




Welcome to WISEST's STEM @ Home Educational Resource Guide - Special Biodiversity Edition

As an organization committed to providing valuable STEM experiences for students from elementary to high school, WISEST is excited to share the following resources with you and the curious young minds in your life. This biodiversity-themed edition is a special release as part of our participation in this year's Science Literacy Week (Sept 21-27).

En tant qu'organisation engagée à fournir des expériences STIM utiles aux élèves du primaire au secondaire, WISEST est ravie de partager les ressources suivantes avec vous et les jeunes esprits curieux de votre vie. Cette édition sur le thème de la biodiversité est une sortie spéciale dans le cadre de notre participation à la Semaine de la culture scientifique (Science Literacy Week) cette année (21-27 septembre).

Funded by: 

 WISEST Women in Scholarship, Engineering, Science and Technology

www.uab.ca/WISEST

DiscoverE

facebook.com/DiscoverEUofA | Grades 1-9



Learn about your favourite engineering and science topics through the eyes of our mentors, test your knowledge with educational trivia quizzes, and explore the coolest experiments and activities with DiscoverE! There will be daily releases of these fun, free activities throughout Science Literacy Week.

Alberta Worm Invasion Worm Tracker

worms.educ.ualberta.ca/forteachers | Grade 7, Educators, Parents



This site offers activities, worksheets, and presentations about invasive species and their effects on biodiversity in Alberta. The app that is linked to this site gathers data with the help of users and this information is used in research about invasive earthworm species. The educational resources directly align with the grade 7 science curriculum, specifically Unit A – Interactions and Ecosystems.

At-Home Activities and Websites

ScienceWorld Backyard Biodiversity

scienceworld.ca/resource/backyard-biodiversity/ | Grades K-7



Venture into your own backyard with these fun activities to help you discover the biodiversity at your doorstep!

Squish It Flat! How to press plants like a botanist

royalalbertamuseum.ca/blog/squish-it-flat | Grades K-12



Botanists study the world of plant collecting and documenting plant species to learn about things like plant variation, the fascinating relationships between plants, and even fluctuations in plant distribution due to environmental changes. To keep their specimens safe and to ensure they last a long time, they press the plants! You can do this too with this activity guide from the Royal Alberta Museum!

Nature's Weavers

royalalbertamuseum.ca/blog/natures-weavers | Grades K-4



Human weavers have been making cloth for thousands of years, but birds have been weaving nests for much longer. If you look out your window, you might see a bird collecting supplies for their home. Be inspired by our feathered friends! Learn how to make a simple loom and weave using found materials from in and around your home with this activity from the Royal Alberta Museum.

American Museum of Natural History - Ology

amnh.org/explore/ology/biodiversity | Grades K-7



This site is full of games, stories, hands-on activities and videos where you get to learn from different scientists, or "ologists" about biodiversity.

Virtual Biology Lab

virtualbiologylab.org/biodiversity-ecology | Grades 10-12



This site offers an interactive approach to learning about conservation. Through these models, students can explore digital versions of experiments and use simulations to better understand the concepts of biodiversity.

Biodiversity Kahoot

nationalgeographic.org/interactive/biodiversity-kahoot/ | Grades 5-8



National Geographic knows that Kahoots are always a hit, so they've made one all about biodiversity! This Kahoot tests students' knowledge of terms and concepts within biodiversity and encourages some friendly competition!


Khan Academy Biodiversity and Conservation

khanacademy.org/science/biology/ | Grades 8 - 12



Looking for an overview of biodiversity and conservation? Khan Academy offers an excellent overview of key concepts surrounding biodiversity through videos, documents, and short quizzes.



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Ontario Teachers' Federation

otffeo.on.ca/en/wp-content | Grades 6, Educators, Parents



The Science Teachers' Association of Ontario has put together a very comprehensive resource full of easy to integrate activities that introduce what biodiversity is all about.

Alberta Teachers' Association - Biodiversity

teachers-ab.libguides.com/ | Grade 6-12, Educators, Parents



The Alberta Teachers' Association has created this guide to facilitate teaching about biodiversity. It is filled with articles, videos and educational content about biodiversity.

Annenberg Learner - Biodiversity Decline

learner.org/series/ | Grade 9-12, Educators, Parents



This site offers a series of resources including videos, interviews with scientists, images, access to a textbook as well as a professional development unit all about biodiversity decline.

Biodiversity is Best

connex.stao.ca/classroom-catalyst/ | Grade K-9



This site offers a lesson plan with many activities that allow students to fully understand biodiversity and its impact on our water supplies. Documents are included that lay out each activity in detail. Other resources are also available.

Biodiversity Games for Younger Students

lowerthames-conservation.on.ca | Grade 4-7



These hands-on games focus on introducing concepts of biodiversity, conservation, and invasive species to students in a fun and interactive way. The focus on invasive species and their impact on the environment will emphasize the importance of kids doing their part to limit the spread of invasive species in their communities.

