

## Grade 6 Science and Technology -Biodiversity Lesson Plan Overview

### Overview

In these lessons students learn about biodiversity from a number of perspectives. Students go into their school ground to observe biodiversity, research actions that others are taking to promote biodiversity and complete a personal biodiversity action plan.

### Connections to Financial Literacy

Connections to financial literacy are made in these lessons where students consider the relationship between science, the environment, and the community. Students will learn both science and financial concepts through the exploration of issues and ideas related to biodiversity. The financial literacy knowledge and skills which will be addressed in this suite of lessons include:

- financial awareness of the costs associated with biodiversity in the school grounds
- how governments, NGOs and charities use funds to improve biodiversity
- consumer awareness regarding the environmental implications of financial decisions
- problem solving, decision-making and critical thinking skills which are practiced through the inquiry process

### Connections to Curriculum

Connections are made to scientific investigation skills related to collecting, organizing, and analysing data, and drawing conclusions. The content focus is on the Gr. 6 Understanding Life Systems: Biodiversity strand. The curriculum expectations addressed in each lesson are identified within the lesson plan. The curriculum expectations, including examples and other supporting information, can be accessed through a hyperlink within the lesson.

### Considerations for Planning

Teachers should familiarize themselves with school and school board policies about taking scientific samples in and from the outdoors.

If teachers allow the collection of specimens, students must be given specific instructions on what is acceptable to collect and in what ways. Care, first, for the well-being of the organism and, secondly, for the habitat from which it is collected must be paramount. Some suggestions follow:

1. grasses and weeds are usually numerous and taking clippings from these should cause no harm to the plant or the populations
2. fallen leaves (in good condition) can often be found for trees and shrubs
3. cultivated plants should never be collected
4. many insects, snails, spiders, etc. can be collected with soft paint brushes used to direct specimens into bug viewers

Note: All living organisms collected should be kept only for a short time (e.g., for identification) and returned to the environment from which they were collected.

Teachers are encouraged to view STAO's resource *Be Safe!* 3rd Edition (2010)

## Financial Literacy: Grade 6 Science and Technology Biodiversity

### Searching for Biodiversity –Lesson 1

**Students develop awareness of the meaning of biodiversity in their local environment. They compare biodiversity in two areas and consider the human impacts on these areas from an environmental and financial perspective.**

#### Connections to Financial Literacy

In their comparison between 2 types of areas, students will examine the impacts of humans on the biodiversity in those areas from the environmental and financial perspective.

This introductory lesson is designed to develop awareness of the meaning of biodiversity and have students begin to think of some of the financial and environmental costs related to managing biodiversity (i.e., increasing, maintaining, or reducing it). Students look at the species in a given area and begin to assess biodiversity and some of the impact of human interactions in the area.

Lesson 1: Searching for Biodiversity	Science and Technology-Grade 6 Biodiversity
Curriculum Expectations	Learning Goals
<p><b>Overall Expectations</b></p> <ol style="list-style-type: none"> <li>1. assess human impacts on biodiversity, and identify ways of preserving biodiversity (<b>Note:</b> only the first part of this expectation is being addressed in Lesson 1)</li> <li>2. investigate the characteristics of living things, and classify diverse organisms according to specific characteristics</li> <li>3. demonstrate an understanding of biodiversity, its contributions to the stability of natural systems, and its benefits to humans (<b>Note:</b> only the first part of this expectation is being addressed in Lesson 1)</li> </ol> <p><b>Specific Expectations</b></p> <ol style="list-style-type: none"> <li>1.1 analyse a local issue related to biodiversity</li> <li>2.1 Follow established safety procedures of outdoor activities and field work</li> <li>2.2 investigate the organisms found in a specific habitat and classify them according to a classification system</li> <li>2.4 use appropriate science and technology vocabulary, including classification, biodiversity, natural community, interrelationships, vertebrate, invertebrate, stability, characteristics, and organism, in oral and written communication</li> <li>3.1 identify and describe the distinguishing characteristics of different groups of plants and animals, and use these characteristics to further classify various kinds of plants and animals</li> <li>3.2 demonstrate an understanding of biodiversity as the variety of life on earth, including variety within each species of plant and animal, among species of plants and animals in communities, and among communities and the physical landscapes that support them</li> </ol>	<p>This lesson will take approximately 1-2 periods, depending on the amount of time spent outdoors.</p> <p>At the end of this lesson, students will be able to:</p> <ul style="list-style-type: none"> <li>○ explain the term biodiversity and determine (with justification) which of two areas around the school is more bio-diverse based on direct observations of the different kinds of organisms found.</li> <li>○ distinguish between different species found in the school yard based on general physical differences.</li> </ul> <p>Sample success criteria:</p> <ul style="list-style-type: none"> <li>○ I can list a number of choices that have an impact on biodiversity in the school yard.</li> </ul>

## Instructional Components and Context

<p><b>Readiness</b> As this is an introductory lesson, students need not have any prior knowledge of or exposure to the concept of biodiversity.</p> <p>If students are to collect live specimens, instruction and support regarding humane and respectful collection practices should be provided. See Notes to Teacher in the Minds On section.</p> <p><b>Terminology</b> organisms, species, sample, sample plot, diversity, diverse, biodiversity, biodiverse</p>	<p><b>Safety:</b></p> <ul style="list-style-type: none"> <li>• Teachers are encouraged to review board, school and subject specific policies related to Out of School activities or experiences prior to this lesson.</li> <li>• Prior to planning this lesson, teachers are encouraged to consult STAO's resource Be Safe! 3rd Edition (2010) <a href="http://stao.ca/store2/index.php?cPath=34.php">http://stao.ca/store2/index.php?cPath=34.php</a></li> <li>• Teachers must ensure safety of students at all times. Students must stay clear of any deep or swift-moving waters and must be dressed appropriately for the conditions present (e.g., boots for wet, damp or muddy areas).</li> </ul> <p><b>Materials:</b></p> <ul style="list-style-type: none"> <li>• 1 item per student group that can be used to identify a small area of study (e.g., small plastic hoops, wire coat hangers bent to form a square, circle or rectangle, string with 4 sticks to mark off a square area) These will be placed on the ground to allow students to study a small, defined area closely.</li> <li>• 2 predetermined areas of the school grounds where students can look for living things             <ul style="list-style-type: none"> <li>○ one area should be a high student traffic area (e.g. playing field) or an area that is highly maintained or mowed regularly</li> <li>○ another area should be of lower traffic or more naturalized area</li> </ul> </li> <li>• scissors</li> <li>• chart paper</li> <li>• markers</li> <li>• BLM 1.1 Field Observation Sheets (optional)</li> <li>• BLM 1.2 At-A-Glance Sheet for recording anecdotal notes when observing and listening to students work</li> <li>• grade-appropriate field guides for plants and insects (optional)</li> <li>• small paint brushes and bug jars or bug viewers for collecting specimens (optional; see Notes to Teacher)</li> </ul>
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Minds On	Connections
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<p><b>Description – Preparing for the Diversity Search</b> <u>Whole class:</u> Let students know that today they will be going on a hunt for living things in two different areas outside of the school. Their task will be to:</p> <ul style="list-style-type: none"> <li>• look for all the different kinds living things they can find in a small sample of the school ground</li> <li>• keep a record of all the different <u>kinds</u> of things that they find or see in their sample area</li> <li>• make note of other living things they notice pass by their sample area</li> </ul> <p>Give them a few minutes to discuss:</p> <ul style="list-style-type: none"> <li>• what kinds of things they might see</li> <li>• ways that they could keep a record of the things they find</li> </ul> <p>Offer them a copy of BLM 1.1 as one way of recording their findings, but allow them to adapt it to suit their needs.</p> <p>Let them know that once they have searched one area of the school grounds for a while, you will lead them to a different area to make a</p>	<p>Assessment for learning Teachers should observe and listen for misconceptions by students (e.g. grass stalks with seed heads seen as a different species from grass leaves) and correct them as appropriate. Observation and recording skills can also be observed and assessed.</p> <p>Assessment <b>of</b> learning is inappropriate for this diagnostic activity.</p> <p> Depending on students' past experiences, some students may be a little anxious about doing this kind of field research. Sensitivity and encouragement may both be required.</p> <p>Ensure English Language Learners and students with learning difficulties are paired with helpful peers (but not dominating or over-</p>
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second search.

