Great Lakes Watershed

Name: Robin Dueweke     Date: 7/30/09
Unit Title: Great Lakes Watershed
Grade Level: Kindergarten
Length: 1 week total

Unit Overview:

Conceptual Lens & Generalization: Wetlands – Students become aware of the characteristics of a wetland and learn the importance of wetlands to wildlife and humans.

Standards:

Science:  L.OL.00.11, L.OL.00.12, E.SE.00.11, L.EV.03.12, E.FE.02.22, P.FM.00.11
Language Arts:  R.WS.00.12, R.CM.00.01, R.CM.00.06, R.MT.00.04, L.CN.00.02, L.CN.00.03, L.CN.00.04, W.GN.00.02
Math:  M.GS.00.02, M.UN.00.04

Key Topics/Lessons:

Day 1:  Wetland introduction and Let the Cattail out of the Bag!
Day 2:  Grow a Wetland
Day 3:  Field trip to a pond and Whose Clues
Day 4:  Wetlands in the Classroom
Day 5:  Building a Wetland

Culminating Projects, Performances or Exhibitions:

Resources:
Books:
  • Dunphy, Madeline, Here is the Wetland, Web of Life Children’s Books, 2007.

Maps:
• Wetland map, “Michigan Wetlands a Heritage Worth Saving” produced by the Nongame Wildlife Fund, Natural Heritage Program, MI DNR

Websites:
  o My Wetlands Coloring Book
    [www.epa.gov/gmpo/education/pdfs/MyWetlandsColoringBook.pdf](http://www.epa.gov/gmpo/education/pdfs/MyWetlandsColoringBook.pdf)
  o Wetlands Coloring Book
  o Building a Wetland activity
    [www.epa.state.is.us/kids/teachers/activities/wetland.html](http://www.epa.state.is.us/kids/teachers/activities/wetland.html)

Materials:
• A sturdy bag – such as a pillowcase
• Cattail stalk and flower - fuzzy “hot dog” part
• Feather
• Shell - clam, oyster, scallop, mussel
• Crayfish claw or dried shell
• Wetland mud - in a baggie
• Turtle shell
• Fur -small piece, pelt, or stuffed specimen
• Flower – avoid endangered species
• Tap water – in a small container
• Leaves – from grasses or trees
• A toy frog, fish, insect, duck, etc.
• Snake skin
• Bird’s nest – only one that has fallen from a tree
• White board markers
• Magnetic tape – to put on the back of laminated pictures
• Laminated pictures of each object:
  o Cattail
  o Feather
  o Crayfish
  o Mud
  o Turtle
  o Beaver or muskrat
  o Flower
  o Water
  o Leaves
  o Frog, fish insect or duck
  o Snake
  o Bird’s nest
• Small plastic bags
• Cattail seeds
• Cardboard egg cartons
• yogurt containers
• Baking pans
• Potting soil
• Seeding mix
• Water
• Brightly colored ribbon or flagging tape – two 1-foot pieces per student
• Ice cream sticks – two per student
• Copies of “Whose Clues?” student pages (WOW book p. 107-108) – one per team
• Clipboards
• Paper
• Pencils
• Poster paper
• Rags or towels
• Reference book (to look up the type of wetland you went to yesterday)
• Large rolls of colored bulletin board paper or poster board
• Egg carton cups
• Fishing line
• Construction paper
• Tape
• Scissors
• Crayons
• Markers
• Paint and brushes
• Yarn
• Scraps of
  o tissue paper
  o yarn
  o fabric
• 9"x13" pan of brownies or chocolate cookie bars prepared ahead of time – 2 pans
• Graham cracker crumbs – one box
• Instant chocolate pudding – 4 boxes
• Blue fruit roll-up – 4 rolls
• Green fruit roll-up – 4 rolls
• Fish shaped crackers – one box
• Green lollipops – one bag
• Green chewy fruit candy to anchor the lollipops – one bag
• Gumdrops – one bag
• Gummy bears – one bag
• Animal crackers – one bag
• Coconut dyed with green food coloring – one bag
• Milk for pudding preparation – enough to make 4 boxes of pudding
• Large mixing bowl - 4
• cookie sheets – 4
Name: Robin Dueweke
Subject: Science
Grade Level: Kindergarten
Number of Students: 20
Length: 30 minutes

**Day 1**
*Preinstructional:*

Science:
- **Content Expectation L.0L.00.12:** Students will identify and compare living and non-living things.