Biodiversity Games for Older Students

acadiau.ca/~dreid/games/ | Grade 10-12+



This game was created by Dr. Martin Willison, professor of Biology at Dalhousie University. It has been used as a teaching tool in his course Nature Conservation, where it is used to illustrate the fact that a global loss of diversity is often not noticed locally because local diversity can remain stable or even increase while global diversity drops.

World Wildlife Fund (WWF) Wild Classroom

worldwildlife.org/teaching-resources | Grades 3-8, Educators, Parents



This website offers a lesson library that has curated toolkits for better understanding of biodiversity, either through a general lens or the lens of a specific animal. Toolkits include educator's guides, presentations, posters, and activities that link to different classes including science, art, language arts, physical education, and social studies.

Changing the Conversation

changingtheconversation.ca/biodiversity-websites | Grades 7-12, Educators, Parents



This is a great hub for resources to understand biodiversity as a Canadian. Learn about what the government has set out for the biodiversity goals and targets for 2020, as well as about the different organizations who are contributing to preserving Canada's biodiversity.

PBS Biodiversity

pbslearningmedia.org/subjects/science/ | Grades PreK-12, Educators, Parents



PBS Media Learning has curated tons of educational resources for everyone on this website. The site is organized by age which makes it easy to find the most relevant activities for your curious young mind. There are also lesson plans for parents and teachers to use to get their kids interested in biodiversity!

National Geographic Exploring Conservation

nationalgeographic.org/projects/ | Grades 7-12, Educators, Parents



This online collection of free courses gives students opportunities to explore many different concepts surrounding biodiversity and conservation, including illegal hunting, species, preservation, and how to conduct scientific explorations.



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Biodiversity Picture Books

49thshelf.com/Blog/ | Grades K-6



This reading list, put together by a Toronto librarian, allows kids to explore biodiversity through different fiction and nonfiction books. The picture books will keep kids engaged while explaining and exploring different concepts in biodiversity, from the food chain to conservation.

Biodiversity Reading List

goodreads.com/list/show/ | Grades 10-12+, Educators, Parents



The best books of the Green Group Book Club" includes a wide array of books relating to biodiversity. This list was curated by Goodreads for the International Year of Biodiversity and includes such classics as Charles Darwin's Origin of Species and Silent Spring by Rachel Carson.

Biodiversity and Conservation Podcast List —SUSTAINABLE jungle

sustainablejungle.com/conservation/ | Grades 7-12+, Educators, Parents

Sustainable Jungle has put together a list of the best environmental podcasts about the wild and people trying to save it. The podcasts cover everything from the bison in Yellowstone Park, stories about modern environmentalist movements all the way to ethical issues in conservation and how to live a more sustainable life.

Jane Goodall: How humans and animals live together



ted.com/talks/ | Grades 4-12+, Educators, Parents

Legendary chimpanzee researcher Jane Goodall talks about her community project, TACARE. Through her community projects, Goodall has improved the lives of those who live just outside Gombe National Park in a holistic way. Through this effort, she came to see the effects that helping the people of Gombe National Park also helped the conservation of the park and its animals.



Mary Ellen Hannibal: How you can help save the monarch butterfly - and the planet

ted.com/talks/ | Grades 4-12+, Educators, Parents



In this TED Talk, Mary Ellen Hannibal discusses how monarch butterflies are dying at an alarming rate around the world and how their looming extinction could put human life at risk. But she has a solution: citizen scientists. In this talk you will learn about citizen scientists' key role in measuring and rescuing the monarch butterfly population.

Penny Chisholm: The tiny creature that powers the planet

ted.com/talks/ | Grades 4-12+, Educators, Parents



In this TED Talk Oceanographer Penny Chisholm introduces us to an amazing little being: Prochlorococcus, the most abundant photosynthetic species on the planet. A marine microbe that has existed for millions of years, Prochlorococcus wasn't discovered until the mid-1980s -- but its ancient genetic code may hold clues to how we can reduce our dependence on fossil fuels.

Canadian Museums

Burgess Shale Exhibit

burgess-shale.rom.on.ca/ | For Various Ages



Royal Ontario Museum and Yoho National Park have teamed up to bring the Burgess Shale into your home! The Burgess Shale preserves one of the world's first complex marine ecosystems and is part of the Canadian Rocky Mountain Parks World Heritage Site. Includes fossil gallery and a virtual submarine of what the Burgess Shale would've looked like when it was underwater. Make sure you have the latest version of Adobe Flash so that you can play the videos.


Blue Whale Project Online Exhibit

artsandculture.google.com/exhibit | For Various Ages



In May 2014, a small Royal Ontario Museum team traveled to Newfoundland to salvage a Blue Whale that had washed ashore. This online exhibit documents the preservation of the Blue Whale's body for both display at the Royal Ontario Museum and research into the whales' cardiovascular system. Please note that this exhibit deals with the death of an animal and has some educational images of the whale carcass and organs that could be considered graphic.



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Royal Alberta Museum: Tour of the Bug Hatchery

facebook.com/RoyalAlbertaMuseum | For Various Ages



Join the Live Animals team at the Royal Alberta Museum and go behind the scenes to the Hatchery! See how the team cares for and raises the bugs that live in the Bug Exhibit

Royal Alberta Museum: Explore our collection

royalalbertamuseum.ca/blog | For Various Ages



Sometimes, a diorama is so realistic, you feel like you can climb right inside the scene. And now, you can - digitally! The team at the Royal Alberta Museum has digitized some of their collection for online exploration. And these aren't just any regular pictures... They're 3D!

Royal Alberta Museum: Tour the Dermestid Beetle Lab

facebook.com/watch/live/ | For Various Ages



Ever wondered how we get skeleton specimens so... clean? Join the team at the Royal Alberta Museum for a behind-the-scenes peek into the dermestid beetle lab with Dr. Corey Scobie to find out!

Royal Alberta Museum: Tour the Quaternary Paleontology Collection

facebook.com/watch/live | For Various Ages



Have you ever wanted to peek inside cabinets full of Ice Age fossils? If so, you're going to want to check out this virtual tour: the Quaternary Paleontology collection! This collection from the Royal Alberta Museum boasts over 40,000 specimens, ranging from 100,000 years ago, to 10,000 years ago, from Mammoths, to giant sloths, to horses.

Beaty Biodiversity Museum

beatymuseum.ubc.ca | For Various Ages



The Beaty Biodiversity museums offer seven different online exhibits that explore the beauty of biodiversity and the importance of research to preserve our Earth's incredible ecosystems.



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Become a Citizen Scientist

What is a Citizen Scientist?

[Access WISEST Citizen Science Handout Here](#) | For Various Ages

Citizen Science is when members of the general public help to collect or analyze data in a collaborative project with professional scientists. Projects can range from sending in photos of different plant species in your neighbourhood to documenting the number of birds that frequent your bird feeder. There are so many citizen science projects out there and a lot of them help us create a baseline for the biodiversity in our own communities! You're bound to find one that interests you! Listed below are two major databases where you can access different projects, but we've also put together a separate handout that highlights different citizen science projects for each grade level in the link above.

NatureLynx

naturelynx.ca/ | Grades K-12, Educators, Parents



Do you want to be part of tracking biodiversity in Alberta? Researchers at the University of Alberta have developed the NatureLynx app and website so that you can actively contribute to our scientific understanding of Alberta's ecosystems. Use the app to upload and identify pictures of plants and animals and connect with other nature enthusiasts to work together to complete missions and to identify unknown species.


iNaturalist

inaturalist.org/ | Grades K-12, Educators, Parents



National Geographic the California Academy of Sciences have partnered together to create iNaturalist. This citizen science project allows people all over the world to record their nature observations, share them with fellow naturalists, and discuss your findings. The data from these observations is then shared with scientific data repositories like the Global Biodiversity Information Facility to help scientists find and use your data for important biodiversity research.



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En savoir plus sur la biodiversité

Fédération Canadienne de la Faune



cwf-fcf.org/fr/ | Année suggérée: Élémentaire, les parents, les éducateurs

Des ressources amusantes à propos de la biodiversité pour les jeunes, les enseignants, ainsi que des imprimés, vidéos, et photos.

Activités et sites-web pour la maison

Les enfants pour la biodiversité

enfants-pour-la-biodiversite.com/ | Année suggérée: Élémentaire

Les élèves sont invités à participer à l'opération «Les enfants pour la biodiversité». Remplissez des fiches pratiques, lisez des articles et jouez à des jeux sur la biodiversité!

Drôle de planète



droledeplanete.be/ | Année suggérée: Élémentaire, lycée, école secondaire, les parents, les éducateurs

Enseignants, animateurs ou simplement parents, sur «Funny planet», découvrez de nombreuses ressources pédagogiques, activités et jeux pour échanger avec les enfants sur tous les thèmes environnementaux: l'eau, l'air, les déchets, la biodiversité et plus encore!

Ressources pour les enseignants et éducateurs


Protéger la biodiversité

ontario.ca/fr/page/ | Année suggérée: Éducateurs



Renseignements sur la gestion et la protection par l'Ontario des plantes, des animaux, des terres, des lacs, des rivières, des forêts et d'autres concentrés.



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Bio Trousses Guide d'activités pour les éducateurs

covabar.qc.ca/ | Année suggéré: Educateurs

Des leçons intéressantes sur la biodiversité qui incluent des activités pratiques pour les étudiants

Listes de livres et vidéos

MAJ

ici.radio-canada.ca/ | Année suggéré: Lycée



MAJ, c'est une dose d'actualité jeunesse qui ne se prend pas au sérieux, propulsée directement par Radio-Canada vers les plateformes numériques. Découvrez leurs vidéos et blogs sur l'environnement!

Livres sur la biodiversité

babelio.com/ | Année suggéré: Élémentaire, le lycée, le secondaire



Voici une liste de plus de 200 livres sur la biodiversité à lire.


Collections de musées

Google Arts and Culture

artsandculture.google.com/ | Année suggéré: Élémentaire, le lycée, le secondaire, parents, éducateurs

Parcourez les collections de musées sur la biodiversité du monde entier à l'aide de Google Arts and Culture



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