

The Environmental Legacies project is a collaborative project between the Arts of Citizenship and local elementary school teachers and students.

Previous project groups have created a ten-week curriculum unit focused on the environmental history of Ann Arbor. We will teach this unit in an Ann Arbor public school classroom and collaborate with teachers to create the framework for a freestanding curriculum guide.

This semester we will be working with Mrs. Dale Magee, a third and fourth grade teacher at Mack Open School and her class, teaching the students the Environmental Legacies Curriculum, over a period of seven weeks.

In addition to time spent in-class, we will be meeting with local teachers to hear their critiques and suggestions for the Environmental Legacies lesson plans. Based on these suggestions, we will make changes to the curriculum in order to produce a curriculum guide readily accessible to all Ann Arbor teachers.



# **ENVIRONMENTAL LEGACIES**

A Project of the University of Michigan's  
Arts of Citizenship Program

# **Environmental Legacies**

## **Introduction to unit:**

### **History of the chest (to be read to students at beginning of first Environmental Legacies Lesson)**

A few years ago a woman who worked as a librarian at the Ann Arbor Public Library thought that the storage room was getting too cluttered, so she decided to do some cleaning. As she was sorting the dusty books and tattered magazines, she slipped on an old overdue notice and knocked into a bookshelf. After regaining her balance, she noticed that she had moved the bookshelf slightly, revealing a small hole in the wall. After glancing around the room to see if she was alone, the librarian moved the bookshelf even further and now saw that the hole was even bigger than she thought. She peered into the opening and saw what appeared to be a dirt-covered chest. Almost without thinking, she grabbed the creaky chest and set it on the table next to her.

She was curious as to what this chest was, and her heart began to pound. Not knowing what to expect, the woman threw open the latch and saw a bunch of scrolls, each tied up with a red ribbon. Not knowing what to do, she hid the chest and went back to work. But after all the books were checked in and all the new library cards made, the librarian crept back to the storage room and began to read the scrolls.

The librarian read for many hours trying to figure out what she had found. She read many stories of rivers and lakes, birds and animals, and of noisy trains and fast cars. Each scroll seemed to be written in a different handwriting and the places they described were different, but seemed somehow the same. What had she found? It just didn't seem to make sense. Hoping to have found a forgotten literary treasure, the disappointed librarian placed her hand on the old chest as if to apologize for disturbing it's rest. Yet in doing so, she felt a smooth plaque-face underneath the dust. After brushing it off, she found an inscription that read "Property of the Huron Family."

The librarian thought for a minute about the inscription and then remembered a myth about a family that lived in the area for countless generations. As the legend followed, this family had been well known as caretakers of Ann Arbor's natural resources, like its trees and rivers. After doing a search on her computer database, the librarian found that many members of the Huron family were writers and

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spokespeople about the beauty of the environment. She also read that the Huron family used to live in the very building that the library now stood.

After reviewing the scrolls the librarian developed a theory about what she had found. She believed that the chest contained written histories of the land around Ann Arbor, written by different members of the Huron family across many generations. Although the librarian was excited by what she had found, she was sad that this valuable collection had become lost. But she thought the family's writings were useful because they painted a picture about what Ann Arbor was like at different points in time. She made a few grammatical and spelling corrections and then donated the chest to this school so that we can learn from the scrolls.

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## **Introduction:**

Each week, we will travel back in time by reading one of the scrolls written by the Huron family in this chest. We will learn about the environmental history of our town by thinking about how the land has changed over the years. We will also think about how these changes have affected the lives of the people who lived here as well as other kinds of life; like plants and animals. At the end of each lesson, all of us will put down our own thoughts and drawings on cards (like this). Then we will attach them (like this) and create a mobile so that we can clearly see how Ann Arbor's land and history affects every one of us, just like the Huron family.

For the next 10 weeks, you are all going to be scientists and historians. You are going to discover how people and plants and animals are all connected. You are going to find out how everything people do has an affect on all the plants and animals and other people around us. You will need to be scientists to figure out how plants, animals and people are all related, and to figure out how the things we do have an affect on everything around us. How do you think humans have an affect on plants and animals? How do they affect us?

You have learned a lot about the history of Ann Arbor this year. Do you think that the things that people who lived here before us did have an affect on us? How? Not only do the things we do affect the plants and animals and people living right now, we have to live with some of the things people who lived before us did. And our kids will have to live with the things we do too.

As historians, you will figure out what the people who lived in Ann Arbor before us did to plants, animals, and the land. And, as scientists, you fill figure how these things affected plants, animals, and people.

## **Getting Started:**

Pass out folders or notebooks for Environmental Legacies logs. Tell students they should write their names on the outside right away. They will keep all their notes for the unit and their mobile cards in this log. They are responsible for having everything in it at the end of the unit. They should not take them home until the end. Once their name is on it, they should put the log in the desk until they need it again.

# Environmental Legacies

## Lesson 1

### Ecosystems and Interdependence

#### Objective:

Students will be able to define the word ecosystem and be able to explain how plants, animals and humans are interdependent as members of the same ecosystem.

#### Introduction:

1) Use chocolate-chip cookies as an analogy for an ecosystem. Ask students to list the ingredients of cookies (chips, flour, sugar, eggs, butter, etc...). Ask students what would happen to the cookie if it were missing any one of these ingredients. Explain how all the ingredients work together in harmony to create a great cookie. Just as the ingredients work together in a cookie, so do plants, animals, and natural features. Ask students if they know what this system of plants, animals, and the environment is called (ECOSYSTEM).

