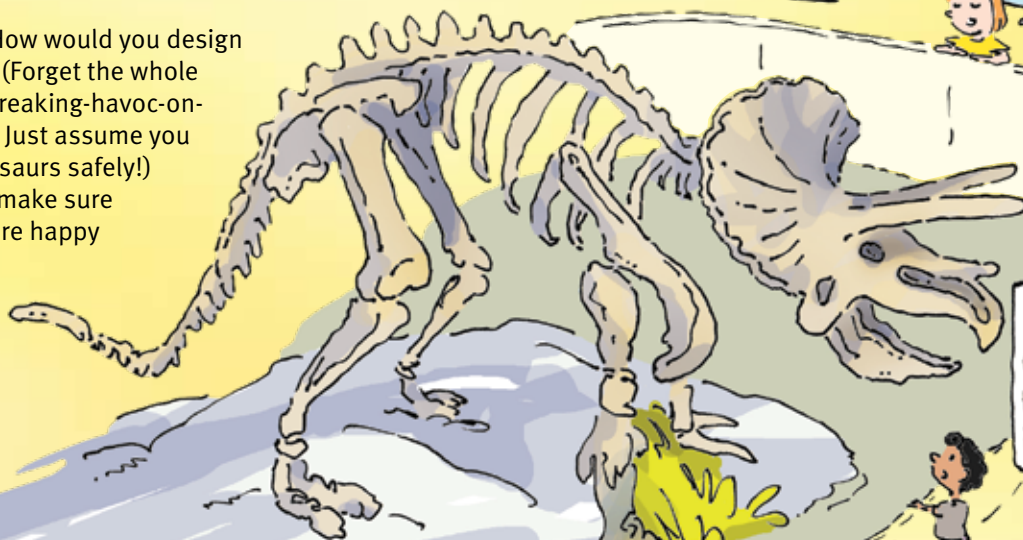


**W**hen you're fascinated by dinosaurs, chances are you've wished you could see one in real life.

These ancient animals have captured our imagination for as long as we've been digging up their fossils. Imagine finally knowing for certain what they looked, moved, sounded and smelled like!

Who wouldn't want to be first in line at that zoo?

Think about it. How would you design a dinosaur zoo? (Forget the whole escaping-and-wreaking-havoc-on-the-world thing. Just assume you could keep dinosaurs safely!) How would you make sure your animals were happy and healthy?



Hmmm... but  
could dinosaurs  
really be kept  
in zoos, Kat?

