



Making a difference...together

HA-BAT-ITAT

Educators Guide

Program at a Glance

On this fun and informative program, we will explore the fascinating world of bats in our region. We will dispel some myths about bats, talk about local species and the unique adaptations they use to survive. There will be an opportunity for an up-close and personal look at some mounted bat specimens and other bat-related material. As we wander through their forest home, students will learn to appreciate bats and discover why they are so important to local ecosystems and us! Students will discover what they can do to help bats on Vancouver Island and foster a sense of stewardship for these flying mammals.



In this program, your students will...

- Identify bats as belonging to a group of animals known as mammals
- Understand that myths and fears about bats are unfounded
- Explore a diversity of bats that need this forest habitat to survive
- Discover the unique value that bats have here in the forest ecosystem
- Evaluate the impact of our actions on bats and their forest home

Curriculum Connections

Our place-based school programs directly relate to the K-5 science curricula. Below you will find some big ideas, curricular competencies and content that will be addressed on your program.

Big Ideas:

- Through listening and speaking we connect with others & share our world (Gr 1)
- Curiosity and wonder lead to new discoveries about ourselves and the world around us (Gr 1)
- Living things have features and behaviours that help them survive in their environment (Gr 1)
- Observable patterns and cycles occur in the local sky and landscape (Gr 1)
- Living things have life cycles adapted to their environment (Gr 2)
- Local actions have global consequences, and global actions have local consequences (Gr 2)

Curricular Competencies:

- Demonstrate curiosity and a sense of wonder about the world (Gr 1 & 2)
- Observe objects and events in familiar contexts (Gr 1 & 2)
- Ask questions about familiar objects and events (Gr 1 & 2)
- Experience and interpret the local environment (Gr 1 & 2)
- Identify simple patterns and connections (Gr 1 & 2)
- Transfer and apply learning to new situations (Gr 1 & 2)
- Compare observations with those of others (Gr 1 & 2)
- Consider some environmental consequences of their actions (Gr 1 & 2)
- Recognize First Peoples stories (including oral and written narratives), songs, and art as ways to share knowledge (Gr 1 & 2)
- Share observations and ideas orally (Gr 1 & 2)
- Express and reflect on personal experiences of place (Gr 1 & 2)

Content:

- Structural features of living things in local environment (Gr 1)
- Behavioural adaptations of animals in the local environment (Gr 1)
- Names of local plants and animals (Gr 1)
- Similarities and differences between offspring and parent (Gr 2)
- Metamorphic and non-metamorphic life cycles of different organisms (Gr 2)

Suggested Pre-Trip Activities

- Draw pictures about your field trip and make predictions about what you might see
- Read stories to introduce the important roles bats play in ecosystems
- Create a K-W-L chart (what I know, what I want to know, and what I learned) for bats, and fill out the first two categories.

Follow-up Activities

- Revisit the K-W-L chart and fill in the “L” (What I learned).
- Create a mural featuring bats in their home environment
- Make a list describing how to protect bats and their homes
- Walk your school neighborhood looking for bat habitat

Background Information on Bats

Myths and Fears

Bats have fascinated and terrified people for centuries. In China they are believed to bring good luck, however in western culture they are connected to myths about vampires and entanglement in human hair. Though vampire bats are real (there are three species), they do not live in Canada and prefer cattle blood to human blood. Also, do not fear bats becoming tangled in your hair. Their senses are so finely tuned, a U.S. research facility recorded a bat escaping through a moving laboratory ventilation fan - unscathed! Accordingly, bats are similarly adept at avoiding human hair. Bats are not blind. Our coastal bats can see quite well, though they rely on echolocation for flight navigation.