Small group preparation work:

Put students into groups of 2 or 3 and provide them with their sampling tool (e.g., small plastic hoop; bent wire coat hanger, strings and stick, etc). Allow students a few minutes to determine how they might record their findings (although their decisions may change when out in the field). Some possible ways might be:

- write the name of things that are common (e.g., ant, grass, spider, etc.)
- tape small samples of plant matter onto their record sheet
- make brief sketches of things that are found
- take digital photographs

They will need to have or make 2 record sheets – one for each search area.

**Caution:** Teachers should be aware of students who experience allergies in the outdoors or anaphylactic reactions. Appropriate safety precautions must be adhered to (e.g. bringing Epipens).

**Notes to Teacher:**

1. Teachers should ask students to wear clothes that they are comfortable getting dirty for the day of the activity as they may be lying on the ground to get a close view.
2. At various times during the activity students may be playing the role of hunter or recorder but all students should be encouraged to take part in all aspects of the activity.
3. If teachers allow the collection of specimens, students must be given specific instructions on what is acceptable to collect and in what ways. Care, first, for the well being of the organism and, secondly, the habitat from which it is collected must be paramount. Some suggestions follow:
  1. grasses and weeds are usually numerous and taking clippings from these should cause no harm to the plant or the populations
  2. fallen leaves (in good condition) can often be found for trees and shrubs
  3. cultivated plants should never be collected
  4. many insects, snails, spiders, etc. can be collected with soft paint brushes used to direct specimens into bug viewers

Note: All living organisms should be collected only for a short time (e.g., for identification) and returned to the environment from which they were collected.

4. Teachers are encouraged to view STAO's resource *-Be Safe! 3rd Edition (2010)*

protective ones who may do too much of the work for them).

Choice of recording method allows for students to use areas of strength, building success into early lessons. Use of digital photographs, sketches, and plant sampling allow students to participate fully.

Action!	
<p><b>Description:</b> Small group work leading to whole class discussion</p> <p><b>The Search – groups of 2 or 3</b></p> <ul style="list-style-type: none"> <li>• Proceed to the part of the school yard where the initial search is to begin.</li> <li>• Direct students to spread out and to begin making careful observations and record in some way what they find.</li> <li>• Students will often want to record living things they see that are outside of their sample plots. Allow this but have them record differently from those they find within their plot. They may find other “signs” of life (e.g., chewed leaves) and they can record these as well.</li> <li>• Students will need to be encouraged to look very closely – between grass blades, under leaves, etc.</li> <li>• Once students have had some time to explore the first location (10-15 minutes), move them on to the second, less maintained area and have them repeat the search in this area. They will need to record their observations on a separate record sheet.</li> </ul>	<p>Assessment <b>for</b> learning:  Teachers use the Action portion of the lesson to assess (and record) students’ prior knowledge and misconceptions. This helps inform guidance during the Action phases and allows for correction of misconceptions during the Consolidation phase. No formal evaluation required. BLM 1.2 (At-a-Glance Sheet) may be useful for recording student observations, misconceptions, etc.  Hands-on group work allows all students to participate. To ensure all students participate, consider assigning roles if needed; have students switch roles after a certain time. Note: not all students will need this.</p>
<p><b>Follow-up from the Search – small group then whole class</b></p> <ul style="list-style-type: none"> <li>• Cluster pairs into small groups of 4 -6 students.</li> <li>• Have them share their findings: <ul style="list-style-type: none"> <li>○ putting check marks beside things that are common</li> <li>○ circling or underlining things they did not notice but the other groups did</li> <li>○ grouping common things together (e.g., cutting up their recording sheets, sorting the pieces into common groups, gluing the pieces to form groups of living things on chart paper; labeling the groups)</li> </ul> </li> <li>• Ask student groups to determine which area seemed to have a greater variety of types of living things; have them justify their choice by the group agreeing or reaching consensus on the evidence they can share with the class.</li> <li>• If materials such as printed or Internet field guides are available, have students attempt to use them to identify organisms by their common name.</li> <li>• Have students attempt to answer why one area may have more or fewer living things than another area even though both areas are close to the school.</li> <li>• Bring student groups together for a whole-class discussion as to what was found and which area had the greatest variety of living things.</li> </ul>	<p> BLM 1.1 Field Observation sheet may need to be altered or replaced for students with different learning needs. For example, ELL students might be guided in producing dual-language diagrams and/or statements of observation in their first language.</p>