# Dinosaur Five Freedoms

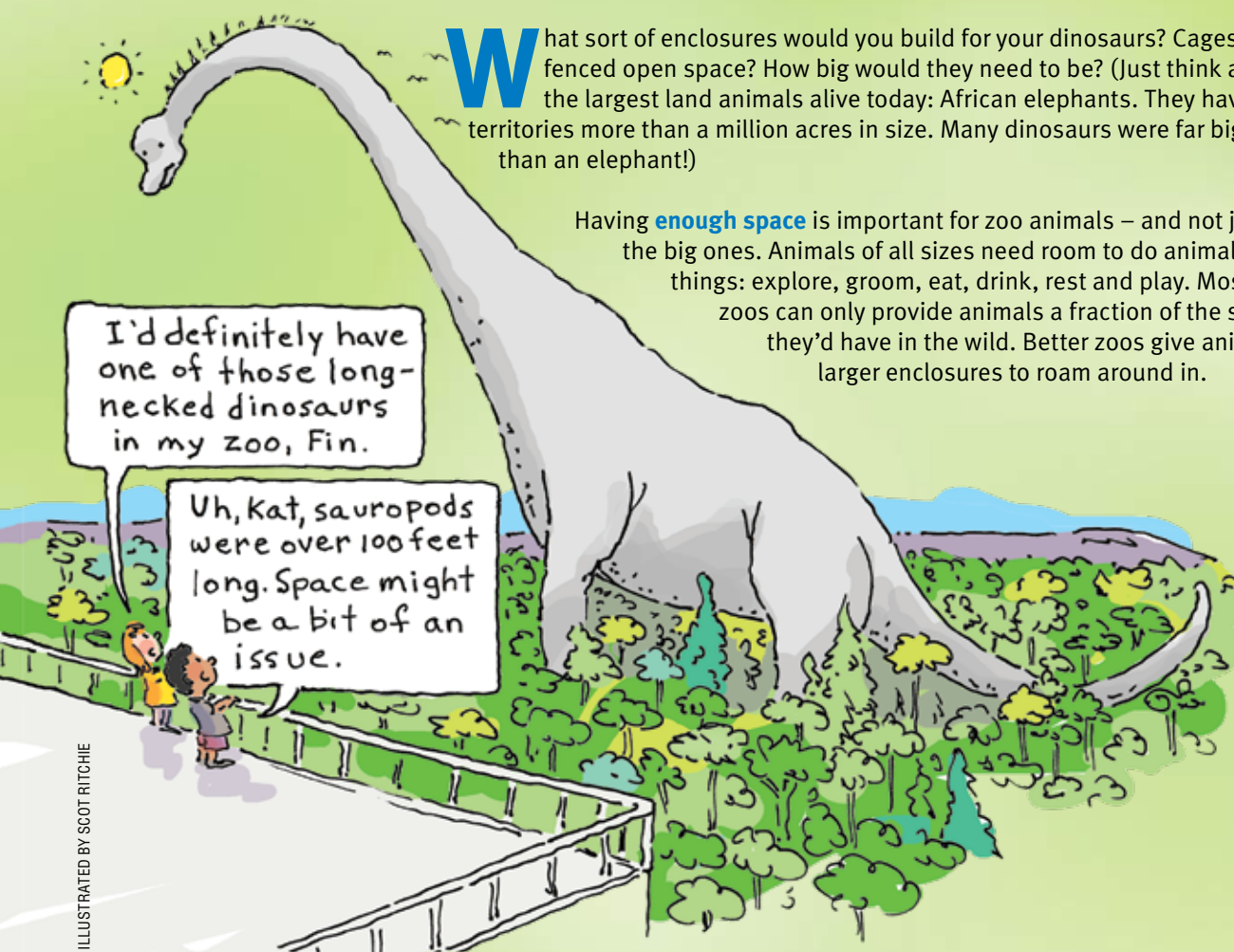
The BC SPCA believes animals in zoos should have as good a life as possible – and, imagining they were alive today, that would include dinosaurs! To have a good life, animals need the **Five Freedoms**:

1. Freedom from hunger and thirst;
2. Freedom from pain, injury and disease;
3. Freedom from distress;
4. Freedom from discomfort;
5. Freedom to express behaviours that promote well-being.

Do you think you could provide the dinosaurs in your zoo with all five? Which of their needs would be the toughest to meet? Better zoos try to provide as many of the **Five Freedoms** as they can.

**W**hat sort of enclosures would you build for your dinosaurs? Cages or fenced open space? How big would they need to be? (Just think about the largest land animals alive today: African elephants. They have territories more than a million acres in size. Many dinosaurs were far bigger than an elephant!)

Having **enough space** is important for zoo animals – and not just the big ones. Animals of all sizes need room to do animal things: explore, groom, eat, drink, rest and play. Most zoos can only provide animals a fraction of the space they'd have in the wild. Better zoos give animals larger enclosures to roam around in.




I'd definitely have one of those long-necked dinosaurs in my zoo, Fin.

Uh, Kat, sauropods were over 100 feet long. Space might be a bit of an issue.

ILLUSTRATED BY SCOT RITCHIE

Wild animals have **social lives** – even the solitary ones! Some hang out in groups all the time. Others only meet up with members of their own species once in a while. How would you decide how many dinosaurs to keep together? Would your groups have males and females? Young and old animals?

In the wild, animals choose who to spend their time with. In zoos, however, their lives are controlled by people. Zookeepers decide who to put together and who to keep apart. Social animals housed by themselves can become incredibly lonely. Animals who don't get along can feel stressed when they're forced to share the same space. Better zoos house animals in appropriate social groups.