Adaptations

Adaptations are the special features and behaviours a species has or uses to survive. Bats are fun to learn about because they have so many bizarre adaptations (bizarre to us!). For one, they are the only true flying mammal. If you look closely at their wing structure, you can see bats don't fly with their arms the way birds do; they fly with their hands and their great, long fingers. Because bats hunt for insects at night (i.e. they are crepuscular/nocturnal - another adaptation) they have developed an acute sensory system called echolocation or sonar (the same behaviour some species of whales and dolphins display). Echolocation involves emitting high-pitched sounds that echo back to the animal's ears when the sound strikes an object. From this information the animal can then decipher where the object or prey is and determine exactly how large it is.

Habitat

Roosts are places where bats find safety from predators and shelter from weather conditions. Some examples of roosting sites are: spaces under bark, leaves, caves, rock crevices, animal burrows, abandoned mines, building roofs and balconies and wildlife trees. A wildlife tree is any standing dead or living tree that provides habitat for wildlife. There are four general types of roosting sites. Site types are categorized according to when they are used by bats; there are day roosts, night roosts, maternity colonies and winter hibernation sites. Day and night roosts are used by bats in the summer when they are not in hibernation. Day roosts are safe places to sleep away the day in preparation for a busy night of feeding. Night roosts are safe places to recuperate between energetic flights looking for insect meals. Maternity colonies provide safe shelter for hundreds of mothers and their offspring. When young are present, males roost elsewhere. Hibernacula, or

winter hibernation sites, are for inactive bats during the winter and provide safe shelter from late summer to early spring for an entire bat colony.

Conservation

Bat numbers are intimately connected with the availability of suitable habitat. Parks provide a much-needed source of bat habitat in a time of increased urbanization. Older growth forests are essential to the continued survival of bat species within BC. Bat boxes are a relatively cheap and easy method for homes and schools to provide suitable roosting sites for some local bats when natural habitats are lost. Recent research indicates that numerous bat boxes on one property are more desirable for bats, as they can move between bat boxes if one grows too hot or cold.

Bats found on Vancouver Island – 9 species

Big Brown Bat (*Eptesicus fuscus*)

Yuma Myotis (*Myotis yumanensis*)

Little Brown Myotis (*Myotis lucifugus*)

Silver-haired Bat (*Lasionycteris noctivagans*)

Long-legged Myotis (*Myotis volans*)

California Myotis (*Myotis californicus*)

Western Long-eared Myotis (*Myotis evotis*)

Hoary Bat (*Lasiurus cinereus*)

Townsend's Big-eared Bat (*Plecotus townsendii*)

Online Resources

Habitat Acquisition Trust

HAT is a regional land trust that conserves nature on south Vancouver Island. Learn more about how you can help to conserve local bat populations.

<https://www.hat.bc.ca/bats>

E-Fauna

This is an electronic atlas of the wildlife of British Columbia.

<http://ibis.geog.ubc.ca/biodiversity/efauna/>

Royal BC Museum

The RBCM's learning portal is a great resource on bats, learn how to make a bat box, listen to bat sounds and more.

<https://learning.royalbcmuseum.bc.ca/playlist/bats-of-bc/>

Bat Conservation International

BCI is an organization that works to conserve the world's bat populations and ecosystems. Lots of great resources, video and photos

<http://www.batcon.org/>

Additional Resources

Arnosky, Jim. Crinkleroot's Guide to Walking in Wild Places. Simon and Schuster, 1990.

Blomgren, J. Where Would I be in an Evergreen Tree? Sasquatch Books, 2004.

Cannings, Richard and Sydney Cannings. British Columbia: A Natural History of its Origins, Ecology, and Diversity, with a New Look at Climate Change. Greystone Books, 2015.

Kays, R. & Wilson, D. Mammals of North America. Princeton University Press, 2002.

Lausen, L. Cori & Nagorsen, David W. & R. Mark Brigham & Hobbs, J. Bats of British Columbia Second Edition. Royal BC Museum, 2022.

Fenton, M. B. Just Bats. University of Toronto Press, 1983.

Lloyd, Megan Wagner. Finding Wild. Knopf Books for Young Readers, 2016.

Wishart, P. and Hayley, D. Knee High Nature: Fall- A Guide to Nature Activities and fun. Edmonton. Lone Pine Publishing. 1994