toronto zoo

What's New At The Zoo







Part 2

Resource Package

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NOTE TO EDUCATOR

The Toronto Zoo's Education Branch is pleased to provide you with the **What's New at the Zoo Resource Package – Part 2**, which we hope will provide you with ideas on how to spark your students' curiosity about the natural world, as well as how to incorporate the Toronto Zoo and conservation into your classroom. This resource package, along with Part 1, is a compilation of the articles highlighting wildlife and on-going conservation efforts at the Toronto Zoo, along with associated classroom connections, that have been published in the monthly Educator e-Newsletter since fall 2013. The classroom connections cover a variety of subject areas for primary, junior, intermediate, and secondary students and include activities, lesson ideas, open-ended questions, and inquiry projects. These ideas can be used to support your students' learning in the classroom or at the Toronto Zoo during a field trip and can be adapted to suit the needs of your students.

This resource package will be updated periodically to include content from recent e-newsletters. To subscribe to the monthly **What's New at the Zoo! Educator e-Newsletter**, email **schools@torontozoo.ca**.

**Information contained in the educator e-newsletter articles was accurate at the time it was published.*

TORONTO ZOO RESOURCES

In addition to this resource package, the Toronto Zoo has a variety of other resources available to download for **FREE**.

Fighting Extinction - Why we are here?

Elementary

- Self-guided Tour Scripts
- Resource Packages
- Learn about Animal Babies
- Adopt-A-Pond Wetland Conservation Program
- Aqua-Links & Great Lakes
- Conservation
- General Toronto Zoo Information
- Turtle Island Conservation

Secondary

- Activities, Assignments, & Lesson Plans
- Adopt-A-Pond Wetland Conservation Program
- Conservation
- General Toronto Zoo Information
- Why Math?

Animal Fact Sheets

Toronto Zoo's YouTube Channel

Toronto Zoo's Social Media Accounts – Stay up-to-date with @The Toronto Zoo

- **Facebook**
- **Twitter**
- **Instagram**
- **Pinterest**

The TELUS Giant Panda Cam @ The Toronto Zoo

Students from around the world can now watch giant pandas, Er Shun and her two cubs, Jia Panpan and Jia Yueyue, live on the Zoo's new **TELUS Giant Panda Cam**. The panda cam presents educators with a unique opportunity to incorporate a year-long inquiry-based study on giant pandas into their classroom. Just like the Toronto Zoo's behavioural specialist (**click here for an interview**), students watching the panda cam can use their observations, tracking their notes in a log book, and along with additional research, answer questions about the giant pandas' behaviour.

We are sure that your students will have lots of their own questions, but here are a few to get your class's inquiry-based study started:

- When are giant pandas most active?
- How much time do giant pandas spend eating each day? Sleeping? Does the length of time change depending on the season?
- How do the giant panda cubs interact with each other? With their mother?
- Do the giant pandas prefer certain **enrichment** items?
- Do giant pandas have a favourite sleeping position?

In addition to watching the TELUS Giant Panda Cam and following our **giant panda cubs' journey**, check out the Giant Panda Teacher Resources and Activity Guide, which is full of engaging lesson plans and activities for students in primary, junior, and intermediate divisions. The curriculum-linked activities can be used both in your classroom and at the Zoo. Download for **FREE** from **torontozoo.com**.

Working Together – Toronto Zoo & The Scarborough Hospital Perform Surgery on Western Lowland Gorilla

As one of the Toronto Zoo's oldest animal residents, Josephine, a 44 year old Western lowland gorilla, is an important member of the Zoo's gorilla troop. Arriving at the Zoo from Gabon, West Africa a few months before the Zoo opened in August 1974, Josephine has given birth to five offspring, and through the North American Gorilla Species Survival Plan (SSP), which focuses on maintaining a genetically diverse gorilla population, is now grandmother to five grandchildren at zoos throughout North America.

Through daily training and health checks by Wildlife Care staff in the African Rainforest Pavilion, it was observed that Josephine had a large mass in her left leg that appeared to be affecting her ability to walk normally. Thinking a possible hernia and to ensure Josephine would receive the best care, Toronto Zoo veterinarians approached The Scarborough Hospital's Division of General Surgery and Dr. Saul Mandelbaum, a general surgeon who performs inguinal hernia surgeries regularly, often in elderly patients, to further discuss possible options. After consultation, it was agreed that Josephine would be anaesthetised so the mass could be examined and removed. Rather than a hernia, it was discovered that the mass was a lipoma, a slow-growing, fatty lump found underneath the skin. Further, Josephine's ability to walk normally was also found to be related to arthritis, which is common in elderly animals.

"It was a privilege to work with the Toronto Zoo and their veterinarians on Josephine's surgery," said Dr. Mandelbaum. "Our team from The Scarborough Hospital, including nurses Sandra Ricketts-Fusca and Kerry Bennett, general surgeon Dr. Neil Orzech and anaesthetist Dr. Chris Hawling were instrumental in our success. The team from the Zoo and the hospital worked seamlessly together. The surgery went very well and Josephine is recovering nicely. We wish her the best in her recovery and hope she continues to live a healthy life."