Yeah, but many dinosaurs were social, Kat. You'd need to keep them in groups.

I wish I could have one of each kind of dinosaur.

I wouldn't want to see what happens when a dinosaur gets bored.

What would dinosaurs do for fun?



In the wild, animals have **plenty to do**. They can choose to hunt for food, burrow in the ground, climb a tree, wade in the water, patrol their territory or search for a mate. Dinosaurs were active animals too. How would you keep yours from getting bored or frustrated?

In most zoos, enclosures are just too small and simple for animals to be that active. Better zoos try to provide animals with “enrichment” – basically, things for them to do. They plant trees and bushes. They add rocks, branches, ropes and logs. They hide or scatter food to find and give animals toys to play with. Enrichment helps keep their minds and bodies active.



Okay, I'm thinking it would be impossible to keep dinosaurs in a zoo, Fin.

Yeah, when you think about it, we can't even meet the needs of today's zoo animals.

For your zoo, was it difficult to think of how you'd meet your dinosaurs' needs?

We know quite a bit about providing the **Five Freedoms** for our pets. That's because we know quite a bit about what they like and dislike – what keeps them happy and healthy.

Meeting the needs of animals we're less familiar with – like wildlife – is super challenging, especially when we don't exactly know what those needs are!

At best, zoos are able to provide animals with the basics: food, water, shelter and medical care. But most don't give animals enough space, a suitable social life or enough things to do. Ultimately, providing the **Five Freedoms** may not be possible for some zoo animals – dinosaurs included!



# RAWRsome RESOURCES

Dig into these dinosaur-themed websites, books, movies and more!



## Videos

### Dino Trails

[youtu.be/8FOYJTL\\_Vp8](https://youtu.be/8FOYJTL_Vp8)

Find out what it takes to study dinosaurs from Dr. Currie, a world-famous paleontologist from Alberta. The last episode in the series is all about dinosaurs found right here in B.C.!



### An Illustrated History of Dinosaurs

[youtu.be/JDnQmBFxlFE](https://youtu.be/JDnQmBFxlFE)

See how paleoart – the art of drawing dinosaurs – has changed as people have learned more about these amazing animals.

## Movies and TV shows

### The Good Dinosaur (2015)

In a world where dinosaurs never went extinct, a fearful *Apatosaurus* named Arlo must rely on an unlikely friend – a human – to get back home to his family.



### Dino Dana (TVOKids)

A special field guide gives nine-year-old Dana the power to imagine dinosaurs into real life.



## Games and apps

### Dino Run (Pixeljam)

[pixeljam.com/dinorun/dinorun.swf](http://pixeljam.com/dinorun/dinorun.swf)

Can you escape extinction? Steer your *Velociraptor* as fast as you can through a dangerous landscape in this prehistoric running game.



### Dino Quest (Tapps Games)

Bring out your inner fossil hunter! Explore different continents to find fossils for your very own museum collection.

## Documentaries

### Attenborough and the Giant Dinosaur (2016)

Take a trip to Argentina as paleontologists reconstruct the largest dinosaur skeleton ever found. Will it be a brand new species?



### Attenborough and the Sea Dragon (2018)

Watch as a team of fossil hunters and scientists solve the mystery of how a 200-million-year-old marine reptile died.



## Websites

**Nat Geo Kids** [kids.nationalgeographic.com](http://kids.nationalgeographic.com) • **American Museum of Natural History** [amnh.org](http://amnh.org) • **DK Find Out!** [dkfindout.com](http://dkfindout.com)

## Books and graphic novels

### The Wollstonecraft Detective Agency: The Case of the Counterfeit Criminals (Knopf, 2017)

By Jordan Stratford  
Illustrated by Kelly Murphy

The Wollstonecraft Girls embark on their most important case yet: the famed dinosaur fossil hunter Mary Anning is being blackmailed. The two young detectives have just three days to save Mary's dog – and the very integrity of science!

### Dinosaur Parents, Dinosaur Young: Uncovering the Mystery of Dinosaur Families (Clarion Books, 2007)

By Kathleen Weidner Zoehfeld  
Illustrated by Paul Carrick and Bruce Shillinglaw

For a long time, dinosaurs have had a reputation for being cold-hearted as well as cold-blooded. Could new fossil evidence change this perception?