Language Arts:
- **Content Expectation R.WS.00.12:** Students will use picture clues, prediction, and other people.
- **Content Expectation R.CM.00.01:** Students will activate prior knowledge.
- **Content Expectation R.MT.00.04:** Students will begin to sort and order information with extensive teacher guidance.
- **Content Expectation L.CN.00.04:** Students will use effective listening and viewing behaviors.

Math:
- **Content Expectation M.GS.00.02:** Students will identify, sort and classify objects that do not belong in a particular group.

**Objectives**
1. Students will become aware of some sensory qualities of wetland inhabitants
2. The students will demonstrate their ability to identify and sort living and nonliving objects into categories through the use of pictures and their prior knowledge.
3. The students will demonstrate their ability to use effective listening techniques in a large group setting.

**Material/Special Arrangements/Individual Modifications**
- Activity modified from
- Wetland map
  - “Michigan Wetlands a heritage worth saving” produced by the Nongame Wildlife Fund, Natural Heritage Program, MI DNR
• A sturdy bag – such as a pillowcase
• Cattail stalk and flower - fuzzy “hot dog” part
• Feather
• Shell - clam, oyster, scallop, mussel
• Crayfish claw or dried shell
• Wetland mud - in a baggie
• Turtle shell
• Fur - small piece, pelt, or stuffed specimen
• Flower – avoid endangered species
• Tap water – in a small container
• Leaves – from grasses or trees
• A toy frog, fish, insect, duck, etc.
• Snake skin
• Bird’s nest – only one that has fallen from a tree
• White board markers
• Magnetic tape – to put on the back of laminated pictures
• Laminated pictures of each object that will go into the bag:
  o Cattail
  o Feather
  o Crayfish
  o Mud
  o Turtle
  o Beaver or muskrat
  o Flower
  o Water
  o Leaves
  o Frog, fish insect or duck
  o Snake
  o Bird’s nest

**During Instruction:**

1. **Introductory Activity**
   a. Introduce Living and non-living things to students by reading *What is a Living Thing?* and *Living and Non-Living* books in a large group setting.

   b. Introduce wetlands to the class with the help of a colorful wetland poster. Have the students name the different plants and animals that live in the wetland and write them on poster paper.

2. **Developmental Activities**
   a. Call a volunteer to the front of the room. Ask her/him to reach into the bag, and feel take one object in her/his hand, but keep it in the bag.
b. Ask the volunteer to feel the object, and then describe her/his sensations to the class. Provide descriptive words to choose from if the volunteer needs help. The volunteer may then try to guess what the object is.
c. Have the volunteer remove the object from the bag so the class may see it. Then ask the class to locate it or something similar to it on the poster.
d. Put the object aside and repeat for the rest of the class. When the objects run out put the “used” objects back into the bag and continue until each student has a turn.

**Concluding the Lesson**

Ask students to review all of the objects they felt in the bag. Which ones are living? Which ones are non-living? Sort the laminated pictures into the appropriate categories “living” or “non-living” on the board.

**Follow-Up Activity**

The following day have the students tell you one plant and one animal that lives in a wetland to transition from large group setting to centers.

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Name: Robin Dueweke  
Subject: Science  
Grade Level: Kindergarten  
Number of Students: 20  
Length: Initial activity 30 minutes; seedling watching 30 days

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**Day 2**  
**Preinstructional:**

Science:  
**Content Expectation L.OL.00.11:** Students will identify that living things have basic needs.

**Content Expectation E.SE.00.11:** Students will identify Earth materials (air, water, soil) that are used to grow plants.

Language Arts:  
**Content Expectation R.CM.00.01:** Students will activate prior knowledge.

**Content Expectation L.CN.00.04:** Students will use effective listening and viewing behaviors.

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Objectives
1. The students will demonstrate their ability to identify that living things have basic needs by participating in large group discussion and using their prior knowledge.

2. The students will demonstrate their ability to identify Earth materials (air, water, soil) that are used to grow plants by participating in the cattail planting activity.