2) A beetle eating tree bark, a bird using a tree as a house, these are examples of how plants and animals all need each other to live. A bird would be glad that a new tree was born because she needs trees to survive. Birds and trees and bugs—all plants and animals (even you!) need each other in order to survive. There is a word for this idea that all plants and animals depend on each other for survival. ECOSYSTEM. Has anyone ever heard the word ecosystem? This is a new big science word that we will use a lot for the next few weeks. One thing that scientists like to do is use big words, so we have to learn a few if we are going to be scientists.

#### Direct Instruction:

- Definition of ecosystem:
  - Break apart ecosystem. Eco means living. System means how things work together. Examples: discipline system, lunch system, library system
  - An ecosystem is made up of all the living things (plants, animals, insects, people) and the things they need to live (like sun, water, soil) in one particular place. In an ecosystem all these things depend on each other to survive.
- There are all different kinds of ecosystems, forests, lakes, grasslands, cities etc. Each of these has different plants and animals that work together to survive.
- Introduce the concept of interdependence
  - Break apart interdependence. Inter means between. Dependence or depending means counting on or needing someone or something else.
- **Optional (Use if you have a terrarium in the classroom)** Review terrarium ecosystem. Grass used soil and water and sunlight to grow. Crickets ate grass and drank water. Crickets also used grass as a hiding place. Anoles ate crickets, drank water and used the sun to keep warm. They were a simple ecosystem.
  - Changes in ecosystem: What would happen if all the grass in the terrarium died? Would it affect the crickets or the anoles? How? (They would die because no food, or hiding places are left.)
  - In nature, ecosystems are more complicated. They have more plants and animals. So, if one thing changes, it has an even bigger affect on the ecosystem.
- **Introduce web of life activity:** We are going to see how all the parts of an ecosystem work together and how if you change one thing, everything is affected. We will focus on a forest ecosystem.

#### Group Activity:

### Lesson Plans

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- Give each student an index card with their animal/plant and how it fits in the ecosystem.
- Allow students a few minutes to read their card
- Make a circle
- Start with one student holding the end of the string
- Show students how to pass the string to another student that they use/affect, while still holding onto a piece of the string themselves
- Have students explain how they affect/are effected by the part of the ecosystem they just passed the string to
- Pass the string between students until everyone is connected in a web
- Tell students to pull gently on the string if they feel a tug. Begin tugging the string and keep tugging until everyone can feel it. Explain that this represents how all parts of an ecosystem are related.
- Present situations in which one or more students' organisms die or are hurt, have those students drop their piece of the string. Pull the string again and notice how the tug can't be felt as well without all the organisms. Note how losing one or two members of the ecosystem affects everyone.

### **Independent Practice:**

- Students return to their seats and get out their note cards.
- Review what students have learned as a group. Write important notes on the board including definition of ecosystem and web connection idea.
- Ask students to draw an ecosystem web like the one they made with string showing how different members of the ecosystem are related.
- When they are finished drawing, they should write the notes about ecosystems on their card.

### **Review/Closure:**

- Have one or two students come up to the board and draw their ecosystem webs and explain them to the class. Review key points.

### **Materials:**

- Chocolate Chip Cookies
- Long ball of string or yarn
- Signs with different members of the ecosystem. Signs should include the name of the organism and some of the ways it fits into the ecosystem. For example: Cricket eats plants, is eaten by birds and small animals. Signs should have a neck string so students can wear them and keep their hands free to hold the string.
- Note cards and folders to keep them in.

# **Environmental Legacies**

(Story for lesson # 2)

**Dylan Huron**

**April 26, 1888**

I hope that I can write all I want to tonight, because I am pretty tired from all the walking and thinking that I did today. When I woke up this morning I was hoping that I would be able to go and play outside since it is Saturday. But as I was walking outside, my older sister Emily blocked the door and told me that I had a project to do. I am happy that Emily is taking care of me because my parents are on a trip out West, but she never lets me go outside without giving me something to look at. She is always telling me to collect leaves, not just rake them. And every time I go dig up worms to use to catch fish, she is looking over my shoulder telling me about how the worms are so important to the soil, or about how all the animals would be affected if there were no worms. I mean I like learning about the environment too, but sometimes she gets a little crazy.

Anyway, as I was saying, I was about to run out of the house today to play in the forest with my friends, but before I got out of the house Emily grabbed a hold of me. She told me that I could go and play, but that I needed to write down a few things about what I saw so that I could learn more about my own Ecosystem. I told her that I already knew what an Ecosystem was, but Emily said that I needed to think about what things in my Ecosystem were natural, and which were man-made. She gave me a worksheet and told me to describe the area that I would be playing in.

Even though I was kind of annoyed with Emily, I had a lot of fun looking at my own Ecosystem. I found mostly physical features of my Ecosystem. I found small bodies of water like creeks and ponds. I also found different types of rock, with some in large formations like cliffs. I saw tons of animals, from little ones like squirrels and mice, to bigger ones like dogs and skunks. Not to mention a bunch of different types of plants, trees, and flowers. I didn't find too many human features, but the ones I did find were very noticeable. I saw a few houses, some dirt roads, and of course the noisy railroad cars that run on the tracks across the river. I would love to write about all the other stuff that I saw together, but my hand is getting tired. It's Saturday after all, so I'm going to bed.

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## Lesson 2

### Ecosystems and Interdependence: Playground Ecosystem

#### Objective:

Students will be able to identify natural and human features in their playground ecosystem. Natural features include soil, vegetation, animal life and bodies of water. Human features are man made and include roads, buildings, and play equipment.

#### Introduction:

- Review last weeks lesson. Ask students to recall what an ecosystem is, what interdependence means etc.
- Introduce different kinds of ecosystems. Remind them we made a web of life for a forest ecosystem. But, there are many kinds of ecosystems with different kinds of plants and animals living in them. For example: deserts, lakes, and grasslands. (Have pictures of each type of ecosystem to show the students)
- Identify our ecosystem. Ask students what kind of ecosystem we live in: city ecosystem. Explain that a city ecosystem doesn't just have plants and animals, it has people too—and all the things people build and use.
- Introduce today's lesson: exploring the parts of a city ecosystem.

#### Direct instruction:

- The major difference between city ecosystems and other ecosystems is people. Ask students why people make such a big difference: because we build all kinds of things and change the way an ecosystem looks and works.
- Introduce natural features versus human (or man-made) features. Ask students to give examples of natural features.
- Introduce important terms for describing a place or ecosystem:
  - Natural features: Vegetation (plants)
  - Animal life (animals)
  - Soil (dirt)
  - Bodies of water (ponds, creeks, etc.)
  - Human features: Buildings
  - Roads
  - Houses
  - Cars
- Explain that natural features came before human features and ask them what they think Ann Arbor looked like before humans were here.
- Introduce today's activity: Students are going to go outside and describe the ecosystem in their playground looking for all these natural and human features.

#### Group Activity:

- Explain what students will be doing: as scientists, they will go outside and observe the ecosystem of their playground. Then they will describe what they observe. They have a list of natural and human features they have to find.
- Explain that observing means using all of their senses, not just their sense of sight. They will have to be quiet to observe animal life. They should use their eyes, ears and other senses to find the different features (such as listening for a bird or plane).
- Explain the worksheet. Students have to find all the things on the observation list. They should write down what they see. They can also draw what they see.

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- Students will do this activity in groups. They all have to complete their own worksheet even though they are working in observation groups. Be sure to define specific boundaries.
- Explain that they have about 20 minutes. They must meet back at designated point when the time is up. They must stay with their group leader.

### **Review:**

- Back inside, write all the worksheet categories on the board.
- Ask student volunteers to write what they found for each category on the board.
- Review list together, emphasize the meaning of the words they learned.
- Put worksheets into Environmental Legacies folders.
- Make note cards on one side define and list human and natural features, on the other draw some of the features they found.
- Introduce that next time we will figure out if the ecosystem at the school has always looked like what they saw today.

### **Materials:**

- Pictures of different ecosystems
- Playground Ecosystem Scavenger Hunt worksheet
- Clipboards or other hard surface for writing on outside
- Mobile note-cards

# **Environmental Legacies**

(Story for lesson # 3)

**Jessie Huron**

**October 26, 1953**

I'm getting a little nervous because the 5<sup>th</sup> grade science fair is in a couple weeks and I haven't exactly decided on a topic. I want to do something about Ann Arbor but I don't know what it should be. I first got the idea to do something about the town's history on my way to school last week. On my way, I passed by a hardware store and a diner where dad and I eat breakfast after my little league games on Saturdays. I was thinking about what used to be there before those businesses opened up. I know there was another restaurant before the diner, but I mean before the building was ever built. I wish I knew more about that stuff, but no one really seems to pay attention to it. I guess that there was probably some grass and trees, but there could have been a pond that was filled in or something. Ann Arbor is filled with bulldozers and cranes, it seems like an office building or a house is being built every week. In a couple of weeks after everyone has moved into their new house, or gotten use to the office building or grocery store, they seem to forget what was there before.

I think that I want to do some research and learn about the history of the land around town, especially the area where I walk to school. I don't know exactly how to do this research but I think I can go talk to the people who own the diner. I am also going to ask my teacher and maybe the librarian. I think that I can use what I find for my science project. I could take a bunch of information about the land at different times and then make display for my science project. The display would have to show how land and its ecosystems can change over time. I will have to think about how to do that, but if I make a good one, I can almost see that 1<sup>st</sup> place blue ribbon next to it. Oh well, I don't want to get carried away, but you never know. Anyways, I want to get started but I think it is almost time for dinner cause I can smell the chicken roasting from downstairs.

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## Lesson 3

### Succession: How Ecosystems change over time

#### Objective:

Students will be able to define succession. Students will understand that the ecosystem in a particular place can change over time. They will understand that some changes occur naturally and that humans cause others.

#### Introduction:

- Review the concept of an ecosystem, interdependence, and the different Natural and Human features of ecosystems that students found on their playground.
- Review the idea that there are many different kinds of ecosystems.
- Ask students if they think their playground ecosystem has always looked the way it does today.

#### Direct Instruction/Guided Practice:

- Introduce the idea that ecosystems naturally change overtime. This process is called succession.
- Introduce today's activity: illustrating the succession of a pond ecosystem to a city ecosystem
- Attach a blank, blue piece of felt (representing a pond) on a background piece of felt. Explain that this pond has nothing living in it yet. It doesn't even have any soil.
- Ask students to help figure out what plants and animals might come to live here. Illustrate each step of succession using various pieces of felt cutouts of animals, plants, and man-made features. Make sure to remove plant and animal pieces that no longer live in an ecosystem once it has changed. Ask students to help figure out each stage of succession listed below.
  1. In a **pond ecosystem**, plants will come before animals because animals need plants to eat in order to live.
  2. Small plants that float on the water will come first. Example: algae or duckweed
  3. Tiny floating animals will come next. Example: zooplankton
  4. As tiny plants and animals die, they will fall to the bottom of the pond and make soil.
  5. Now larger plants with roots can move in. But they have to be plants that like having their roots in the water. Example: cat tails
  6. Larger animals move in to eat plants and tiny zooplankton. Example: fish, frogs, insects
  7. Soil builds up as these plants and animals die. Place the felt strip of soil across most of the water in the pond.
  8. The pond ecosystem has changed into a **wetland ecosystem**.
  9. Place more wetland plants and animals. Example: red wing black birds, willow trees.
  10. As these plants die, they make more soil. Cover all the water in the pond with your soil piece of felt. Now plants that do not like to have their roots in the water can move in. Example: grasses, most flowers.
  11. New animals move in that live in and eat grass. Example: deer, snakes
  12. Now it is no longer a wetland ecosystem. When most plants are grasses it is a **grassland ecosystem**.
  13. Bigger plants start to move in. Example: shrubs and trees.
  14. Eventually, the trees shade out all the grass and it becomes a **forest ecosystem**.
  15. Introduce animals that live in and around trees. Example: squirrels, birds.
  16. Introduce humans into the ecosystem.
  17. Ask students to figure out what changes humans will make to the ecosystem. Example: cut down trees to make houses, farm fields, fires; kill deer for food; build roads and cities. Now it is a **city ecosystem**, like their playground.

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18. Illustrate man-made features using your felt pieces by placing them over the plants and animals in the ecosystem.
19. Review the different ecosystems that this spot has moved through to get from pond ecosystem to city ecosystem.
20. Discuss what has happened to the plants and animals that lived in the different ecosystems as it changed. Example: they died to make more soil for other plants and animals to live from, they moved to a different place.
21. Emphasize the point that changes happen all the time, some plants and animals die or have to move. But, humans make changes happen very quickly and they take a lot of space away from plants and animals.

### Independent Practice:

- Write a shortened list of plants, animals and ecosystem types on the board. Do not put it in order of occurrence. For example: humans, oak trees, grass, wetland, deer, insects, algae, cattails, grassland, and city, forest.
- Ask students to put these different stages of succession in order on their own sheet of paper.

### Review:

- As a group, ask students to help put the list in order on the board.
- Ask students for a definition of succession. Example: how a place changes from one ecosystem to another over time. Have students draw and/or write down the changes that were made to the ecosystem on their cards.
- Review that their playground has not always looked like it does now. At one time it may have been a pond, or a grassland, or a forest, or all three.
- Introduce that next time they will be learning specifically what Ann Arbor looked like before it was a city ecosystem.

### Materials:

- Large piece of white felt board
- Cut out all necessary parts of the ecosystem from different colored felt strips. Make sure that most of the examples cited about are represented by different pieces of felt. Note: As an extension activity, have students trace and cutout their own pieces of felt in order to further include them in the activity.
- Mobile note-cards

# **Environmental Legacies**

(Story for lesson #4)

**Ramona Huron**

**July 14, 1829**

Today was my first full day living in my new house, and I am still tired from our long journey. Me, my brother Vincent, and my mom arrived in Michigan on Wednesday, and it took us about a week to get here from Virginia. My dad says that our new town is called Ann Arbor, but it doesn't look much like a town at all. All of the houses are kind of spread out, and there are not as many people here as there are in Virginia. There are so many trees, and I am a little scared because my mom says there are a lot of wild animals too. My dad came to Michigan a couple of months ago to make some money so that he could buy some land to build a house of our own. The rest of my family waited in Virginia until my dad built the house, and when we heard it was finished we rushed to pack up our stuff so that we could all be together again.

Yesterday I asked my dad why our family chose to move to Ann Arbor, and he said that the best way to show me was to take a walk around town. My dad said that there was a lot more land available here in the western territory, and that he came here to get a fresh start. He said that the best thing about Ann Arbor was the fact that there is so much land available, which made it cheap enough for us to buy it. As we walked we passed by huge forests where I could see nothing but trees. He told me that these giant trees were another reason that we came to Ann Arbor because the timber could be used to make a nice house. As we walked further along we came to a giant river. My dad told me that the river was very important to the town because it was a source of fresh water that we could drink. I think it is cool because I can go swimming to cool off from the July heat.

I am happy that my dad picked a place like Ann Arbor for our family to move to because it sounds like it has some great features that will help us make a nice farm. But I miss my friends from Virginia and there don't seem to be a lot of kids for Vincent and I to play with. Maybe some more families will move here soon for the same reasons that we did. I hope so.

# Environmental Legacies

## Lesson 4

### Settling Ann Arbor

#### Objective:

Students will be able to explain what natural resources a town needs and how the natural features of Ann Arbor made it a good place to start a town.

#### Introduction:

- Review Activity 3 on Succession and Activity 2 on human and natural features
- Ask students if they think Ann Arbor has always looked the way it does today or if it has changed over time like other ecosystems.
- Explain that Ann Arbor has not always looked the way it does today. In fact there was a time when there was no town here at all. **If students have not studied Ann Arbor history**, explain who John Allen and Elijah Rumsey were. They were two men that met in Detroit who wanted to settle land in what was then the western territory. They went west to what is now Ann Arbor and bought 500 acres of land from the government.

#### Direct Instruction:

##### Part One

- Introduce **Timeline**. Explain that a timeline represents different spaces in time, with one end of the line representing today, and the other end representing the distant past. The cards should be placed on the line in order of their dates. Cards with dates close to each other should be placed close together, while cards with dates further apart, should be placed further apart (2000 and 1999 would be immediately next to each other, while 1999 and 1900 would have much more space between them). Students should grasp the idea of how much longer ago the changes in Ann Arbor occurred. The dates you put on the timeline show the succession of Ann Arbor over time.
- Place key dates on timeline starting with today's date (dates should include year most students were born, year school was built, 1831 Ann Arbor population=1000, 1825 Ann Arbor had only 8 cabins, 1824 John Allen and Elijah Rumsey bought land for Ann Arbor.
- Explain that Allen and Rumsey wanted to start a town in the new western territory. Show where most people lived on US map then, and show that the western territory was not settled yet.
- Explain that Allen and Rumsey had to decide where to buy land to make their town.
- Introduce that today they will travel back in time to help the founders of Ann Arbor decide where to put their town.

##### Part Two

- **Brainstorm a list of things a town would need to get started** (include wood for houses/fuel, water, food—land for farming)
- Brainstorm a list of human/natural features a place would need to be a good place for a town (include timber/wood, dry/higher land for farming, river or lake for water). Write list on the board.
- Introduce map of Washtenaw County natural features with towns shaded out. The symbols and colors of natural features need to be well defined.
- Explain symbols and colors of natural features. Students should be able to find wetland (dark green), wooded land (light green) and open areas (such as prairies often used for farmland)(white), and rivers (blue).

#### Group Activity:

- Explain that students will work in their groups to find places on the map where all of the natural features on their list are present.

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- Give each group 3 post-it notes to place on 3 possible town sites.
- Give groups approximately 10 minutes to mark 3 town sites.
- Have each group present one of their town sites to the whole class and explain why they chose it based on the natural features a town would need to get started.

### **Review:**

- Reveal the real site of Ann Arbor on the original Washtenaw County map.
- Review the reasons Allen and Rumsey chose Ann Arbor (river, dry land, timber)
- Brainstorm reasons why river was so important and better than a lake (running water for electricity, carried away trash, always fresh).
- Review the dates of the founding of Ann Arbor and the key natural features that attracted Allen and Rumsey to the site.
- Have student write list of natural features a town needs and key dates on their mobile cards (students can begin copying this off the board and timeline if they finish locating towns before the time is up).
- Introduce the next activity by asking the students to think about whether or not there were any human features here before Allen and Rumsey came to Ann Arbor.

### **Materials:**

- 20 feet of rope
- Clothes pins
- Signs with key dates
- 4 or 5 maps of Washtenaw County natural features with towns whited-out
- 1 original map with towns
- 12-15 small post it flags
- Mobile note-cards

# **Environmental Legacies**

(Story for lesson #5)

**Andrew Huron**

**November 22, 1968**

I am very excited because I just came home from school today, and I don't have to go tomorrow because it is Thanksgiving. My grandma, my aunt and uncle, and most of my cousins are all driving into Ann Arbor to celebrate and I can't wait to eat all the delicious grub. Yesterday the third and fourth graders did a skit about the first Thanksgiving between the Pilgrims and the Indians. We all dressed up in different costumes and it was fun to wear the Indian headdresses and moccasins. We all sat down to a pretend Thanksgiving dinner to celebrate how the Indians helped the Pilgrims to get through the harsh winter. Instead of turkey and stuffing we ate cheese and crackers, but everyone got the point.

After we all got out of our costumes we cleaned up and then did our science and spelling lessons. I was hoping that we would talk more about Indian culture every year we only talk about Thanksgiving, and I wanted to know more. When I got home from school, I asked my older brother Jake about Indians because I figured he would know. Jake is in college in California and I love to talk to him when he is in town for the holidays. He told me that he has learned a lot about the subject in college and would be happy to tell me about what he knew.

Jake told me that his professors told him that the proper term for Indians is Native Americans because they were the first ones to live in America, long before the settlers came here. He said that Native Americans had very different ideas about the land and the animals that lived on it. Jake says that Native Americans treated the land with great respect and made sure not to ruin the natural beauty of the land. He also said that Native Americans used every part of an animal that they hunted, so they could be more efficient and not have to kill so many. The most interesting thing that Jake told me was that there were many, many different tribes of Native Americans, and that each tribe had a distinctive culture of its own. I wonder what tribes lived in Ann Arbor? I got to find out.

# Environmental Legacies

## Lesson 5

### Native American Life in Ann Arbor

#### Objective:

Students will be able to explain the differences and similarities between Native American's and Settlers interaction with their natural surroundings. Students will also be able to identify the three main Native American tribes that lived around Ann Arbor.