### Bolivar (Archaia, 2017)

Written and illustrated by Sean Rubin  
Sybil knows there is something different about her next-door neighbour, Bolivar. She suspects he is a dinosaur, but will anyone believe her?



# Modern animals, ancient mysteries

When it comes to dinosaurs, sometimes it seems we have more questions than answers. But, thanks to modern animals, we can make educated guesses about what dinosaurs were like when they roamed the Earth millions of years ago.

Are you ready to solve these ancient mysteries?  
Take the quiz!



**1** Birds are the living descendants of dinosaurs, so there are lots of similarities between the two.

For instance, we now know some dinosaurs had feathers. Were all feathered dinosaurs able to fly?

- a) Yes
- b) No
- c) There is no way to tell

**2** Dinosaurs shed their teeth like sharks – new ones replaced old, worn-out ones when they fell out.



True or false?

**3** Sauropods – the long-necked dinosaurs – are the largest herbivores (plant-eaters) ever to have lived. They must have eaten massive amounts of plants! Because plants are hard to digest, scientists think sauropods had special bacteria in their gut to help them. Which other animals digest their food this way too?

- a) Iguanas
- b) Koalas
- c) Elephants
- d) All of the above

**4** In movies, raptors have teamed up together to take down much larger predators. Did they hunt in packs like wolves in real life?

- a) Yes
- b) No
- c) Maybe



**5** Like crocodiles, most dinosaurs buried their eggs in nests covered with dirt and vegetation.

True or false?

4. c) Maybe. Groups of raptors have been found fossilized alongside their prey, but scientists cannot say for certain whether they hunted together or were just competing for a carcass.  
5. True. Other dinosaurs – the ones more closely related to birds – laid their eggs in open nests instead, and may even have sat on them too.

1. b) No. Feathers were around long before flight. Scientists are not quite sure why dinosaurs acquired feathers in the first place. They could have been used for warmth or display (think of a peacock's tail) – or both.  
2. True. Some carnivores (meat-eaters) – like *Tyrannosaurus rex* – grew new teeth every two years, while some herbivores replaced their teeth as often as once a month!  
3. d) All of the above. Many herbivores alive today rely on this strategy – called “hindgut fermentation” – to get the most nutrition out of the plants they eat.



# Thinking like a

**E**ver since the first dinosaur fossils were discovered almost 200 years ago, people have wondered how these animals lived, behaved and interacted. Put yourself into the mind of a *Diplodocus* (dip-lod-ick-uss), a long-necked dinosaur. Or imagine you are a pterosaur (terr-oh-sore), a flying reptile. What would you

see, think, smell, taste and feel as you make your way through the prehistoric forests of what is now British Columbia?

Below are three ways to express your creativity. You could create a dinosaur Haiku, write a dinosaur poem or finish the *Dippy gets curious* story.

## Dinosaur Haiku

A Haiku is a very small poem that captures a moment of experience. Sensory images (sight, sound, smell, touch) are included to help the reader feel the moment. Haiku are usually three short lines (sometimes 5-7-5 syllables, but often fewer). Haiku usually have two parts that create a comparison or contrast.

Imagine a long ago time when dinosaurs walked the Earth. Pretend you are there. What do you see? What do you smell? What can you hear?

spring sunrise—  
the boom boom boom  
of *Tyrannosaurus* footsteps

muddy ground—  
my small foot  
in the dinosaur track

sweet scent—  
I stretch my long neck  
for the tastiest leaves

These example Haiku are written by B.C. children's book and poetry author Jacqueline Pearce

## Prehistoric poetry

Is a longer poem more your style? Below is an example from a book of dinosaur poems by Douglas Florian. For fun, he adds the letters "pt" (pronounced "t" – the "p" is silent) to words that normally start with the letter "t." Try writing your own dinosaur poem any way you want.

### Pterosaurs

The pterrifying pterosaurs  
Flew ptours the ptime of dinosaurs.  
With widespreat wings and pteeth  
pto ptear,  
They pterrorized the pteeming air.  
They were not ptame.  
They were ptenacious—  
From the Ptriassic  
Pto the Cretaceous.

By Douglas Florian

### Dinothesaurus

Written and illustrated  
by Douglas Florian  
Beach Lane Books,  
2012



# dinosaur

## Sauropod story starter

Finish the story about Dippy the dinosaur. Imagine you are Dippy, sharing his thoughts and emotions.

### Dippy gets curious

Hot sun beat down on the *Diplodocus* herd as the lumbering creatures crossed the plain. It was dangerous in the open, but the long-necked giants stayed together for safety. Dippy walked with the other youngsters in the middle of the herd. He tried to see around the huge dinosaur in front of him, but his view was blocked by other *Diplodocus* bodies with legs the size of trees.

He sneezed as dust filled his nose, and he wished he was tall enough to reach his head up into the air above the herd. He knew that the older dinosaurs were following the scent of fresh leaves and water that beckoned from the other side of the dry plain.

Whoosh! Dippy stumbled out of the way of the huge tail that swung in front of him. He dodged around a tree-trunk leg. Suddenly, he found himself on the outside edge of the herd.

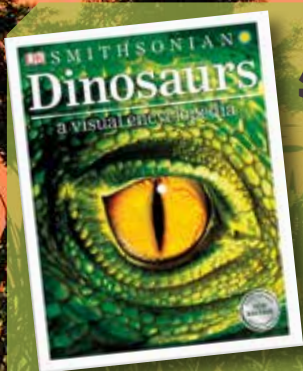
What could it hurt if he just stepped away from the dust and the plodding feet for a moment? He would smell the scent of the distant forest for himself, then he would step right back into the herd. He galloped out into the open and gazed around.

The dry, brown plain stretched as far as he could see, reminding Dippy how thirsty he was getting. But was that a hint of green in the distance? He lifted his head as high as he could and breathed deeply. He could just make out the faint scent of something fresh and sweet that made his mouth water.

But what was that other smell? He wrinkled his nose at its unpleasantness. Then he saw them – the far-off shapes of two *Allosaurus*, and they were coming closer!...

**What happens next?** What is Dippy feeling (excited, nervous, scared)? Will Dippy make it back to the safety of the herd or will something else happen? **Write an ending to *Dippy gets curious*.** Try to keep it to one page (300 words). **You could add drawings to help tell the story.**

Story starter written by B.C. author Jacqueline Pearce



## Share your dino-creativity!

Send us your Haiku, poem or story to [kids@sPCA.bc.ca](mailto:kids@sPCA.bc.ca). Use the subject line "Jurassic Bark!" and include your name, age and address in your email.

We will pick three, one from each style of creative writing, to win a copy of *Dinosaurs: A Visual Encyclopedia* (2018). Contest ends August 31, 2018. For kids ages 13 and under.

Win a  
dino-pedia!

# IGUANA SAD SAGA



**D**uring the 1990s, pet stores began selling eight-cm-long baby iguanas because they were cute and looked like little dinosaurs. By 1993, more than 800,000 iguanas had been sold in Canadian and U.S. pet stores. At their peak popularity in 1997, 1.8 million green iguanas were imported from Mexico and other countries into the United States!



## Iguanas live longer than cats and dogs

Iguanas live about 20 years in the wild. Yet, as pets, 70 per cent were dying in their first year of life. Why? People didn't realize how demanding they were to care for or how big they grew. Despite good intentions, poor diet, wrong lighting and other housing conditions led to the animals getting sick. Many people just didn't want them anymore.



## Hot, hot, hot!

Iguanas suffer in our care if our homes are too cold. Iguanas are tropical animals who live at temperatures between 24 and 32°C. Most people keep their homes between 18 and 22°C. Cold temperatures cause stress.

## A question of size

For those who did take good care of them, there was another challenge to keeping iguanas. They grew to be very large – up to six feet long. That's the same height as Connor McDavid (a superstar hockey player). Imagine a six-foot reptile in your bedroom!