3. The students will demonstrate their ability to use effective listening techniques in a large group setting.

**Material/Special Arrangements/Individual Modifications**

- Activity modified from
- Book
- Small plastic bags
- Cattail seeds
  - Collect seeds in the autumn
  - Pick the seeds when the flowers have burst open (the flower is the hot-dog-shaped part; the seeds are the white fuzzy things.)
  - Take seeds from four or five different cattails (Just take a big pinch from each one, don’t leave any looking naked or stripped.)
  - Store dry seeds in a closed container in a refrigerator until spring.
- Cardboard egg cartons
- Yogurt containers
- Baking pans
- Potting soil
- Seeding mix
- Water

**During Instruction:**

1. **Introductory Activity**
   a. Introduce wetland plants and animals to students by reading Near One Cattail: Turtles, Logs, and Leaping Frogs in a large group setting.
   
   b. Ask students what plants and animals need to survive. Write their answers on chart paper (plants in one column and animals in another)
   
   c. Tell the students that they are going to plant some seeds using the items on the list that plants need to survive (air, water, and soil).
d. Have all of the materials on newspaper covered tables ready for the activity.

2. Developmental Activities
   During center time:
   
   a. Have students fill cardboard egg carton cups with soil and add water.
   
   b. Have each student press a few seeds onto the top of the soil in each cup; do not bury the seeds.
   
   c. Set the carton in a pan filled with a half-inch of water. Put the pan in a sunny window and keep it wet at all times.

3. Extended Activities
   
   a. In a month or so you’ll see tiny cattails starting to sprout. Remove some of the sprouts and replant in yogurt containers (poke small holes in the bottom) with three to five in a cup. Place the containers in a pan filled with a half-inch of water. Put the pan in a sunny window and keep it wet at all times.
   
   b. When sprouts are about 5 centimeters (2 inches) tall, move them to larger pots.
   
   c. When the sprouts are 20 to 30 centimeters (8-12 inches) tall, plant them in a wetland, or in water up to 15 centimeters (6 inches) deep.

Concluding the Lesson
Have the students draw a picture of what they think will be near their cattail once it is planted in the wetland.

Follow-Up Activity
The following day have the students tell you one plant or animal that is found in a wetland.

Name: Robin Dueweke
Subject: Science
Grade Level: Kindergarten
Number of Students: 20
Length: one ½ day of class

Day 3

Preinstructional:

Science:
Content Expectation L.EV.03.12: Students will relate characteristics and functions of observable body parts to the ability of animals to live in their environment.

Language Arts:
Content Expectation R.WS.00.12: Students will use picture clues, prediction, and other people.

Content Expectation R.CM.00.01: Students will activate prior knowledge.

Content Expectation R.CM.00.06: Students will acquire and apply significant knowledge from what has been read to them from grade level appropriate science, social studies, and mathematics texts.

Content Expectation L.CN.00.04: Students will use effective listening and viewing behaviors.

Math:
Content Expectation M.GS.00.02: Students will identify, sort and classify objects that do not belong in a particular group.

Content Expectation M.UN.00.04: Students will compare two or more objects by length, weight, and capacity. (E.g.: which is shorter, longer, taller?)

Objectives
1. The students will demonstrate their ability to make inferences about the types of wildlife present in an area through the use of pictures, science texts, and their prior knowledge.

2. The students will demonstrate their ability to use effective listening techniques in a large group setting.

3. The students will compare and indentify wildlife signs in the wetland area during the field trip activity.

Material/Special Arrangements/Individual Modifications
- Activity modified from
- Books
- Brightly colored ribbon or flagging tape – two 1-foot pieces per student
- Ice cream sticks – two per student
• Copies of “Whose Clues?” student pages (WOW book p. 107-108) – one per team
• Clipboards
• Paper
• Pencils
• Poster paper
• Rags or towels

**During Instruction:**

3. **Introductory Activity**
   a. Introduce wetland wildlife and their signs to students by reading *A Wetland Habitat* and *Tracks, Scats, and Signs* in a large group setting.

   b. In class, describe the area and brainstorm the types of animals that might live in the wetland you will be visiting and clues those animals might leave behind. Make a list on the board

   c. Divide the class into small teams with at least one adult in each group. Explain that teams will search for animal clues at the wetland and mark the clues with the flags. Leaving the flags in place will allow everyone to study how and where the clues were left.