Consolidation	
<p><b>Whole class</b></p> <ul style="list-style-type: none"> <li>• Students make notes as appropriate. Depending on the learning needs of students and when in the year this unit is done, students may require assistance in making notes. The following questions may help:               <ol style="list-style-type: none"> <li>1. What different plant organisms did you find?</li> <li>2. What different animal organisms did you find?</li> <li>3. List the insect species you found (if any)?</li> <li>4. Which area seemed to have the greatest biodiversity? State your evidence.</li> <li>5. What do you think humans (students, teachers, the caretaker, the school board) might be doing, deliberately or inadvertently, to affect biodiversity in the school yard?</li> <li>6. What kinds of products might be bought that affect the biodiversity in the school yard?</li> <li>7. What kinds of services might have to be paid for?</li> </ol> </li> <li>• It is recommended that the teacher draws attention to these last few questions in particular as students will be coming back to questions like these over the next few lessons.</li> </ul>	<p><b>Assessment of learning:</b> Teachers should check for student understanding of the required terminology (e.g. organism, species, community, biodiversity, etc.)</p> <p> Students with language difficulties may be confused by words such as “species” where the singular term and the plural term are the same. Placing these words on a word wall and referring to them repeatedly throughout the unit is always helpful. First language labels are helpful to ELL students, and visual representations are helpful to many students.</p> <p> To meet individual needs, adjust the number and complexity of questions students are expected to address.</p>
<p>This is also an appropriate time to introduce the culminating task (see Lesson 4) in general terms. Specifics are to be avoided at this time as it is important for students to consider a number of different aspects of biodiversity before making up their minds on what to concentrate for the culminating task.</p> <p>Also, it is important to assure students that they will have many of opportunities to build their understanding of biodiversity, and practice their research and communication skills before the final task. An appropriate introductory challenge might be:</p> <p><i>As we go through the next few lessons, pay close attention to the things you find really interesting. At the end of the unit, you're going to have the chance to develop an Action Plan to affect biodiversity in a way that is personally important to you. You will also need to look into the cost of taking such action. Be prepared to persuade us!!</i></p>	<p>Some students such as English Language Learners will benefit from the use of sentence starters to begin making their notes (e.g., <i>I saw _____.</i> <i>It had _____.</i> <i>I also saw _____</i> etc.)</p>

## Appendix : Note to Teachers:

It would be most appropriate to make a word wall of these terms to be referred to throughout the unit. At appropriate times as the lesson and the discussions proceeds, introduce the terms students will need to know for this unit, for example:

- organism – a living thing
- vertebrates – animals having a backbone or spine (e.g., birds, mammals, reptiles, amphibians, fish)
- invertebrates – animals without a backbone (e.g., insects, worms, snails, spiders)
- species – the scientific term used for each type of living thing (e.g., dogs are one species; wolves although closely related are a different species)
- population – all the organisms of one type that live in a certain area (e.g., the grass population, the ant population)
- natural community – all the different populations living in a certain area at the same time make (e.g. grassland community, a forest community)
- diversity – a variety of forms
- biodiversity – “bio” = life or living    “diversity” = a variety of forms  
- biodiversity = a variety of living things

**Note:** a more formal definition for biodiversity may need to be presented in later lessons as the unit progresses.

**BLM 1.1**  
**Field Observation Sheet**

**Observations – Area \_\_\_\_\_ Location: \_\_\_\_\_**

Use the chart below to make a record of the different living things (organisms) you find in Area A:

**Notes to Student:**

1. **Only** collect samples if your teacher has given you permission **and** shown you how to do so.
2. **Stay** with a partner when exploring habitats.
3. **Wash** your hands well after exploring your habitats.

Description, sketch, photo, or sample of organisms.	Possible name of the organism	Other notes
	This column could be made narrower in order to widen the other two columns.	

**Use the back of this page if more room is needed.**



## Financial Literacy: Grade 6 Science and Technology

### Lesson 2 - Biodiversity

<p><b>Biodiversity – Lesson 2</b>  <b>The Canadian Wolves of Yellowstone Park – One Issue, Different Points of View</b></p> <p><b>Connections to Financial Literacy</b></p> <p>The financial literacy knowledge and skills which will be addressed and assessed in this lesson include:</p> <ul style="list-style-type: none"> <li>• awareness of ways that government financially supports biodiversity funding of special projects</li> <li>• awareness of ways that organizations financially support biodiversity of special projects</li> <li>• awareness that there are different perspectives on many issues</li> </ul>	
<p><b>Lesson 2</b>  <b>One Issue – Many Points of View: A Case Study of the Wolves of Yellowstone Park</b></p>	
<p><b>Curriculum Expectations</b></p>	
<p><b>Learning Goals</b></p>	
<p><b>Overall Expectations</b></p> <p>1. assess human impacts on biodiversity, and identify ways of preserving biodiversity</p> <p>3. demonstrate an understanding of biodiversity, its contributions to the stability of natural systems, and its benefits to humans</p> <p><b>Specific Expectations</b></p> <p>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</p> <p>3.2 demonstrate an understanding of biodiversity as the variety of life on earth, including variety within each species of plant and animal, among species of plants and animals in communities, and among communities and the physical landscapes that support them</p> <p>3.4 describe ways in which biodiversity within and among communities is important for maintaining the resilience of these communities</p> <p>3.5 describe interrelationships within species, between species, and between species and their environment, and explain how these interrelationships sustain biodiversity</p>	<p>This lesson will take approximately 2 periods.</p> <p>At the end of this lesson, students will be able to:</p> <ul style="list-style-type: none"> <li>• describe problems that result from decreased biodiversity</li> <li>• identify alternate points of view (and the rationale for those views) regarding managing biodiversity</li> <li>• describe some of the work being done by individuals, organizations and governments to promote and protect biodiversity</li> </ul> <p>Sample Learning Goal:</p> <ul style="list-style-type: none"> <li>• I can identify some of the issues, different points of view, and some of the costs related to protecting biodiversity.</li> </ul>
<p><b>Instructional Components and Context</b></p>	
<p><b>Readiness</b></p> <p>Prior to this lesson students should have reviewed some of the concepts and terminology of Grade 4 Habitats and Communities</p> <p><b>Terminology</b></p> <p>communities, interrelationships, predator, prey, biodiversity, stability, species</p>	<p><b>Materials:</b></p> <ul style="list-style-type: none"> <li>• computer, Internet access, LCD projector, whiteboard</li> </ul>