6'



This iguana injured his nose rubbing on the glass of a small enclosure.

## Iguanas have unique needs

Space! Since iguanas grow quickly after eight months of age, their enclosures can soon become too small. This causes stress. Constant stress can make animals ill. It's a slow process but as they suffer silently, their immune and digestive systems eventually stop working properly.





### Need for sunshine

While we need to protect ourselves from too much sun, iguanas need to be in the sun. Without sunlight – or ultraviolet light A and B indoor lighting that mimics sunlight – iguanas develop bone disease. This is the most common illness iguanas develop. It is fatal if not treated.



### What to do?

Iguana guardians quickly realized caring for these dinosaur look-a-likes was not as easy as pet stores made it sound. So they started to dump them at animal shelters, zoos and reptile sanctuaries. But these places quickly filled up. Then people started abandoning them in the wild. Millions of iguanas died because they could not survive outside.



### Disease transmitters

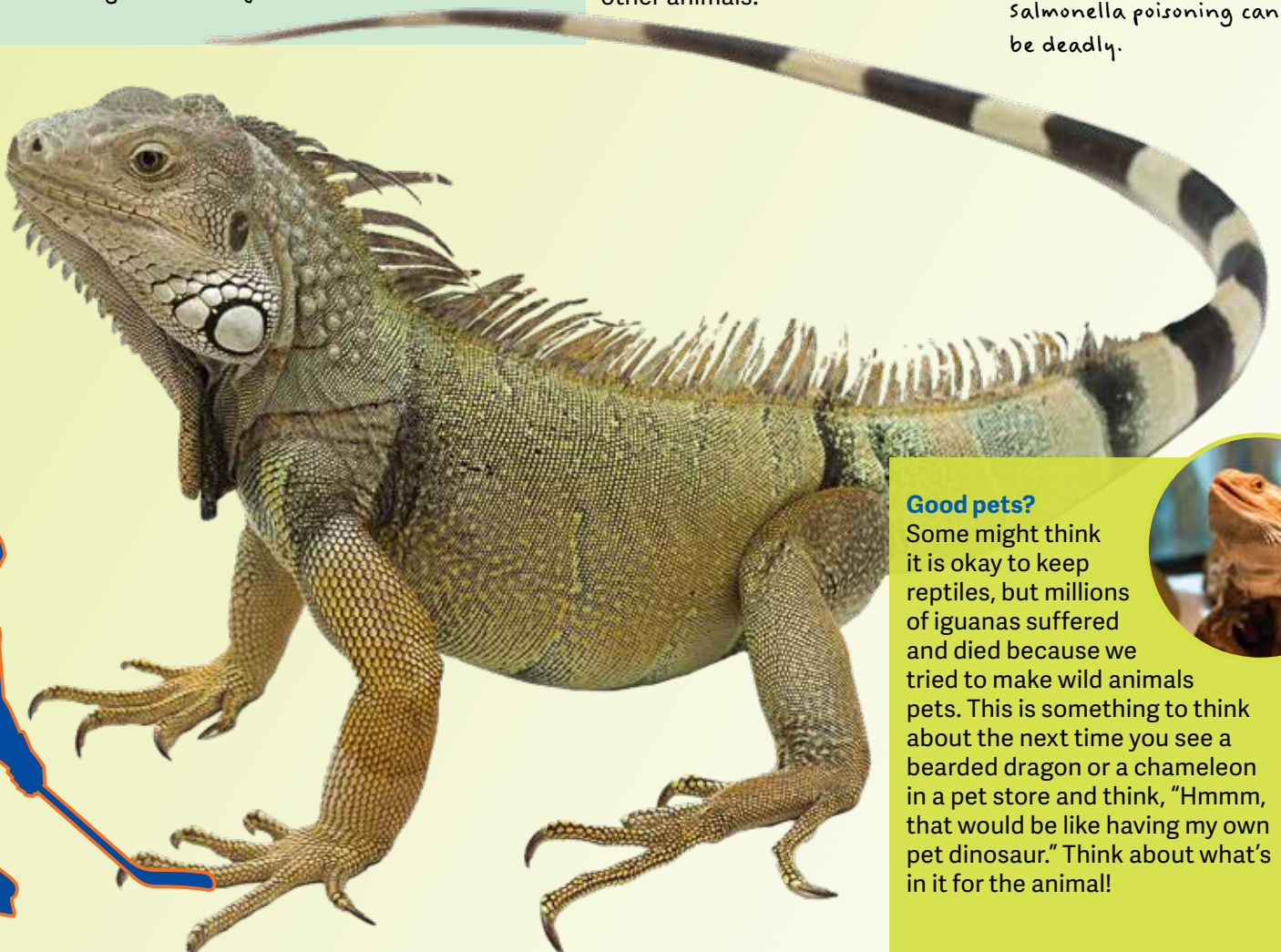
Some people also discovered their iguanas made them sick. Iguanas naturally carry bacteria called salmonella [sal-mon-ella], plus other bacteria. When we handle them, the bacteria transfer to us and we get sick. Salmonella poisoning can be deadly.