"This is a great example of the community coming together to ensure the animals at the Toronto Zoo receive the best possible medical care. We are grateful to The Scarborough Hospital and the hospital staff who provided their expertise on a voluntary basis for Josephine," said Dr. Chris Dutton, Head of Veterinary Services at the Toronto Zoo. This isn't the first time the Toronto Zoo has teamed up with local hospitals- in 2015, they teamed up with The Scarborough Hospital's Division of Orthopaedics to **perform surgery on the fractured toe of Sadiki**, a then 10-year-old male gorilla, and the Toronto Zoo received a **donation of a retired incubator** from The Hospital for Sick Children (SickKids), which was critical in caring for the giant panda cubs.

Great apes, including gorillas, are keystone species in forests that regulate the global climate. A failure to save them from extinction would truly be an irreversible loss. Current conservation efforts need to be strengthened, as research suggests that all great ape species could become extinct in the wild in the 21st century. Along with being an active participant in the North American Gorilla Species Survival Plan, the Toronto Zoo has recycled over 30,000 cell phones through the PhoneApes program and donated more than $27,000 to Great Ape conservation efforts in Africa.

CLASSROOM CONNECTIONS

Get Involved and Save Gorillas!

Make a difference this school year by engaging your entire school in a cell phone recycling campaign. It is as simple as requesting a PhoneApes collection box from the Zoo (email **phoneapes@torontozoo.ca**) and have your students lead the campaign in reaching out to the community for old cell phones.

Phone Apes™
recycling
cell phones for
conservation

How does cell phone recycling help conserve gorillas and their habitats?
Recycling cell phones helps to reclaim valuable metals, including tantalum, a light weight metal powder used to create capacitors. Tantalum is produced from coltan, a metallic ore that is found and mined primarily in the rainforests of the former Republic of the Congo. The same rainforests that the endangered lowland gorilla calls home. By recycling old cell phones, tantalum can be re-used, which in turn lessens the demand to mine pure coltan.

Wondering how to incorporate the Toronto Zoo and conservation into your lessons? Think beyond the science curriculum!

Mathematics & Careers – Check out the **'Why Math?' video series** to find out some of the ways that Toronto Zoo staff use math on a daily basis. Brainstorm other ways that you think staff at the Toronto Zoo use math- be sure to consider all the different careers that are needed to run the Zoo. Download the **Toronto Zoo – Career** resource to find out the types of careers at the Zoo.

STEM & Mathematics – Design a to-scale model of an exhibit for a new species that you think should be at the Toronto Zoo. What species did you choose and why? How does the exhibit meet the needs of your chosen species?

STEM & Visual Arts – Engineer a newly discovered animal that would survive in a specific habitat and then create a 3D sculpture of the animal using recyclable materials. Design and build

Literacy & Geography – Write a persuasive letter to a person/company about why they should care about an environmental issue of your choosing, how it impacts wildlife, and include actions they can take to reduce their impact. Topics to consider: polar bears & climate change, gorillas & deforestation, orangutans & palm oil, rhinos & poaching

Media Literacy – Create a series of interpretive signage that could be displayed at an exhibit to convey information about the animal to visitors

Anthropology – Visit the Toronto Zoo to complete an observational study on primates, comparing the physical characteristics, types of behaviours, and frequency of behaviours of a human, ape, and monkey. What effect, if any, do you believe conservation concerns are having on the behaviours of each of the primates you observed? Download the **Toronto Zoo – Anthropology** secondary resource package for more ideas.

Business – Should the Toronto Zoo increase the cost of admission by $5 in order to help fund new projects and conservation efforts? Consider both the positive and negative impacts of adjusting the price of admission.

Get Involved and Take Action – Engage your students in a conservation project, from brainstorming project ideas, organizing and implementing the project, and then analyzing the positive benefits that the project has on the environment. One idea to get your students started is to organize a cell phone recycling campaign to help protect gorillas and the rainforest – Check out **Phone Apes** for more details or email **phoneapes@torontozoo.ca** to request a Phone Apes cell phone collection box for your school.

ENRICHMENT

September 2016

Did you know that each animal at the Toronto Zoo receives enrichment every day and providing new enrichment opportunities is a very important responsibility for Wildlife Care staff? Have you ever noticed barrels, toys, boxes, and other devices in exhibits during your visit and wondered why they were there? Each of those objects is a form of enrichment and all enrichment plays an important role in ensuring the health of the wildlife at the Zoo.

What is 'enrichment'?

Enrichment is a dynamic process that enhances an animal's environment within the context of its behavioural biology and natural history. Environmental changes are often made with the goal of increasing an animal's behavioural choices and stimulating natural behaviours. For example, many species in the wild spend the vast majority of their day foraging for food. By offering food throughout the day in a variety of ways, including using 'enrichment devices', Wildlife Care staff can stimulate an animal's natural foraging behaviour.

Enrichment is classified into five main categories:

Sensory - Any form of enrichment that engages an animal's senses (visual, olfactory (smell), auditory (hearing), taste, and tactile stimulation), such as creating a scent trail through an exhibit or a scratching post for the animal to rub up on. An animal relies on its senses to help it understand their environment and what other species are in the area.