Minds On	Connections
<p><b>What might happen if ...?</b></p> <p><u>Whole class/Think-Pair-Share</u></p> <ul style="list-style-type: none"> <li>• Activate students' knowledge by asking them what they know about wolves</li> <li>• Read a book such as <i>What If There Were No Gray Wolves</i> (Suzanne Slade) or <i>Wolf Island</i> (Celia Godkin) to the class.</li> <li>• At appropriate times during the reading have students make inferences as to what they think might happen to the community if the wolves were to disappear.</li> <li>• Have them discuss first with a partner before sharing with the class.</li> </ul> <p>An alternative lesson, if books are not available, follows:</p> <p><u>Whole class:</u></p> <ul style="list-style-type: none"> <li>• Ask students: <ul style="list-style-type: none"> <li>◦ If you were going to plant a vegetable garden to help feed you and your family, what are all the things you would want to be in there your garden?</li> </ul> </li> <li>• Record student answers on the board, chart paper, etc.</li> <li>• Next, let students know that rabbits love gardens and once you plant one, rabbits might move in and start to eat. Ask them what might happen to their garden?</li> <li>• Then tell them that coyotes like eating rabbits, so when they learn that there are lots of rabbits in the area a few may move in and start to eat them. Ask what they think will happen to the rabbits and to the garden after a while?</li> <li>• As appropriate, have students discuss their answers with a partner, then share with another group or the whole class.</li> </ul>	<p><b>AOL</b> Assessment <b>for</b> learning: Use the At-A-Glance sheet from Lesson 1 to continue recording observations of students and their conversations. Misconceptions can be addressed as they arise or later during group discussion.</p> <p> Depending on the background of students, their familiarity, and experience with gardening, and animals like coyotes, students will require varying degrees of guidance in exploring the questions. Visuals would be particularly helpful to ELL students.</p>
Action!	
<p><b>Description</b></p> <p><u>Whole class / Think-Pair-Share</u></p> <ul style="list-style-type: none"> <li>• Show students on a map where Yellowstone Park is located and draw a parallel between the areas discussed in the "Minds On" (e.g., Wolf Island, the imaginary garden) and a large park (lots of different plants, shelter and hiding spaces, lots of different animals living there, etc.). Let them know that in areas outside of Yellowstone, there are a lot of cattle and sheep ranches.</li> <li>• Inform them that wolves once lived in Yellowstone but were killed and/or driven off by people. Later wolves from Canada were captured and brought back to Yellowstone to live. The video clips they are about to see will give some reasons why both these actions were taken. <b>Note to teacher:</b> Reasons wolves were able to be brought from Canada are explored in the Follow-up lesson at the end of the lesson.</li> <li>• Activate students' prior knowledge by briefly discussing the concept of different points of view. Ask them to discuss with a partner how they think people who lived in the area of Yellowstone may have felt about wolves being removed and then brought back. What different points of view might people have?</li> <li>• After discussing with a partner and in small groups, have them share out.</li> </ul>	<p> Use of strategies such as think-pair-share or talking with a partner before sharing with the class reduces stress levels for many students as it allows them to rehearse answers before sharing answers more publicly. Similarly asking them "Tell us what you and your partner were discussing" is often less threatening than "Tell us what your thoughts are." Students are often more willing to talk when stress levels are reduced.</p>

Action! (continued)	
<ul style="list-style-type: none"> <li>Hand out BLM 2.1, and show students how to use it as they watch a series of short videos, concentrating on three things:               <ol style="list-style-type: none"> <li>the different points of view people have about the wolves</li> <li>the reasons people give for their point of view</li> <li>any mention of money, the amounts, and what the money was used for</li> </ol> </li> <li>Pre-teach vocabulary that students may need in order to understand the video (most terms will not be assessed).  <b>Note to Teacher:</b> some terms used in the video clips are:  <u>Video clip: Yellowstone Wolf Controversy:</u> <ul style="list-style-type: none"> <li>wolf restoration</li> <li>livestock</li> <li>breeding stock</li> </ul>   <u>Video clip: Yellowstone: return of the wolf:</u> <ul style="list-style-type: none"> <li>collective good</li> <li>predator, top predator</li> <li>productivity (how well a plant or animal reproduces)</li> <li>elk</li> <li>aspen, willow</li> <li>browsing height (how high up an animal can reach to eat leaves, twigs)</li> <li>connectivity conservation = the idea of linking protected areas together so animals have greater areas in which to roam</li> </ul> </li> <li>Show the following video clips, with students completing as much of BLM 2.1 as they can while watching.               <ol style="list-style-type: none"> <li>Yellowstone: the return of the wolf (~6 minutes)  <a href="http://www.iucn.org/knowledge/news/?7664/Yellowstone-the-return-of-the-wolf">http://www.iucn.org/knowledge/news/?7664/Yellowstone-the-return-of-the-wolf</a> </li> </ol>   <u>Small groups (2-4)</u> <ul style="list-style-type: none"> <li>Have students share their responses in round-robin fashion for each part of the chart.</li> <li>Take up responses with class and allow them to question or comment on one another's responses in order to promote clarity. The goal is not to have them convince one another, but to better understand each others' comments.</li> </ul> </li> </ul>	<p><b>A<sub>for</sub>L</b> Monitor students as they complete handouts to assess whether there is difficulty understanding the concepts. Pause the video and discuss as needed.</p> <p> Consider pairing learning or language challenged students with helpful peers. Pre-teaching some of the vocabulary with the use of visuals (e.g. of the animals, samples of willow and aspen twigs or branches)</p> <p>BLM 2.1 Promoting Biodiversity may need to be altered for students with different learning needs (e.g., requiring fewer cells to be completed; having the different groups already identified: ranchers, tourists, guides, researchers, hunters, etc.)</p> <p><b>A<sub>for</sub>L</b> Making anecdotal notes of student responses as they share will allow for targeted clarification or support.</p>

## Consolidation

### Individual work – Note making

- Provide students with the following pieces of information. It should be visible (e.g., chart paper, projected, handout) so that students can refer to it as needed. Students may wish to add some of this information to their handout completed earlier:
  - In 1995-96 31 Canadian wolves were released into the Yellowstone area; by 2005 the number of wolves was about 325.
  - A group called Defenders of Wildlife established a “wolf compensation fund” that paid ranchers for animals that were killed by wolves. They have paid out over \$1 000 000 to ranchers.
  - Ranchers say this is not enough to cover the cost of all the livestock lost to wolves.
  - In 2005 people coming to Yellowstone to watch wolves brought about \$5 000 000 into the area (for guides, hotels, etc.).
  - Wolves killed off many elk in the park, but as the elk decreased, more young trees were able to grow and the number of other animals (e.g., beaver and fox) increased as well. This improved the biodiversity within the park.
  - It is very expensive to capture wolves, move them into an area, and care for them until they are released. Much of this money comes from taxes or donations.
- Ask students to use the information above and that from their handouts to answer the question:
  - What is your point of view regarding restoring the wolf population in Yellowstone Park? Do you think wolves should have brought back to the park or not? Justify your choice giving as many reasons as you can.

### Follow-up – Think-Pair-Share

- First with a partner, and then in small groups, have students infer about why Canada might have been able to provide wolves to for transplanting into Yellowstone. Ask them to be prepared to share their answers and their reasoning with the class.

### Note to Teacher:

Western Canadian wolf populations were strong, and felt less hunting pressure than those in the Yellowstone area. A few animals were captured from different individual packs near Hinton Alberta and near Fort John, B.C. Most of these individuals then formed into packs when released in Yellowstone. Taking only a few animals from each pack had two advantages – it did not overly affect the pack from which they were taken, and it promoted greater genetic diversity within the new packs.

Further background information can be found at:

1. Canadian Geographic. “The Ripple Effect”  
<http://www.canadiangeographic.ca/wildlife-nature/articles/pdfs/grey-wolf-the-ripple-effect.pdf>
2. PBS: <http://www.pbs.org/wnet/nature/episodes/in-the-valley-of-the-wolves/reintroduction-of-the-wolves/213/>

**AOL** Assessment of learning:  
Completion of BLM 2.1.  
Check of students’ notes following note making. Do an oral “check for understanding” of the terms used and information shared.



Some students may benefit from the use of sentence starters or sentence frames for note making.  
(e.g., I think that bringing wolves back to Yellowstone park was \_\_\_\_\_, because \_\_\_\_\_.)

**BLM 2.1 The Canadian Wolves of Yellowstone Park – One Issue, Different Points of View**

**Instructions:**

- Read each of the questions below. Ask for assistance if you need help to understand some of the words.
- Complete as much as you can as you watch the video clips.
- Once the videos are finished, share your information with others as directed by the teacher

1. The video clips showed people or groups of people with very different points of view about wolves. Who were the different groups and what were their points of view about whether or not wolves should have been brought back?

Person or Group	Their point of view	Reasons for their point of view

2. What are some ways wolves help improve biodiversity in Yellowstone Park?

3. What links were shown between wolves and money?

***When you are asked, share your thinking with another student or group and make any changes to your answers you think are needed.***

**Financial Literacy: Grade 6 Science and Technology**  
**Biodiversity**  
**Lesson 3: One Species Too Many?**  
**A Case Study of Purple Loosestrife**

**One Species Too Many?**  
**A Case Study of Purple Loosestrife**

Students develop awareness of the damage that an invasive species like purple loosestrife can do to an area. They also consider some of the costs of trying to control such species.

**Connections to Financial Literacy**

As students consider how invasive species like purple loosestrife enter an ecosystem and the costs of controlling such species, they gain consumer awareness of the need to make wise purchases, both financially and environmentally. They also consider some of the costs transferred to taxpayers to attempt to control invasive species.

<b>Lesson 3: One Species Too Many? A Case Study of Purple Loosestrife</b>	
<b>Curriculum Expectations</b>	<b>Learning Goals</b>
<p><b>Overall Expectations</b></p> <p>4. assess human impacts on biodiversity, and identify ways of preserving biodiversity</p> <p>3. demonstrate an understanding of biodiversity, its contributions to the stability of natural systems, and its benefits to humans</p> <p><b>Specific Expectations</b></p> <p>1.2 assess the benefits that human societies derive from biodiversity and the problems that occur when biodiversity is diminished</p> <p>3.2 describe ways in which biodiversity within and among communities is important for maintaining the resilience of these communities (Note: this lesson focuses on the biodiversity within a community)</p> <p>3.7 explain how invasive species reduce biodiversity in local environments</p>	<p>This lesson will take approximately 1-2 periods. Teachers should note that students will have the choice of further extending this research in Lesson 4.</p> <p>At the end of this lesson, students will be able to:</p> <ul style="list-style-type: none"> <li>• define what is meant by an invasive species.</li> <li>• describe ways in which an invasive species (like purple loosestrife) can eventually result in reduced biodiversity.</li> <li>• describe some ways in which humans might act to reduce the negative effects of invasive species.</li> <li>• identify some of the environmental and financial costs related to invasive species.</li> </ul> <p>Sample learning goal  I can describe some of the effects an invasive species can cause to an area, and list some of the costs of trying to control or reduce the damage caused by these species.</p>

## Instructional Components and Context

### Readiness

Prior to this lesson students should have:

- an understanding of the terms: community, interaction, interrelationship, wetlands

### Terminology

species, natural community, interrelationships, stability, native species, non-native species, exotic species, invasive species

### Materials:

- BLM 3.1 One Species Too Many? A Case Study of Purple Loosestrife (2-page handout)
- BLM 3.2 Consolidating Your Learning
- Internet access

## Minds On

### Elbow Partners to Whole Group

- Review with students the work they did last day, and have them recall examples of ways that humans promote biodiversity.
- Give students a few minutes to discuss the following questions with a partner, before sharing with the class:
  - Where, in movies or books, have you heard stories of an invading species? How did the invaders get there? What were the results of the invasion? Were the invaders ever controlled? If so, how? If not, why not?
- Next, ask the students the questions below. Allow them to discuss with partners:
  - “Are there ever times when increased biodiversity (adding a new species or two into an area) might be harmful to a natural community? (or alternatively, “Are there times we might want to **reduce** the amount of biodiversity in a community by removing a species or two from an area?) If so, think of some examples and what the effects of doing so might be. Be prepared to share your thoughts with another group or the class.”
- After a few minutes, have students share with another group or with the whole class.

### Assessment for learning

Assess student responses regarding the previous lesson for accuracy and completeness.

From student answers, teachers can assess whether students understand the terms community and biodiversity.



Use of strategies such as think-pair-share or talking with a partner before sharing with the class reduces stress levels for many students as it allows them to rehearse answers before sharing answers more publicly. Similarly asking them “Tell us what you and your partner were discussing” is often less threatening than “Tell us what your thoughts are.” Students are often more willing to talk when stress levels are reduced.

## Action!

### Think-Pair-Share

- Inform students that they are about to see a video about a species that has invaded Ontario and what people are doing to try to keep the species under control.
- Show them a few pictures of purple loosestrife – close up of the plant/flower; larger picture of it in an area. Many such images are available on the Internet; two sites are listed below:  
<http://www.invadingspecies.com/invaders/plants-terrestrial/purple-loosestrife/>  
(click on image)  
<http://www.hww.ca/images/Purple-Field.jpg> (from Hinterland's Who's Who site.)
- Read the title of the video : “invaders in Our Waters –Purple Loosestrife”
- Provide students a copy of BLM 3.1 One Species Too Many? A Case Study of Purple Loosestrife
- Introduce the Anticipation Guide section by telling students you want to give them some time to think about the video even before you show it to them. Let them know that there are going to be spaces in Column A they might not be able to fill in and others that they will have to take an educated guess at.
- Hand out BLM 3.1 and allow students a few minutes to think about it.
- Let them share with a partner and begin to fill in the parts of Column A that they can.
- Ask them to join another pair and complete as much as they can.
- Let them know that as they watch the video, they will be able to fill in Column B. They will be using Column B for future work. Tell them they should not try to “fix up” column A, it was just to get them thinking.

### Individually

- Show the video once without stopping.
- Video access: <http://www.invadingspecies.com/invaders/plants-terrestrial/purple-loosestrife/> (scroll to bottom of page to access video)
- Show the video a second time and allow students to stop it as needed to gather the information they need to complete Part A column B.

### Individually – with a “Financial Focus”

- Quick minds on: “the amount spent in the United States (including the cost of damages) is estimated to be about \$45 million per year.”
- Show the video a third time, but this time ask students to identify all the ways that money would have had to be spent in order to try to control the purple loosestrife populations. Have them record their information in BLM 3.1, Part B.
- Provide students with a copy of Purple Loosestrife Fact Sheet (available as pdf download from the same site and just beneath the video link)
- Tell students that there is information on the Fact Sheet that can help them fill in their chart.

Following the video clip, do a “check for understanding” to determine if students understand:

- invasive species
- exotic species
- effects on biodiversity
- other costly effects (if mentioned in the clip chosen)



Check to ensure that all students understand the instructions. Consider completing one cell in Column A in a “think aloud” manner with the class to get them started.



The written follow-up assignment (e.g., BLM 3.1) may need to be altered or replaced for students with different learning needs. For example, removing Column A (the “anticipation” portion so that it appears as a more traditional recording sheet.



ELL students and students with special education needs might require additional help in reading the brochure.



Some classes may also benefit from seeing the Purple Loosestrife Fact Sheet before viewing the video even though it also addresses some of the “answers” asked for in the chart.

<p><b>Action! (continued)</b></p> <ul style="list-style-type: none"> <li>• Allow time for them to discuss their answers in pairs or small groups and modify their lists.</li> <li>• Conduct a “class share” of answers, providing what clarification might be needed.</li> <li>• During discussions, emphasize the role of governments and taxes, local nature groups and other volunteers, organizations like the Ontario Federation of Anglers and Hunters.</li> </ul>	
<p><b>Consolidation</b></p> <p><b>Think-Pair-Share: Sharing of findings</b></p> <ul style="list-style-type: none"> <li>• Provide students a copy of BLM 3.2 Consolidating Your Learning.</li> <li>• Use an example from the vocabulary list to model how to complete a Frayer Model.</li> <li>• Students complete BLM 3.2 on their own.</li> </ul>	<p><b>AOL</b> Assessment of learning: Completion of BLM 3.2</p>

**BLM 3.1: One Species Too Many? A Case Study of Purple Loosestrife**

**Background:**

People sometimes try to promote healthy biodiversity in an area by reducing or eliminating a species from the area. This is because sometimes a new species enters an area that it has never been in before and causes problems for other organisms. Controlling these unwanted “invasive species” is a challenge – sometimes an expensive one!

One invasive species in Ontario is a plant called “purple loosestrife”. It grows very well in wetlands. The video you are about to see tells a bit of the story of the fight against purple loosestrife.

**Instructions:**

1. Before watching the video, complete as much of column A as you can. You will have to guess at much of it, but try to make it an “educated guess”.
2. Follow your teacher’s instructions for watching the video.
3. Make notes in column B as you hear important information.

**Part A: Purple Loosestrife Video Questions: Anticipation Guide and Jot Notes**

	A	B
Question:	Thoughts before seeing the video	Jot notes from the video
1. Purple loosestrife came to Canada from Europe in the 1800s. How might it have come to Canada?		
2. How might purple loosestrife affect biodiversity in wetlands?		
3. Purple loosestrife is not the only thing that affects wetlands. What are some other major threats to wetlands?		
4. What ways might be used to try to get rid of a plant like purple loosestrife?		
5. Explain what is meant by “biological control”.		
6. What are some good things about the kinds of beetles brought into Ontario to control purple loosestrife?		

## Lesson 3 Black Line Master (continued)

### BLM 3.1: One Species Too Many? A Case Study of Purple Loosestrife

7. Would the beetles kill off all the purple loosestrife? Why or why not?		
8. Why did the video call the fight against purple loosestrife a “ <b>biological control success story</b> ”?		

#### Part B: The Cost of Fighting Purple Loosestrife

Watch the video again.

1. List all the places or ways where money would have to be spent in trying to control purple loosestrife:
  2. Share your list with a partner. Revise your list based on your conversation with your partner.
  3. Where might this money come from? List as many sources as you can.

***After the class discussion, make any changes to your list from Question #3.***

**BLM 3.2: One Species Too Many? A Case Study of Purple Loosestrife****Consolidating Your Understanding**

**Complete Questions 1-4 as directed by your teacher.**

**1. Summarize and/or justify**

**Choose one** of the following to answer or do:

- a. Tell, in an interesting way, the story of purple loosestrife and how it is being controlled in Ontario.
- b. Describe what you think are the most important parts of the video? Justify why do you think these parts are important?
- c. In your opinion what might be some of the important **lessons** this video can teach us? What are some of the important **cautions** that we should be careful about? Justify why you think these messages and cautions are important?

**2. Financial Literacy**

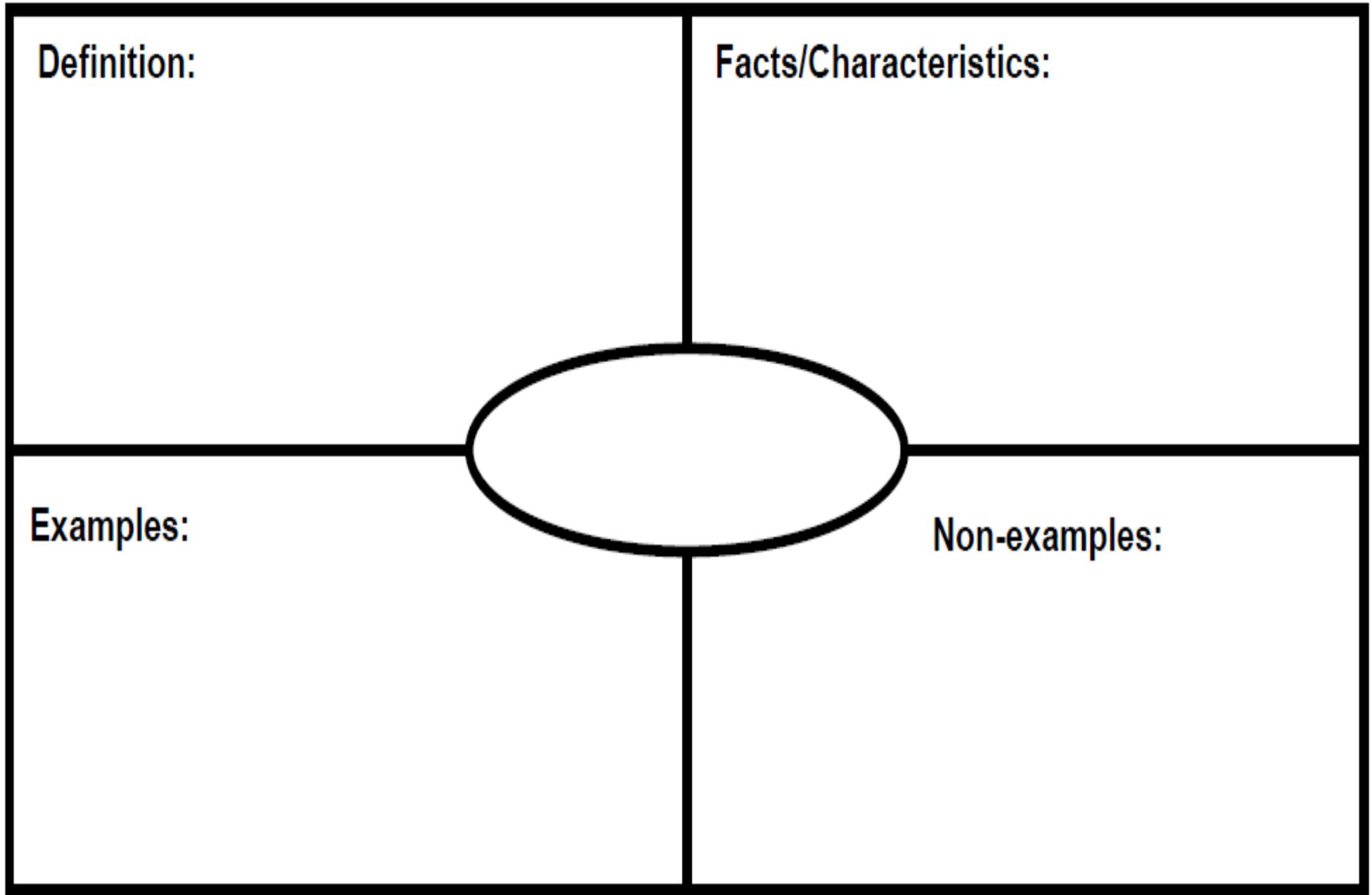
Where would money have to have been spent when trying to control purple loosestrife? List all the different ways you can think of. Where would this money come from?