### Safety risk

As iguanas grow and mature, they can become aggressive if not well socialized to people. They can cause nasty bites and scratches. Also, their tail is like a weapon, powerful enough to rip through a leather jacket!

### Unwanted invaders

Yet, in some warm parts of the southern United States, released iguanas survived. Now, thousands live in places like the Florida Everglades, where they pose a threat to people and other animals.



### Good pets?

Some might think it is okay to keep reptiles, but millions of iguanas suffered and died because we tried to make wild animals pets. This is something to think about the next time you see a bearded dragon or a chameleon in a pet store and think, "Hmmm, that would be like having my own pet dinosaur." Think about what's in it for the animal!



# Why dinosaurs?

Are you wondering why this issue of *Bark!* is focused on dinosaurs?



Many of today's animals evolved from the age of dinosaurs, including ostriches, crocodiles, sea turtles, sharks and crabs. Even chickens share a genetic link to *Tyrannosaurus rex*! All birds, in fact, are thought to be the only animals alive today directly descended from dinosaurs.

## Extinct is forever

Evidence suggests dinosaurs were wiped out when a giant asteroid struck the Earth. Today, however, humans are the greatest threat to wild animals.

If we don't take action, species such as grizzly bears, orca whales and tiger salamanders are in danger of extinction right here in B.C.

## Help save wildlife

We can all make a difference!

- **Get outdoors to learn about wild animals and their homes.** Visit wildlife parks and marine environments to discover more about the world we share.
- **Volunteer to help clean shorelines and green spaces of plastic.** Remember, wild animals live in what are called ecosystems. Ecosystems include all the other animals, plants, rocks, soil and water they need to survive – and thrive. A grizzly is not a grizzly without a forest to live in. An orca is just a shell of himself in an aquarium. Wildlife needs healthy ecosystems (and so do we!).
- **Speak up for wildlife by starting a BC SPCA animal club.** Download our club guide at [spca.bc.ca/kids](http://spca.bc.ca/kids) for ways to take action to protect the planet and share what you've learned with your classmates, friends and family.



Join the Kids Club today! Fill out this form and mail it to:

BC SPCA Kids Club  
1245 East 7th Avenue  
Vancouver, BC V5T 1R1

Birth Date: \_\_\_\_\_

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_ Address: \_\_\_\_\_

City: \_\_\_\_\_ Province: \_\_\_\_\_ Postal Code: \_\_\_\_\_

School: \_\_\_\_\_ Email: \_\_\_\_\_

**Savings!** Two-year membership (\$25)  One-year membership (\$15)  Cheque payable to BC SPCA  Amex  Visa  Mastercard

Signature: \_\_\_\_\_ Number: \_\_\_\_\_ Expiry Date: \_\_\_\_\_  Email me e-Kids Mews!letter & BC SPCA Kids Club updates

Name on Card: \_\_\_\_\_

Parent or Guardian's Name: \_\_\_\_\_

Or sign up online:  
[spca.bc.ca/kidsclub](http://spca.bc.ca/kidsclub)

BCSPCA

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