



Grade 6: Animal Adaptations

Description: Students examine bones, skulls, pelts and other taxidermy; participate in simulation activities; and identify animal tracks to identify and describe the distinguishing characteristics of different groups of animals.

Stage 1—Desired Results

Gr6: Science and Technology

Key Overall Expectations

2. investigate the characteristics of living things, and classify diverse organisms according to specific characteristics;
1. assess human impacts on biodiversity, and identify ways of preserving biodiversity;

Key Specific Expectations:

- 1.1 analyse a local issue related to biodiversity, taking different points of view into consideration propose action that can be taken to preserve biodiversity, and act on the proposal
- 2.2 investigate the organisms found in a specific habitat and classify them according to a classification system
- 2.3 use scientific inquiry/research skills to compare the characteristics of organisms within the plant or animal kingdoms
- 3.1 identify and describe the distinguishing characteristics of different groups of plants and and use these characteristics to further classify various kinds of plants and animals

What concepts should students learn as a result of this unit?

Understanding(s):

What are the "big ideas"?

What misunderstandings are predictable?

Interdependence: all living things are connected, every organism, system, and place depends on others

Change over time: all organisms, places and systems are constantly changing- Living things must adapt to changes in their environment in order to survive.

Systems and Interactions

Sustainability and Stewardship

Essential Questions

What provocative questions will foster inquiry, understanding, and transfer of learning?

1. In what ways are the animals here able to survive? How are they dependent on each other, this environment and other natural systems? In what ways have their behaviour and physical systems adapted to this place?
2. If these animals are so well adapted to this place, how might our choices (positive/negative) have multiple impacts on Sheldon's natural communities? What can we do?

Learning Goals:

- *Students will know...*
- *Students will be able to...*

- Identify physical and behaviour adaptations in local animals
- Read signs of nature- tracks/scat/etc to help identify /locate animals
- relate how these characteristics and behaviours of animals are responses to their environment.
- Classify animals by behavior and body structure.
- evaluate living and nonliving things that affect animals in their environment.
- Identify a positive or neg human impact, its short/long term consequence on animal population at Sheldon

Success Criteria:

- *Criteria by which to assess and evaluate their understanding*

- I was able to use tracks/ scat/signs to identify common animals at Sheldon
- I can identify an animal adaptation and explain how it might help the animal survive in this area
- I can identify local animals by different classifications- feeding preferences/ taxonomy/ habits-e.g., nocturnal/ habitats
- I can identify threats to animal populations in this area and in my own neighbourhood and propose actions both individually and as a group, people can do to support biodiversity

I took action on enhancing biodiversity????? Pull invasives/feed birds/ build brush piles/ plant trees??

Stage 2: Assessment Plan:

(how will you know what they know? how will you know they got it?)

- Through what authentic task(s) will students demonstrate the desired understandings or achievement of the learning goals?
- How will students reflect upon and self-assess their learning?

Type of Assessment	Assessment task
Initial assessment for learning: <ul style="list-style-type: none"> • Determine students' readiness to learn new knowledge and skills, as well as obtain information about their interests and learning preferences 	<ul style="list-style-type: none"> • Knowledge of artifacts • Participation in discussion • Questions asked • Mini presentation re- one adaptation and benefit
On-going assessment for learning: <ul style="list-style-type: none"> • Both instructor and students monitor students' progress, provide feedback and modify instruction/approaches in order to achieve set goals 	<ul style="list-style-type: none"> • success at thicket game after successive tries • discussion answers from simulation games • success at locating and identification of animals, tracks/signs/sounds etc • participation, questions
Final assessment of learning: <ul style="list-style-type: none"> • Summary is used to make judgements about the quality of student learning on the basis of established criteria 	<ul style="list-style-type: none"> • Match adaptation benefits to environmental factors- explain why this would be an adaptation here at Sheldon- but not in Australia?- or would it? • Identify how humans have affected animals- who has adapted/ who might have difficulty adapting/ • Identify strategies and actions

Stage 3- Learning Plan

- What key learning events (lessons) will help students learn and understand the big ideas and curriculum goals?

Hook (excite) <ul style="list-style-type: none"> • hook all students and hold their interest Introduction <ul style="list-style-type: none"> • helps the students know where the unit is going and what is expected? • Help the instructor know where the students are coming from (prior knowledge, interests)? 	<ol style="list-style-type: none"> 1. Investigate examine bones, skulls, pelts and other taxidermy- <ol style="list-style-type: none"> a. how might we identify /classify animals that live here based on artifacts- b. how do these animal parts give us clues to how animals survive here at Sheldon? 2. Create a list of possible adaptations-based on artifacts and how these help the animal survive 3. Brainstorm what might we see-/ how will we know there are animals out there- expectations/fears/prior knowledge/ equipment for looking- guides/ binoculars/ etc.
<ul style="list-style-type: none"> • 	
Construct and apply knowledge/skill (explore/explain/elaborate) <ul style="list-style-type: none"> • provides students with a common base of experiences • students actively explore their environment or manipulate materials. • verbalize their conceptual understanding or to demonstrate new skills or behaviors. • extends students' conceptual understanding and allows them to practice skills and behaviors 	<ol style="list-style-type: none"> 1. find /follow animal trails, 2. log crossings, 3. stalking game(s), - what happens to prey that live right beside busy highways/ high areas of noise pollution? 4. thicket game- different locations? Different challenges- high density of hiding places vs low density- imitate threat of development- compare to school yard- where are you successful hiding- when is it difficult? 5. squirrel game:- different ways of gathering food- what happens when invasive species move in?

<p>Reflection (evaluate experience)</p> <ul style="list-style-type: none"> • <i>participants share inspiration</i> • <i>learners assess their understanding and abilities</i> • <i>teachers evaluate students' understanding of key concepts and skill development.</i> 	<p>Recap what was seen/heard/discovered</p> <ul style="list-style-type: none"> • What adaptations were discovered- how do we know? What evidence was there? Photographic evidence for follow up? • Could any of the animals we discovered switch to an urban environment? A warmer environment caused by climate change? • What adaptation features would be useful or useless in an urban/warmer location? Do you think the animal could survive? • What does that tell you about how animals adapt to their environments? • How might we protect these animals locally, in our neighbourhoods?
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Stage 4: Post Visit Consolidation/ Extensions

Explore your neighbourhood:

- Visit a nearby ecosystem (ex. backyard, city park) and record your observations about the different organisms you discover there <http://sciencenetlinks.com/student-teacher-sheets/explore-outdoors/>

Design An Animal:

- It is the future, the year 3000, and it is now possible for humans to build planets, and genetically engineer or create plants and animals to live on that planet. You are one of the scientists working on the animals, and it is your job to design and create an animal which will be perfectly suited to its environment on this new planet.

Task: You need to pick one of the following environments of already created planets and create an animal which is going to be strong and resilient enough to survive in that environment. You need to consider how this animal is going to stay warm or cool, what it is going to eat, how it is going to get its food and water, and how it is going to care for its young to make sure they survive. Your animal must FIT INTO the existing food chain – it cannot be the ultimate predator (the one which can eat everything else and nothing can eat it).

<http://lessonplanspage.com/ScienceAnimalAdaptations58.htm/>