

Urban Agriculture



IAITC's lesson booklet designed to complement the Urban Ag Mag



Bio-degradable Planter



Objective: Students will gain an understanding of the importance of recycling while making a bio-degradable planter for use in planting a garden.

Illinois Learning Standards: 1.A.1b, 2. B. 1a, 3.A.1,4.A.1a, 7.A.1, 7.B.2a, 7.B.1b, 9.A.2a, 11.A.1b, 11.A.1f, 12.B.1a, 12.E.1c, 13.A.1c, 13.B.1a, 13.B.1b, 13.B.1e

Assessment Framework: 1.3.01, 1.3.06, 1.3.07, 1.3.11, 1.3.12, 1.3.16, 1.3.23, 3.3.09, 3.3.10, 6.4.16, 12.4.03, 12.4.04, 12.7.15, 12.721

Suggested Reading Materials:

IAITC's Renewable Energy Ag Mag

IAITC's Tree Ag Mag

The Tiny Seed by Eric Carle

Michael Recycle by Ellie Bethel

Lily's Garden by Deborah Kogan Ray

The Beautiful Christmas Tree by Charlotte Zolotow

Materials:

Newspaper

Tin Cans

Compost

Seeds

Directions:

1. Take a sheet of newspaper and fold it along its length almost in half, leaving a portion at the top showing.
2. Fold this top portion over the previously folded section to create a thicker top.
3. Take a tin can and place it so that the edge of the can is level with the top edge of the paper. Roll the can along, rolling the paper along with it so as to create a paper tube.
4. Place the can with paper around it top end down. Fold the extra newspaper inwards flat on the bottom of the can (this creates the base of the pot).
5. Remove the can from inside the newspaper pot.
6. Fill with compost and plant seeds. Record progress in a journal book.
7. When plants have grown large enough to plant outside, you can plant the entire pot in the ground. The newspaper will degrade into the soil.

Lesson Extender:

You can also turn empty tissue rolls into little boxes that are just the right size for starting plants!

1. Collapse the empty tissue roll by setting it on it's side and pressing it flat so that it forms a rectangle.
2. Placing it so that one of the long sides is closest to you, cut a vertical line down the middle of the roll. Be sure to cut through both layers of the cardboard.
3. Select one half of the roll and pop it back to its original shape. (It will look more square than round.) Make 4 cuts along one of the open ends. Cuts should be approximately 1/2" deep and equidistance apart. These are your flaps.
4. Crease each of the flaps by folding inward.
5. Now fold the flaps closed as you would the flaps on a box.
6. Set your seed starter pot upright so that it rests on the folded flaps. Place on a tray or plate to keep from leaking.
7. Fill with potting soil, seeds, and water. These can also be planted in the ground once the plant is large enough.

Shake, Rattle and Roll

Objective: Students will investigate soil texture and properties, determining the type of soil found in a garden.

Illinois Learning Standards: 1.A.1b, 1.B.1c, 1.C.1f, 2.B.1a, 3.A.1, 3.B.1b, 3.C.1a, 4.A.1a, 7.A.1a 7.B.1a, 7.B.1b, 10.A.1a, 11.A.1a, 11.A.1b, 12.A.1b, 12.B.1a, 12.B.1b

Assessment Framework: 1.3.07, 1.3.11, 3.5.09, 6.4.16, 12.4.03, 12.7.15, 12.7.21

Suggested Reading Materials:

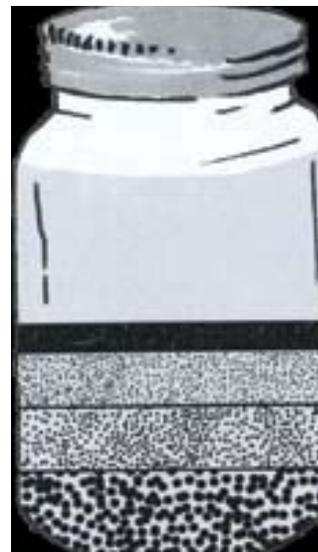
IATTC's Soil Ag Mag

A Handful of Dirt by Raymond Bial

The Amazing Dirt Book by Paulette Bourgeois

Materials Needed:

Flour	Large glass jar with lid	Permanent Marker
Sugar	Soil	Ruler
Water	Water	



Vocabulary:

Clay - fine granular material composed of closely packed particles.