#### Introduction:

- Review Activity 4 on choosing a place to settle a town and Activity 2 on human and natural features
- Ask students if they think Ann Arbor has always looked the way it does today or if it has changed over time like other ecosystems.
- Remind students that in the previous lesson you talked about there not being a town here before the settlers came to build it.
- Ask students if they think anyone lived here before the settlers arrived and the town was built.
- Explain to students that there were a bunch of people living around Ann Arbor, Native Americans, but that they did not live the same way we do.
- Ask students if they think the Native Americans built roads, stores, and big houses?

#### Direct Instruction:

- Introduce that more than one tribe of Native Americans lived in Ann Arbor before the settlers came. Ask students if they can name any of the tribes.
- Introduce the map that shows the main territories of the different tribes in the area: the Ojibwa, Ottawa and Potowatomi.
- Ask students if they can tell from the map, which group lived in the area that is now Ann Arbor: the Potowatomi
- Show students the map of the footpaths used by Native Americans in the area. Ask students if these look familiar and explain that today, our highways are built on these same paths.
- Ask students to recall some ways that settlers would have changed the land and added human features: ex. Hunted, built houses, built roads, etc.
- Introduce that settlers were often wasteful in the way they used the land, and one reason for this is that they did not know other ways to use the land.
- Ask students what they would be able to do with a deer- (eat it). They might not have known/wanted to use the deer as clothing as the Potowatomi did. Ask students if they would be able to use a deer for clothing. Explain to students how the settlers would have used what they took from the land: they only ate parts of the deer, only used part of the tree they cut down, were often afraid of the forest, needed lots of land for farming.
- Explain that the Potowatomi knew how to use the land in more ways and so used all that they took and were not wasteful: ex. Used deer for clothes, food and tools, did not cut as many trees down, etc.
- Introduce that we are now going to play a game that will help us to see how the settlers and the Potowatomi used the land differently.

#### Group Activity:

- Explain that students will work as two teams, one will be the settlers, and one will be the Potowatomi.
- Ask the students what they think they would need to live for one year, ex. Food, clothing, shelter, etc.
- Explain that there will be two identical paper "ecosystems" on the board. One ecosystem will represent where the settlers live and the other will represent where the Potowatomi live. In each

## **Environmental Legacies**

ecosystem there will be paper cutouts representing different parts of the ecosystem (trees, deer, beavers, water, shrubs).

- As an introduction to the game, call students up two at a time, one from each group. Let each representative choose one piece of the ecosystem (one card). From the back of this card, read what each group could use this resource for.
- Read the value of each card for both groups (how many ways they can use that one item).
- Give each student a worksheet and explain that each team will get to mark off the items they get as they take their turns. Make sure that the groups pay attention to what is happening with the other team.
- Continue choosing cards until both groups check off all their required resources. It should work out that the Potowatomi finish first. Once they are finished, they stop picking cards, but the settlers continue until they are finished. Then compare what remains on the board of the two ecosystems. Students should recognize that the settlers required more resources in order to survive, thus further depleting their ecosystem.

### **Review:**

- Ask students what they learned from the game.
- Point out to students that the Potowatomi got more things from the land than the settlers and that there are still more resources left on their board.
- Ask students what this shows them about the differences between the two groups and how they used the land.
- Give each student a card and have them draw, or write about a Potowatomi village and a settler's town.
- Have students write down/ draw the different resources and the different ways that the Potowatomi and the settlers used them.
- Explain that next time we will learn what changes the settlers made to Ann Arbor and the river more specifically.

### **Materials:**

- Map of Native American footpaths in Michigan
- Map of the United States
- Game cards
- Worksheets
- Mobile note-cards

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(Story for lesson # 6)

Claire Huron  
December 13, 1910

Dear Diary,

I'm excited today because Harry and I get to stay up late. Daddy went to some big meeting tonight and Mama says me and Harry can wait up for him til he gets home. I like it when we get to stay up late cause Mama lets us sit around the fire and Harry will tell me scary ghost stories. He knows lots of them cause he's 11 and plays with the older boys.

I wish that Daddy could be home to hear the stories too. I like it best when we all stay up late together. But Mama says that this is an important meeting and being that Daddy is a good friend of the Mayor, he needs to go to the meeting cause it's important for the town. I didn't even know what a Mayor was but Harry told me it was Uncle Tom's job and it was real important, like being in charge of the whole town. That does sound pretty important

I asked Mama what was so important about the meeting and how come Daddy had to go and she said that they were talking about a dam that someone wants to build on our river. I call it our river cause it has the same name as I do.

Mama said a dam was like a big building that stops the water from going by so fast. I don't think that sound like a good idea cause its real fun to take a raft into the river and move down it real fast. We do that sometimes in the summer, or sometimes we just go fishing from the banks.

Mama says that Daddy says the dam is a good idea cause it will give us electricity and help the town. I guess that would be good but I don't really know.

Well, I better go, Harry says its time for supper.

I'll write again soon.

Claire

# Environmental Legacies

## Lesson 6

### Human changes to Ann Arbor's Natural Ecosystem

#### Objective:

Students will be able to explain four major changes European settlers made to the Ann Arbor ecosystem and how these changes affected people and the environment.

#### Introduction:

- Review previous lessons. Ask students to recall what an ecosystem is and what the environment is (ecosystem = all the plants and animals living in a particular place and all the things they need to live; environment = all the ecosystems on earth, or all the plants and animals on earth and all the things they need to live) and what natural features made Ann Arbor a good ecosystem for a town (river with water flowing downhill, farmable/dry land, timber/woods). Explain that this lesson will focus on the river.
- Introduce that, unlike the Native Americans they learned about last time who survived by living with the natural ecosystem more than by changing it, the European settlers who came to Ann Arbor after Allen and Rumsey started the town in 1824 made a lot of changes to the natural features they found here.
- Introduce that we will investigate changes that people made to the ecosystem around the Huron River in Ann Arbor and decide if these changes were good or bad for different people, plants and animals.

#### Guided Example:

- Lead the students through the process of analyzing a document and deciding if changes were good and/or bad for people and the environment using the plan for the Huron River millraces.
- First introduce what a historical document is (anything that people made then, like a journal, a letter, a map, a newspaper).
- Hand out a copy of the millrace plan to each group and explain how it worked. Ask students to brainstorm ways that it would have affected people, plants, and animals. Make a three-column chart (example below) on the board. Write the change to the river in the 1<sup>st</sup> column. Ask them to decide if these things were good or bad for people, plants and animals and why. Fill in the 2<sup>nd</sup> column with “good for\_\_\_\_\_” or “bad for\_\_\_\_\_”; fill in the 3<sup>rd</sup> column with why.

Change	Good or Bad for....	Why
Millrace made smaller channels next to river with a water wheel that made energy to grind grain	1. good for fish 2. bad for fish 3. good for people 4. bad for people	1. more places to live 2. could be chopped up in the mill wheel 3. energy for grinding grain into flour 4. there might be less fish to eat

- Explain group activity
  1. Ask students if they like to act or pretend to be someone else
  2. Explain that they will all get to pretend to be a different person, plant or animal that lived around the Huron River.
  3. Tell students that they will each get a card telling them what character to pretend to be.
  4. Tell students that we will then look at a change humans made to the river. As a group, brainstorm ways this would have affected the river.
  5. Explain to students that they will then have to decide if their character would think this change was good for them, or bad for them. (Use millrace as an example of how it could be good for some characters and bad for others).

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## Group Activity:

1. Hand out cards to each student, giving some students the same character card.
2. Give students time to read their character.
3. Introduce the picture of the railroad bridge as the first historical document. As a group, brainstorm ways that this would have changed the river.
4. Designate one side of the room as a “good for me” side, and the other as a “bad for me” side. Invite students to stand on the side of the room that they think they belong.
5. Ask a few characters to explain why they chose the “good for me” or “bad for me” side of the room, and then have all students return to their seats.
6. Repeat steps 1 through 5 for the dam and the pollution report.

## Review:

- Ask students to consider all they’ve learned today and decide whether the changes people made to the river were more good or bad and why
- Tell the students the dates when these events occurred and put them on the timeline. You can have them guess what order they happened in. Point out that the river pollution report is the latest, i.e. these and other earlier changes polluted the river.
- Ask students to decide what they would do if they had to decide to make these changes over again.
- Students can write a paragraph about this as an extra-credit or extension activity

## Materials:

- 4-5 copies of the millrace plan
- 4-5 copies of the dam plan and photograph, the 1880’s photograph of the river with railroad bridge and the Huron river pollution report
- Date cards for each event to put on the timeline
- Mobile note-cards

# Environmental Legacies

## Lesson 7

### Field trip to Argo Park

#### Objective:

Students will review what they have learned about natural and human features, human changes to the river ecosystem, and how those changes affected people, plants and animals.

#### Introduction:

- Explain plan for field trip: first, see some of the things we have discussed in class first hand; second, break into groups for a scavenger hunt.
- Explain rules for field trip: stay with the group and group leaders, stay focused, and raise your hand to give ideas when in whole-class group.

#### Whole group activity:

- Sitting in grassy area of the park, ask students to close their eyes and imagine what this area would have looked like in the early 1800s as you read a description of the area from that period.
- Ask students to consider how the area is different and how it is the same as they walk through the park.
- Remind students of the picture of the railroad bridge (bring a copy to remind them); show them where that picture was taken across the river.
- Walk to Railroad Bridge. Review what it is, when it was built, how it had positive and negative affects on people, plants and animals. Ask students' input in this review. Ask students what is the same about the area as the photo taken of the railroad bridge in the 1800s and what is different.
- Repeat review process for dam. Point out how the river changes after the dam, it is narrower and faster flowing; consider how this would affect plants and animals.

#### Small group activity:

- Explain activity: students will look for physical and human features in park, human changes to park area (how the area has changed from the description read earlier), and different ways people have used/are using the river.
- Hand out scavenger hunt worksheets and review rules for group work (stay with group and group leader, stay focused etc.).
- Groups have 20-30 minutes. Give them a meeting time and place.
- Back in grassy area of park, share scavenger hunt results with the whole class.

#### Materials:

- Description of river area from early 1800s
- Railroad bridge picture
- Scavenger hunt worksheet

# **Environmental Legacies**

(Story for lesson # 8)

**Jason Huron**

**November 8, 1937**

After I got home from school today I went straight to my room and did my homework. I don't usually do this, but I wanted to get done early tonight so that I can watch the town meeting in my living room tonight. My little sister Beth likes to stay up and listen to the meetings too, but dad makes her go to bed because she is only five. About once a month or so, mom and dad put a bunch of chairs in the living room, set out some food, and have lots of people from the neighborhood come over so they can talk. Lately the meetings of the neighborhood group have gotten larger and louder, and my living room is getting more and more crowded.

My mom told me that people are coming here because they are worried about the changes that are going on in Ann Arbor. They come to our house for what she calls a "neighborhood meeting." There are new homes being built all the time, and more factories too. Ann Arbor keeps getting bigger, so we need new schools too. Some of the people that come to our neighborhood meetings like all the new stuff that is being built. But some other people don't like all the changes and want to keep the town smaller with less industry. Sometimes these two groups yell at each other, which is kind of fun, but usually they just talk about what they think should happen.

I don't know what I think about all the changes around here. That's why I like to listen to the living room meetings so that I know what is going on. Since my sister Beth can't stay up, I pay real close attention so that I can explain it to her later. Anyways I have to go because I think everyone will be coming soon. See ya later.

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## Lesson 8

### Change over time: Land use

#### Objective:

Students will be able to read a land use map of Ann Arbor, explain how land use changed from 1900 to 1930, and explain how these changes may have affected people, plants and animals.

#### Introduction:

- Review how humans have changed Ann Arbor over time.
- Introduce concept of land use (simply the way we use land in different areas; the kinds of buildings we build etc. For example, schools, factories, houses are all different ways of using land)
- Introduce the maps they will be using. Define different land use categories on the maps: industrial=factories, residential=houses, etc. Show students how symbols and colors are used to show the different land uses.
- Explain that students will have to figure out how people in Ann Arbor have changed the way they used land from 1900-1930. They need to look for what kinds of land uses have decreased and which have increased. They need to brainstorm why different land uses have increased or decreased (example: Increase in residential suggests more people are living in Ann Arbor) and how these changes might positively and negatively affect people, plants and animals (example: decrease in vacant land might be bad for plants and animals because they have fewer places to live; increase in industrial might be good for people because they have more places to work).

#### Group Activity:

- Write down what each group has to find on the board:
  1. 3 kinds of land use that have increased
  2. 3 kind of land use that have decreased
  3. Why they might have increased or decreased
  4. How the increase/decrease might be good or bad for people, plants and animal
- Each person should write the groups ideas on a piece of paper to put in their folder as follows:
  1. Land use
  2. Increase or decrease
  3. Why
  4. Affect on people, plants, and animals
- Pass out maps
- Give groups 15 minutes to complete activity

#### Review

- Ask each group to name some of the different land uses they found and list them on the board horizontally
- Ask groups to share why they thought each land use increased or decreased and how it affected people, plants and animals. Be sure to stress how and why these changes occurred.
- Make a chart on the board with their ideas

Example:

Residential (houses)	Industrial (factories)	Parks
Increase	Increase	Increase
More people living in Ann Arbor	More things being made in Ann Arbor	People miss seeing vacant land

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Good for people, more places to live Bad for plants, less places to live	Good for people, more jobs Bad for animals, more pollution	Good for people, places to play Good for animals, places to live
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- Highlight the increase in parkland around the river in the 1930s. Introduce that next time students will be able to visit a park along the river and see how it has changed over time.
- If time allows, students can copy the chart on the board into their own learning notebooks.

### Materials:

- 4-5 sets of Ann Arbor land use maps 1900 and 1930
- Mobile note cards

# Environmental Legacies

## Lesson 9

### Designing an Educational Park

#### Objective:

Students will review what they have learned about the Ann Arbor history and its affect on the environment by planning educational signs for Argo Park. **Note: this lesson may require an extra day to complete.**

#### Introduction:

- Review the increases and decreases in land use that students discovered last time. Highlight the increase in parks during the 1930s
- Show a modern map of Ann Arbor pointing out the park corridor running all along the river.
- Read letter recommending that parks be planned to create/preserve natural spaces.
- Discuss what this letter recommends for the design of new parks. Highlight the preservation of natural space.
- Ask the students what they would add to this recommendation if they were designing a park. If no one offers it, suggest that parks should be a place where you can learn as well as play and relax.
- Explain that today each group will create an educational sign for Argo Park to make it a place where people can learn about the history and environment of Ann Arbor.

#### Group Activity

- Explain that each group will create educational signs for Argo Park showing where they would place their signs and other things they would add to the park.
- As a class, they will make 3 signs: for the (1) railroad bridge, (2) dam, and (3) a sign describing something about the Potawatomi who lived in the area before white settlers. You can suggest that they make a name for their series of educational signs, for example “The path to history” or “History Trail.”
- Each group will also place their signs and any other additions to the park on a base map of Argo Park. Have a large map of Argo Park where the signs can be placed according to the students.
- Show an example sign. Signs should include the name of the historical object (for example “Dam”), the date it was built, one way it was good for people and plants/animals, and one way it was bad for people and plants/animals.
- In small groups discuss the changes made by each historical object, have each student write them down. This should take about 10 minutes.
- Assign one historical object to each group. Give each group 10-15 minutes to make one information sign. Specify that everyone must participate in creating the signs and presenting their plan to the class. Group leaders should help keep everyone on task and help allocate time.
- Remind students to use their folders and mobile cards to find the information for their signs.
- Pass out base maps and drawing supplies.

#### Review (this may require an extra day to complete)

- Give each group 5 minutes to present their signs and plans for the park to the rest of the class.
- Highlight key concepts and terms as groups use them in their signs and presentations.

#### Materials

- Map of Argo Park for each student
- A large sheet of paper for each sign