Environmental - Encompasses the various needs that different species require within their environment, including climbing and perching opportunities, different substrates, wallows, burrows, and nesting areas.

Forage/Feeding - This category is often most associated with enrichment. The presence of food usually stimulates an animal's natural hunting and foraging behaviour. Presenting food in different ways (e.g. scattered, buried, hung up high, placed inside an enrichment device), providing it in a puzzle feeder, or providing new flavours or textures stimulate animals to think while they are feeding, just as their wild counterparts would.

Occupational - This is often paired with Forage/Feeding enrichment options, as it refers to things such as chewing, object manipulation, grooming, and task oriented devices.

Play - Engaging in social behaviour and play regularly is important for most animals. In addition to housing animals in their correct social structure (e.g. family group, pair, herd, solitary), play can be encouraged by providing a variety of non-food related toys (e.g. boomer balls, boxes, large branches) and opportunities to interact with different items, including water.



How do Wildlife Care staff provide enrichment opportunities for animals?
When planning an enrichment program for a species, Wildlife Care staff always begin by looking at the animal's natural history. Having a general idea of how animals navigate their environment, the types of food they eat, and which senses they rely on helps staff assess which natural behaviours they would like to target with the enrichment. Next, Wildlife Care set behavioural goals that they hope the enrichment program will achieve and plan how they will meet those goals. Once the goals are set and a list of possible enrichment options created, Wildlife Care staff work with Veterinary and Curatorial staff to analyze how they can safely provide the enrichment to the animal, taking the animal's strengths into account (e.g. can the enrichment item be destroyed, is it harmful to the animal if swallowed, will it be used in a different manner than intended). Once the enrichment program is approved, Wildlife Care staff provide different enrichment at various times each day, providing animals with choices and control within their environment. Determining the effectiveness of the enrichment program is important and Wildlife Care staff monitor behaviours, observing and tracking exactly how each animal interacts with the given enrichment.

Click here to learn more about enrichment at the Toronto Zoo

CLASSROOM CONNECTIONS

Inquiry-based Project – Enrichment Design Challenge

Have your students choose an animal at the Toronto Zoo and investigate possible enrichment that would stimulate the animal's natural behaviours. After analyzing which type of enrichment provides the greatest benefits and challenge, design and build a new enrichment device for the chosen species.

ALL ABOUT BATS

October 2016

With Halloween approaching, now is the perfect time to start a bat inquiry project with your students and learn more about the problems they face and how you can help protect them. Here are some questions to get your students started:

- How are bats able to fly?
- Why are bats unable to survive in cold environments?
- What percentage of bat species are insectivorous (meaning their diet is made up almost entirely of insects)?
- Why are insectivorous bats so vital to the agricultural community?
- Beyond insectivorous bats, what do other bat species eat?
- What are the primary issues impacting bat populations, especially in Ontario, and what can you do to help protect them?
- What might happen if bats disappeared?

To learn more about bats, check out the Toronto Zoo's **Bat Guide** or download the **Bat App**.

GIANT PANDAS - A GIANT CELEBRATION

October 2016

Happy 1st Birthday Jia Panpan & Jai Yueyue

It's hard to believe that it was just over one year ago when Er Shun gave birth to Canada's first giant panda twins in the early hours of October 13, 2015. The birth was an important milestone in Toronto Zoo's participation in the Global Giant Panda Conservation Breeding Program, which recently celebrated its collective success with the downgrading of giant pandas from 'endangered' to 'vulnerable' by the International Union for Conservation of Nature (IUCN). With each cub weighing less than 200 g at birth (less than your cell phone), the first several months were critical. Toronto Zoo Wildlife Care staff worked closely with giant panda experts from Chengdu Research Base of Giant Panda Breeding in China to provide around the clock care for the cubs, as they were twin swapped with Er Shun every few hours. As they gained their distinctive black and white colouring, grew in size, and started to become active, scientists at the Natural Resources DNA Profiling and Forensic Centre at Trent University used DNA sexing protocols to determine that the larger, first born cub was a male and the smaller cub was a female. Shortly after, the cubs were named Jia Panpan (Canadian Hope) and Jia Yueyue (Canadian Joy) in a special ceremony attended by Justin Trudeau, Prime Minister of Canada, Kathleen Wynne, Premier of Ontario, John Tory, Mayor of Toronto, and Luo Zhaohui, Chinese Ambassador to Canada.

Now a year old, Jia Yueyue weighs over 17 kg and is both independent and adventurous, usually the first to explore new things. Jia Panpan still outweighs his sister at over 21 kg and is an instigator, frequently initiating play wrestling with Jia Yueyue. Wildlife Care staff have introduced the cubs to a positive reinforcement training program (after discovering the cubs' favourite treat is sweet potato), which allows staff to monitor the health of the cubs.

WATCH highlights from the giant panda cubs' first year and their 1st birthday celebration

And don't forget to tune into the **TELUS Giant Panda Cam** with your students – this is a unique opportunity for your students to use their observational skills and get involved in a long-term behavioural study on the giant panda cubs. ***What will your students discover?***