Loam - ideal garden soil that has a well-balanced mixture of sand, silt and clay.

Sand - coarse granular material composed of finely divided rock and mineral particles.

Silt - sedimentary material composed of fine mineral particles in between size and clay.

Directions:

1. Explain to the class that soil is made of three different types of particles: sand, silt, and clay. The perfect soil will contain an even mixture of all three. This is called loam soil.
2. Give each student a small sample of sugar, representing sandy soil. This soil does not usually grow plants well, as it dries out quickly and does not let the roots get enough water. Have the students describe the texture of the sugar. Next, allow students to feel a small sample of dry flour and rub it between their fingers. This is the powdery, silky texture of silt. Finally, add a small amount of water to the flour. This is the texture of clay. Clay particles clump together and compact when dry and drain poorly when wet. Have the students describe the texture.
3. Determine the type of soil in a garden by filling a large jar half-full with soil. Fill the remaining space with water. Have the students take turns vigorously shaking the jar until the larger clumps are broken apart. Let the jar sit for two minutes. Use a permanent marker to draw a line to mark each layer. Allow at least 24 hours for the soil to settle completely. The top layer will be clay, which includes the smallest, lightest particles. The middle layer will be silt, and the heaviest particles fall to the bottom, sand. Have the students identify the thickest layer to determine the soil type.
4. Have the students measure and graph the separate layers in centimeters. Divide the class into groups to duplicate the activity with soil from different areas. Students can record, graph and compare their findings.

Lesson Extender:

1. Ask the students how this activity might influence where they plant a garden? How would the soil impact how the garden grows?

This lesson has been adapted from a California Ag in the Classroom lesson activity.

Eat Your Plants

Objective: Students will identify plant parts and understand how they are connected to the food we eat. Students will discover how to make healthy eating choices.

Illinois Learning Standards: 1.C.1a, 11.A.1a, 11.A.1b, 11.A.1f, 12.A.1a, 12.A.1b, 12.E.1c

Assessment Framework: 1.3.07, 1.3.11, 1.3.13, 12.4.01, 12.4.04, 12.4.05, 12.4.06, 12.7.15

Suggested Reading Materials:

IAITC's Specialty Crop Ag Mag

IAITC's Nutrition Ag Mag

Tops and Bottoms by Janet Stevens

The Vegetables We Eat by Gail Gibbons



Materials Needed:

Paper Bags, one per group

Assortment of food or pictures of food representing each plant part group

Food pyramid diagram from www.mypyramid.gov

Vocabulary:

Leaf - an above-ground plant organ specialized for photosynthesis.

Flower - the colorful and often fragrant reproductive structure found in flowering plants.

Fruit - the seed bearing part of a plant, often edible and colorful, produced from a floral ovary after fertilization.

Root - an underground plant organ that lacks buds, leaves or nodes; absorbs water and minerals from the soil

Seed - a small embryonic plant enclosed in a covering called a seed coat, usually with some stored food.

Stem - a lender or elongated plant structure that supports and elevate leaves, flowers and fruits.

Directions:

1. Collect an assortment of at least six different foods, one example from each plant part (roots, stems, leaves, flowers, fruits, seeds). Place bite-sized food samples from each plant part into bags. (You could also use pictures of plant parts in order to complete this activity if necessary.)
2. Brainstorm favorite fruits and vegetables with the class. As students share their ideas, record the information on the board. List all the root foods at the bottom; stem foods in the middle; and leaf, flower, fruit and seed foods near the top. Ask students to determine why you placed each food in its designated group. Draw an illustration of a plant next to the list as a hint.
3. Explain that the flavorful and nutritious fruits and vegetables we eat are all part of a plant. Use a broccoli crown to illustrate the concept. One broccoli crown has stems, flowers and leaves. Discuss some of the nutritional benefits of a diet rich in plant parts. Emphasize that more than half of the students' diet should come from plants.
4. Distribute the paper bags with food samples to each of the groups. Instruct students to take turns reaching inside the bag without looking, identify the food. After the first student guesses, they may remove the food item from the bag and decide as a group which plant part it represents. The next person in the group repeats the process, first guessing by touch, then removing the food from the bag and categorizing it.
5. Have each group share the food items they found in their bag. