

The Life Cycle of Trumpeter Swans (and some outdoor fun!)

A lesson in support of Grade 2 Science and Physical Health (BC/Yukon Curriculum)



Juvenile Swan. Photo Credit: Jukka Jantunen

Summary

1. Subject(s): Science, Physical and Health Education
2. Topic or Unit of Study: Life Cycles, Swans, Parent and Offspring, Survival Adaptations
3. Grade/Level: 2
4. Curriculum Connections:
 - Science 2- Big Ideas: Living things have life cycles adapted to their environment.
 - Science 2- Content: similarities and differences between offspring and parent

- Physical and Health Education 2- Big Ideas: Learning how to participate and move our bodies in different physical activities helps us develop physical literacy.
5. Objectives: After establishing understanding with images of life cycle stages of Trumpeter Swans, students will compare and contrast images of offspring and parents, and talk about reasons for these differences, including some advantages and disadvantages (camouflage vs. standing out). In addition, students will have a choice of two active, outdoor games related to survival adaptations to support their physical health, take them outdoors, and challenge them to use their bodies differently to learn how to move silently. This lesson will support a classroom visit to Swan Haven Interpretive Centre.
 6. Time Allotment: 25-30 minutes
 7. Additional Considerations: This lesson requires students and teachers to go outdoors, and will be more successful in an area with clear boundaries. If it is available to teachers to produce durable visuals of the life cycle/adult/juvenile images, the entire lesson may take place outdoors, perhaps immediately prior to or after a recess.

Description

In this lesson, students will begin by placing visuals of the life cycle stages of Trumpeter Swans in the correct order. This can be done collectively. The teacher will guide the students to focus next on an image of a juvenile swan and on an image of an adult. Students will be encouraged to consider the similarities and differences, and to discuss what they see. The teacher can introduce the subject of a survival adaptation by asking the students to consider how being white-feathered might help the adult swans, and how being darker and more grayish might help the young swans. This will lead to a discussion of camouflage, and why it is important for some species to have this skill. After the discussion and generation of ideas, the teacher will take the students outdoors to practice using our bodies to move in silence, to use our senses of hearing and sight to conceal ourselves and locate others in an active game. Students can be invited to play Egg Guardian, which involves using a blindfold and making attempts at silent motion to explore the experiences of prey listening for threats and predators hunting using stealth. The game will challenge the students to really think about how they are moving their bodies, and require them to listen to the sounds of motion, while taking the classroom outdoors (if this is possible for you). Swans sometimes freeze, but will also use other strategies including distraction/feigning (luring predators away from location of nest), fleeing, and direct confrontation depending on the situation.

As you guide: To help your students make broader connections, invite them to share other examples of prey animals who use camouflage and freezing techniques. Such as Snowshoe Hares, Arctic Ground Squirrels, Mule Deer, and many birds (especially females). Examples of predator animals who use camouflage and stealth techniques include many species of cat, such as Lynx and Mountain Lion, and other wildlife such as Arctic Foxes and Polar Bears.

Learning Context: What is the life cycle of a Trumpeter Swan? What are the similarities and differences between offspring and parents? How might these differences be useful for survival? In the spring, swans are flying over parts of the Yukon and can be observed at certain locations where open water is found, such as Swan Haven Interpretive Centre at Marsh Lake, YT.

Prior knowledge: For this lesson, you will want to make sure your students have a sense of what swans look like and sound like, and consider a quick review of some of their needs and characteristics.

Preparation:

Setting: You will need an outdoor area with clear boundaries. If this is unavailable, a classroom with space to move will suffice. The game of Egg Guardian is based on an old summer camp game called “Keeper of the Fire”, except instead of a person guardian a fire made of sticks who has to listen for people stealing their sticks, you have a swan guarding their eggs, trying to listen for predators who are trying to steal their eggs. A detailed description is below.