**3. Vocabulary building**

Below are some terms used in the video.

- a. choose 2 that you find interesting
- b. describe them and give examples using either:
  - i. a Frayer model (see attached) OR
  - ii. some other way that is more interesting to you.

- Wetlands
- Invaders
- Natural predator
- Native species
- Non-native invasive species
- Mechanical means of removal
- Biological control
- Natural predator
- Negative impact
- Eradicate



**Financial Literacy: Grade 6 Science and Technology  
Biodiversity  
Lesson 4 – Taking Action: The Biodiversity Action Plan**

<b>Connections to Financial Literacy</b>	
The financial literacy knowledge and skills which will be addressed and assessed in this lesson include: <ul style="list-style-type: none"> <li>• consumer awareness;</li> <li>• personal awareness of some financial costs related to promoting or controlling biodiversity;</li> <li>• planning for the future.</li> </ul>	
<b>Lesson 4 – Taking Action: The Biodiversity Action Plan</b>	
<b>Curriculum Expectations</b>	<b>Learning Goals</b>
<p><b>Overall Expectations</b></p> <ol style="list-style-type: none"> <li>1. assess human impacts on biodiversity, and identify ways of preserving biodiversity</li> <li>3. demonstrate an understanding of biodiversity, its contributions to the stability of natural systems, and its benefits to humans</li> </ol> <p><b>Specific Expectations</b></p> <ol style="list-style-type: none"> <li>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</li> <li>1.2 assess the benefits that human societies derive from biodiversity and the problems that occur when biodiversity is diminished</li> <li>3.2 demonstrate an understanding of biodiversity as the variety of life on earth, including variety within each species of plant and animal, among species of plants and animals in communities, and among communities and the physical landscapes that support them</li> <li>3.5 describe interrelationships within species, between species, and between species and their environment, and explain how these interrelationships sustain biodiversity</li> <li>3.7 explain how invasive species reduce biodiversity in local environments (<b>Note:</b> Though it will be one of the options, this expectation may or may not be addressed by students, depending on the focus they choose to take.)</li> </ol>	<p>This lesson will take approximately 2-3 periods.</p> <p>At the end of this lesson, students will be able to</p> <ul style="list-style-type: none"> <li>• identify an environmental issue or problem,</li> <li>• propose a practical course of action to either make a difference, gather more information, or persuade others to make a difference and that which affects biodiversity in a planned way.</li> </ul> <p>Their plan will include the benefits and/or some cautions of taking such action, and some of the financial costs related to the issue.</p> <p>Sample success criteria: My Biodiversity Action Plan includes an estimate of some of the costs related to the plan.</p> <p>Students may need additional time, perhaps as homework, to complete their work.</p> <p><b>Note to Teacher.</b> Although several choices are offered to students later in this lesson on which to develop action plans, another avenue is to have one plan for the classroom related back to Lesson 1 in which the class decides to research and take action on the question, “How can we increase the biodiversity of the school yard?”</p>

## Instructional Components and Context

### Readiness

Prior to this lesson students should have:

- a reasonably thorough understanding of what biodiversity includes (i.e., variety within species, variety of different species, variety of interrelationships, etc.)
- opportunity to present ideas about biodiversity and receive feedback on those ideas and their ability to communicate them

### Terminology

As this is a culminating lesson, students will be expected to use terminology learned throughout the unit (e.g., organism, species, bacteria, germs, natural community, interrelationships, stability, classification, invasive species)

### Materials

- BLM 4.1 – Biodiversity Action Plan: The Challenge and the Choices
- BLM 4.2 – My Reflections
- BLM 4.3 – Biodiversity Action Plan Assessment (Optional if teachers are going to construct success criteria with their students)
- Internet and library access
- Optional but helpful: flyers and advertisements for home and garden products
- Optional but helpful: collection of recent newspapers (especially stories relating to biodiversity in other communities)

## Minds On

### Description

Whole class – Reviewing the Challenge and Choices, and the criteria for success:

- Briefly discuss what they thought were some of the most important or interesting things they learned in the unit so far.
- Remind students of the challenge that was presented to them at the start of the unit – i.e., to make an Action Plan about biodiversity.
- Discuss what an Action Plan is. Emphasize that action plans can be about actions that they can take as individuals or they can be larger actions for a class, school, or whole community.
- Tell students that one set of guidelines for action plans is the SMART goal strategy, that is the plan should be:
  - S - specific
  - M – measureable
  - A – attainable
  - R – results based
  - T – timely (e.g., By such-and-such a time, I/we will ...)

Pairs or small groups:

- Have students generate an example of an action plan for something with which they are familiar. Some examples might be (although these should come from students, they may need some examples to get started):
  - a study plan to improve their marks
  - a plan to earn more money around the house
  - a plan by a family to save for a vacation
  - a plan by a sports team (or by themselves personally) to improve at a sport, dancing, a musical instrument, singing, etc.
- Students share their plans with the class