4. **Developmental Activities**
   During the field trip:

   a. At the wetland, review the search procedure and hand out copies of the student pages for teams to read before starting off. Define search area boundaries.

   b. Set a search time limit of 10-20 minutes. Have each team search within its designated area for clues. As they are found, clues should be marked by poking a flag into the ground or tying it to a nearby branch. Team members should plan their answers to the student page questions.

**Concluding the Lesson**

After the search time, regroup and take the tour, as described above. Remove the flag after each clue is presented. Encourage all students to offer alternative explanations of a clue. Use a baggie to take some mud back to the classroom for the next activity.

**Follow-Up Activity**

If time allows when you get back to the classroom make a mud print poster. Have the students make their mud prints with hands (or shoes, if reluctant) on a big piece of poster
paper. Use old rags or towels to wipe hands clean. Students can write their names on the poster next to their prints. Hang the finished “tracks” on your bulletin board.

Name: Robin Dueweke
Subject: Science
Grade Level: Kindergarten
Number of Students: 20
Length: one ½ school day (may continue to construct wetland for days or weeks!)

Day 4

Preinstructional:

Science:

Content Expectation L.OL.00.12: Students will identify and compare living and nonliving things

Content Expectation E.FE.02.22: Students will describe the major bodies of water on the Earth’s surface (lakes, ponds, oceans, rivers, streams)

Language Arts:

Content Expectation R.CM.00.01: Students will activate prior knowledge.

Content Expectation L.CN.00.04: Students will use effective listening and viewing behaviors.

Content Expectation S.CN.00.02: Students will in spoken informational and narrative presentations
- Speak clearly and audibly in complete, coherent sentences
- Use sound effects
- Use illustrations

Content Expectation S.CN.00.03: Students will make presentations or reports in standard American English if it is their first language.

Objectives

1. The students will demonstrate their ability to activate prior knowledge by describing and comparing living and nonliving things found in the wetland area that was visited on the previous day.

2. The students will demonstrate their ability to describe a wetland through the “wetland” re-creation activity in the classroom.

3. The students will demonstrate their ability to speak clearly and audibly in complete coherent sentences by giving an oral presentation at the end of the wetland activity.
Material/Special Arrangements/Individual Modifications

- Activity modified from

- Book

- Wetland coloring books
  - My Wetlands Coloring Book
    - [www.epa.gov/gmpe/education/pdfs/MyWetlandsColoringBook.pdf](http://www.epa.gov/gmpe/education/pdfs/MyWetlandsColoringBook.pdf)
  - Wetlands Coloring Book

- Reference book (to look up the type of wetland you went to yesterday)
- Large rolls of colored bulletin board paper or poster board
- Egg carton cups
- Fishing line
- Construction paper
- Tape
- Scissors
- Crayons
- Markers
- Paint and brushes
- Yarn
- Scraps of
  - tissue paper
  - yarn
  - fabric

During Instruction:

1. **Introductory Activity**
   - c. Continue learning about wetlands by reading “Leapfrogging Through Wetlands” in a large group setting.
   
   d. Ask students to recall what living and non-living things are.
   
   e. Now have the students recall the living and non-living things they observed at the wetland yesterday. Write their answers on the board.
   
   f. Explain that they will be making a “wetland” in the classroom using the items they brainstormed on the board.

2. **Developmental Activities**
   During center time:
a. Divide the students into two groups. Have one group of work independently. Each student will pick a picture of an animal or plant, color it and cut it out.

b. The second group will work on the scenery. The groups should switch after a set amount of time (20-30 minutes).

c. **Background:** Line one wall of your classroom with a wetland. Use the large rolls of colored bulletin board paper to cut out life-size tree trunks that stretch to the ceiling. Make the trunks and tape the tops to the walls and the bottoms of the trunks to the floor. Extend the tops of the trees onto the ceiling and make some branches that hang down. Don’t forget to make the leaves!

d. **Water:** Use blue paper to represent water. Cut paper to form a wandering river that runs along the floor at the edges of the wall. Trees should look as though they grow out of the water.

e. **Animals:** Use the animals the children colored and decorate them with various craft materials. Be creative and make some animals three-dimensional. Tape them in appropriate places in the scene.

f. **Plants:** Fill in the understory (the vegetative growth under the trees) with lots of plants that the children colored and decorate them with various craft materials.

**Concluding the Lesson**

Have the students draw a picture in their journal about their favorite part of the field trip.