Implementation

1. Getting started: Begin with a quick swan chat. Ask your students how many of them have seen swans in the Yukon, and where they were. Let them know that we are able to see two kinds of swans here, and see if they know which (Trumpeter and Tundra). With your students gathered, either outside or in the classroom, use the life cycle images: ask students to sort and put them in the correct sequence. This can be done as a collective, or individually to gauge understanding as needed.
2. Next steps: Comparison of adults and young: Indicate an image of an adult, and an image of a cygnet or juvenile. What do the students notice? Discuss how the young swans may be darker to make it easier for them to stay hidden when in the nest, and adults may be bright white for many reasons, such as blending in with the ice when they are resting during migration, and also for reasons of temperature control. Other observations such as size and feather thickness are to be encouraged as well. Once on

the subject of how different features can be related to survival needs, talk about the relationships swans have with other animals. Here in the Yukon, they are vulnerable to coyotes and sometimes wolves and other predators. Both the male and the female guard the eggs. Invite students to get dressed if you are not yet outdoors, and bring the “eggs”, the feathers (2, can be fake or real) and several clean blindfolds.

3. Head on out: Once outside, explain that the game of Egg Guardian is going to give students a chance to experience what the swans do when they are up north trying to raise their families. Explain that two students at a time will be the Egg Guardians (like a ‘mom and dad’ swan but the gender of the students does not matter), and that the other students are coyotes and wolves. The swans, or Egg Guardians, will have five eggs to guard, but they are blindfolded and cannot see, because coyotes are often camouflaged by the colour of their fur and sometimes it is dark out as well. The swans are to sit near the eggs, but not too close to each other. Their job is to listen for the sound of predators and to HONK while pointing a “wing” (the feather) at the noise if they think a predator has an egg. If a predator gets an egg with no honk, they get to stash it twenty steps away and come back to try for another. For safety, only four predators should approach at a time, but the others can walk silently around, circling their prey while waiting for their turn. The coyotes/wolves need to be silent as they try to get one egg at a time. Any noise heard means they have lost their chance and need to go twenty steps away to start silently approaching again. In order to switch up the roles, the teacher or a student volunteer needs to act as the time keeper. “Summer” can last two or three minutes (timed), and when “Fall” arrives, the eggs that are still in the nest are old enough to fly south and two new Egg Guardians get a turn. The game ends when the students have played enough to understand and enjoy the experience, or when it is time to move on.
4. As the game ends, reassure students that if they did not get a turn to be in the role they wanted, there may be other chances, and encourage them to play at recess if they wish. Ask students to imagine what it would be like if humans lived this way, and see what kind of connections come up in conversation. This is also a great refresher for a lesson in the senses, as hearing and sight, as well as scent, are highly relevant to wildlife survival.
5. To review what was learned and continue the active, outdoor play at the same time, consider playing a game of Owls and Crows (you can change this to Eagles and Crows if owls are culturally inappropriate). It is a game of using true statements and false to see what students have retained, and helps continue burning off energy. A detailed description: <https://www.sharingnature.com/owls-and-crows.html>

Wrapping up: Invite a conversation on the subject of other survival strategies and how they relate to the needs of species, including humans. Thank students for their participation and ask how they felt being outside for this activity.

Differentiated Instruction

Open to anything, up for everything: You know all too well that students learn in different ways. By consciously thinking about this, you'll be able to use different teaching techniques to reach as many children as possible in your classroom. Use what you know of your students to apply any augmentations you see fit.

- a. **Visual Learners:** Using visuals to explain the life cycle stages will assist visual learners to understand and connect. During the active game, students will also be challenged to use their sense of sight to spot their peers as they attempt motionlessness and camouflage.
- b. **Auditory Learners:** Students will be challenged to listen closely to the sounds made by their bodies as they hide and attempt to move silently. To increase the auditory stimulation, consider playing a recording of wetlands as background noise (many choices online, or use <https://www.youtube.com/watch?v=5v11Ck9vKwM>). One thing to point out with students is that the swans are raising their young in the summer, when the wind is in the grasses, and other wildlife noises and songs are around, so it is not always a state of total quiet! If you are doing this activity outdoors in the fall, spring or summer, you likely will not need to play any background noise whatsoever, but if you have a quiet bunch and are trying this outside in the winter when things are often still, it might be effective to bring a portable speaker if you can. Another option might be to try it outdoors in the still of winter and then try it again indoors with some background 'wetlands' noise.
- c. **Kinesthetic Learners:** The active game element of this lesson will be engaging to kinesthetic learners, and it would serve well to ask them throughout the game to consider what it would feel like to be either an animal seeking food or an animal hiding to survive. If you have any students who have been taken hunting or trapping, ask them to share their experiences and what they remember about being loud or quiet when in pursuit.
- d. **Language Learning Students:** Using life cycle visuals and sequencing strategies may help convey the intention of the activity, and it may be beneficial to pair students up during the game if there are a range of language levels so that modelling and the buddy-system can provide additional support. Additional imagery, such as a photo of a

human baby next to the juvenile swan, and an adult human next to an adult swan, may help if context is unclear.