Action!	
<p><b>Whole Class:</b> <u>Taking a closer look at the challenges, choices, and criteria for success:</u></p> <p><b>Description – Individual, pairs, or small groups</b></p> <ul style="list-style-type: none"> <li>Emphasize that their challenge is to suggest an action plan that will affect biodiversity in a community in a way that is personally important or interesting to them.</li> <li>Emphasize also that if they choose to look at doing something big, something beyond themselves (e.g., naturalize a small area of the school yard), they will need to a smaller more personal plan on which they can take direct action (e.g., conduct a survey and communicate the results; write a letter to an interested or influential person or group, contact a local council person, invite a guest speaker; develop or take part in a poster campaign, etc).</li> <li>Show students the list of choices (6 are presented on BLM 4.1). Give them time to discuss these choices with a partner or in small groups to think of question for clarification.</li> </ul> <p><b>Note to Teacher:</b> Choices suggested on BLM 4.1 span a variety of interests and ability levels. However, they may not capture the interests of all students. Since, choice is an important motivator for students teachers may wish to allow students to suggest alternate areas to investigate if these examples do not interest them. If so, it is important that their suggestions allow for assessment of the predetermined criteria.</p> <ul style="list-style-type: none"> <li>Students will be offered a number of choices from which to develop an Action Plan. All Action Plans will include the following (although some modifications may be needed to better as appropriate to the issue): <ul style="list-style-type: none"> <li>identifying an issue</li> <li>considering and explaining alternate viewpoints and possible courses of action</li> <li>examining some of the financial costs of taking action (e.g., changing behaviours) and/or not taking action</li> <li>determining which “side” they are on and providing justification for their choice</li> <li>developing and justifying an action plan (e.g., to change their own behaviour or persuade others to change theirs) including reference to appropriate costs</li> <li>taking some form of action to either initiate the plan, or encourage the action of others as suggested above (e.g., conduct a survey and communicate the results; write a letter to an interested or influential person or group, contact a local council person, invite a guest speaker; develop or take part in a poster campaign, etc).</li> </ul> </li> </ul>	<p><b>A<sub>for</sub>L</b> Assessment <b>for</b> learning As students are conducting their research, teachers provide feedback to students and make record of observations and conversations they’ve had or overheard.</p> <p><b>A<sub>as</sub>L</b> Assessment <b>as</b> learning Participating in the co-construction of success criteria helps students clarify what they are expected to do to be successful. Alternatively if BLM 4.2 is to be used, having students discuss what the criteria mean in their own words will also be beneficial.</p> <p><b>A<sub>of</sub>L</b> Assessment <b>of</b> learning Assessment of student Action Plan according to criteria developed with the students.</p> <p>If the Action Plan is developed and/or presented as a group, it is important to assess and evaluate work done by individuals (e.g., through personal reflection, student suggestions on how they might improve the work, individual summaries of key findings, etc.)</p>

Action! (continued)	
<p>Some choices for student action appear below. (<b>Note to Teachers:</b> These also appear on BLM 4.1 for student use. If teachers wish to restrict choices or replace items, BLM 4.1 will have to be altered accordingly.):</p> <ul style="list-style-type: none"> <li>• <u>Biodiversity, Butterflies and Bugs</u>: Planning and costing a naturalized garden to attract butterflies and other insects to the school or home.</li> <li>• <u>Biodiversity: A Local Issue</u>: Examination of a local or personally relevant environmental issue related to biodiversity (e.g., a local invasive species, changes to environmental regulations, development of a local area, the closing of a local park, installation of pipelines through sensitive areas), researching the issue, examining some of the costs, and making a plan to take action or encourage others to do so.</li> </ul> <p><b>Note to Teachers:</b> Teachers should strongly consider providing a short list of local issues from which students might choose.</p> <ul style="list-style-type: none"> <li>• Students will be asked to present their Action Plans (and possibly the results of them) to the class or smaller groups of students as appropriate.</li> </ul> <p><b>Note to Teachers:</b> Teachers should also be aware that such plans require sensitivity to all sides of local issues since students and their families may represent and be affected by those issues in ways unknown to the teacher.</p>	<p> Some students may need assistance in choosing an area of focus.</p> <p>The assignment will need to be altered for students with different learning needs. For example, ELL students might be guided in producing work in their first language with some parts translated into simple sentences in English.</p> <p>Limiting the number of parameters (e.g., determining costs for a month, or for one-time purchase may be more reasonable than determining yearly costs) may be helpful for some students</p> <p>The number and complexity of criteria students are expected to address can be altered to meet individual needs.</p> <p>Some students will benefit from the use of sentence starters to begin formulating their answers.</p>

Consolidation	
<p><b>Groups of 2 - 4 ⇒ Name of Activity and/or Strategy</b></p> <p>Description</p> <ul style="list-style-type: none"> <li>• Students present their work to the class or smaller groups of students as appropriate. Presentations may be in a variety of oral or written formats as assessment and evaluation is based on how clearly students demonstrate the criteria developed. Students are assessed on their portion of the presentation.</li> <li>• Have students complete an individual reflection sheet. This allows for individual assessment and evaluation of work that may have been completed as a group. Some reflection questions might be: <ul style="list-style-type: none"> <li>○ Tell three important things you learned about biodiversity while doing your project. Why do you think these things are important.</li> <li>○ Briefly review the major message you were trying to get the other students to understand. What evidence did you use to help them see your point?</li> <li>○ Discuss some of the financial costs you found out about when dealing with your issue. Do you think these costs are worth it? Why or why not?</li> <li>○ If people took the action you suggested, what effect might that have on biodiversity. Justify your answer.</li> <li>○ Give an example that deals with biodiversity where two people might have different points of view about an issue. Explain what their points of view might be.</li> </ul> </li> </ul> <p>Once students have completed and submitted their reflection sheet, have a general class discussion about some of these same points. Continue to record observations about student responses.</p>	<p><b>AOL</b> Assessment of learning:</p> <p>Completion of the Observation and Discussion sections of BLM 2.1</p> <p>Student responses to personal reflection sheet. BLM 4.2, and during class discussion which follows.</p> <p> Asking students to present their work in “an interesting way” allows all students to work with their areas of strength. Some students, however, may have difficulty having such an open choice.</p>

**Lesson 4 Black Line Master**      **Name(s):** \_\_\_\_\_  
**BLM 4.1: A Biodiversity Action Plan**

Below are some choices for you to begin thinking about. Remember, whatever choice you make you will have to:

- identifying an issue, problem, or change you would like to address
- explain a possible courses of action
- developing and justifying an action plan (e.g., to change their own behaviour or persuade others to take action)
- include some of the financial costs and/or benefits of taking action (e.g., costs of materials, savings, reducing the costs needed for repair if action was not taken)
- take some action
- present your findings (and possibly the results of your action) in an “interesting way”

Choose one item that you would like to explore further and develop an Action Plan around. Some examples are:

1. Biodiversity, Butterflies and Bugs: Planning and costing a naturalized garden to attract butterflies and other insects to the school or home.
2. Biodiversity: A Local Issue: Examination of a local or personally relevant environmental issue related to biodiversity (e.g., an invasive species, changes to environmental regulations, closing of a park or beach, development of a local area, re-introduction of a species of plant) and making a plan to take action.

**BLM 4.2: A Biodiversity Action Plan: My Reflections**

Please answer the questions below in the space provided:

1. Tell 3 important things you learned about biodiversity while doing your project. Why do you think these things are important?

2. What action did you take? Briefly discuss the major reason you were interested in taking action in this area.

What did you want to accomplish or get people to understand?

3. Discuss some of the financial costs you found out about when dealing with your issue.

Do you think these costs are worth it? Why or why not?

4. If more people took the action you did, how might that affect biodiversity? Justify your answer.

5. Give an example that deals with biodiversity where two people might have different points of view about an issue. Explain what their points of view might be