**Follow-Up Activity**

Have each student share their journal page with the class from the author’s chair.

Name: Robin Dueweke  
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Grade Level: Kindergarten  
Number of Students: 20  
Length: 30 minutes

**Day 5**  
**Preinstructional:**

Science:
Content Expectation L.OL.00.12: Students will identify and compare living and nonliving things

Content Expectation E.FE.02.22: Students will describe the major bodies of water on the Earth’s surface (lakes, ponds, oceans, rivers, streams)

Content Expectation P.FM.00.11: Students will compare the position of an object (for example: above, below, in front of, behind, on) in relation to other objects around it.

Language Arts:
Content Expectation R.CM.00.01: Students will activate prior knowledge.

Content Expectation W.GN.00.02: Students will write a brief informational piece using
   - Drawings
   - Words, word-like clusters, and/or sentences

Objectives
1. The students will demonstrate their knowledge of wetlands and position words (above, below, in front of, behind, on, etc.) by constructing an edible version in the classroom.

2. The students will record the progress of their seed activity in their writing journals by using a combination of drawings and words.

Material/Special Arrangements/Individual Modifications
- Activity modified
- Book
  - Dunphy, Madeline, Here is the Wetland, Web of Life Children’s Books.2007.
- Website
  - Building a Wetland activity
    www.epa.state.is.us/kids/teachers/activities/wetland.html

The amounts listed below will vary dependent upon the number of students involved. You will need a half a sheet of brownies or chocolate cookie bars, and one green and one blue fruit roll-up per group of 4 to 5 students. Other ingredients can be used for several groups.

- 9"x13"pan of brownies or chocolate cookie bars prepared ahead of time - soil base of wetland (2 pans)
- Graham cracker crumbs - sand (1 box)
- Instant chocolate pudding cups - mud (4 boxes)
- Blue fruit roll-up - body of water (1 box)
- Green fruit roll-up - aquatic plants (1 box)
- Fish shaped crackers - fish (1 box)
- Green lollipops - trees and shrubs (1 bag)
- Green chewy fruit candy to anchor the lollipops (1 bag)
- Gumdrops - shrubs (1 bag)
- Gummy bears - animals (one bag)
- Animal crackers - animals (1 bag)
- Coconut dyed with green food coloring - grass (one bag)
- Milk for pudding preparation (enough for 4 boxes)
- Large mixing bowl (4)
- A cookie sheet on which to create a wetland (4)

**During Instruction:**

5. **Introductory Activity**
   a. Continue learning about wetlands by reading “Here Is the Wetland” in a large group setting.
   b. Ask students to brainstorm things they saw during their wetland field trip. Use yesterday’s living/nonliving list to refresh their memories.
   c. Explain to the students that they are going to make an edible wetland during center time. Practice position of objects by placing a block in relation to another object:
      - Above
      - Below in front of
      - Behind
      - On

6. **Developmental Activities**
   During center time:
   1. Divide the class into groups of 4 to 5 students. Each group may construct its own wetland.
   2. Select a student in the class to prepare chocolate instant pudding
   3. Give each group a cookie sheet, half a sheet of brownies or chocolate cookie bars, green and blue fruit roll-ups, and graham cracker crumbs.
   4. Place half a sheet of brownies or chocolate cookie bars on the cookie sheet.
   5. Give instructions using above, below, in front of, behind, on, etc.
   6. Sprinkle graham cracker crumbs all over brownie or giant cookie (indicating existence of dirt and sand)
   7. Spread chocolate pudding over entire surface indicating muddy spots (around the body of water, under water)
   8. Place blue fruit roll-up in the spots where the students want to put the body of water.
9. Place green fruit roll-up in the areas where the students want to put aquatic plants.
10. Place fish shaped crackers on the "water" (blue fruit roll-up).
11. Place green chewy fruit candy with green lollipops in them around the water creating "wooded areas"
12. Place gumdrops around the water edge for plants and shrubs.
13. Place animal crackers and gummy bears around the trees and edge of water.
14. If the students wish, they can mix some graham cracker crumbs with pudding to create contours around the wetland.
15. Sprinkle the coconut over the land for grass (if desired).

Concluding the Lesson

EAT AND ENJOY!

Follow-Up Activity

Have students check their cattail seeds and record progress in their writing journals.