Materials & Resources

- Life Cycle Images for Trumpeter Swans:
<https://yukonwildlife.ca/wp-content/uploads/2020/05/Life-Cycle-of-a-Swan.pdf>
 - There are also images of newly hatched and juvenile swans here:
<https://www.trumpeterswansociety.org/swan-information/identification/juvenile-swan-identification.html>
- An image of a cygnet or juvenile swan, as well as an adult (see below), or if time allows the following 2 minute video has footage of adults and cygnets:
<https://www.hww.ca/en/wildlife/birds/trumpeter-swan.html>
- Five things to use as eggs, they can be balls, toys, plastic eggs, you name it.
- Two long feathers for the students in the role of parent swans. These can be real or fake, and should be soft enough that if they accidentally collide with a person, they do not hurt. If no feathers are available, pieces of white fabric or even lengths of toilet paper will do.
- Optional follow-up activity: Bird cams beside nests can show your students the life cycles of birds up close and personal. Consider a continuation or review of this topic using the following free downloads of life cycles via bird cam (you can sign up for free):
<https://www.birds.cornell.edu/k12/life-in-a-nest/>
- A great website with more information:
http://www.biokids.umich.edu/critters/Cygnus_buccinator/
- Access to an outdoor area where there are enough trees or bushes for your students to experiment with camouflage, or enough snow for them to hide in.

Assessment

At the end of this activity, students should be able to correctly identify the life cycle stages of swans using visuals placed in order, and should be able to articulate similarities and differences between parents and offspring. Survival strategies (like camouflage and protecting your young) should be discussed as a group, as well as physical and behavioural adaptations such as a thick layer of heat-trapping feathers and migration.

Extensions:

- a. For a follow-up activity watching all of the life cycle stages via bird cams, consider the free downloadable video lesson at: <https://www.birds.cornell.edu/k12/life-in-a-nest/>. After a big energy burn outdoors, it might be nice to come on in for a review of the subject using live bird cam lessons. This also will help make connections for students between swans and smaller birds, as they have some life cycle similarities.
- b. Other activities to enhance your time outside with your students could include a Nature Scavenger Hunt, trying meet-a-tree (<https://www.sharingnature.com/meet-a-tree.html>), making sound maps (<https://www.sharingnature.com/sound-map.html>), or trying a Drum Stalk (<http://www.naturesummitmb.com/events/workshops-cattail-mats-blind-drum-stalk-and-field-guide-savenger-hunt/>)
- c. Now that you have had a discussion about swans and made some memories, you might want to use the topic to branch into a language discussion. Discuss the words we have for swans in English and French (*cygne*), but also discuss how for many, many years, swans who came to the Yukon had (and still have) other names. Share that in some Yukon First Nations Languages, swans are also known as:

Southern Tutchone: [dägay](#)

Gwich' in (Fort McPherson dialect): daazrai i

Kaska: [degaye](#)

Northern Tutchone: Togok

Tlingit: gúkl'

Source: Yukon Native Language Centre search, 2020

<http://ynlc.ca/languages/index.html>.

This is not a complete list, and the input of your school's Language Keeper or Teacher is important to respectfully seek if pursuing this path.

Game Variations/Alternatives and Swan Visuals

The game of Egg Guardian is based on the classic summer camp game of Keeper of the Fire. If students find the game either too simple or challenging, or have played a similar game in another class recently, you may want to consider playing Camouflage. For students, they may enjoy trying to 'freeze still' or blend in with bushes, trees, or even a snowy natural environment. It works best on a nature walk in an area with safe, recognizable boundaries. There are many ways to play, and the goal is to challenge students to use their sense of sight and hearing, as well as their cunning, to attempt to go unseen by their peers. Whenever possible in an outdoor learning setting, encourage natural curiosity with questions about the flora and fauna around you and encourage further exploration and connection.



Photo Credit: Jukka Jantunen



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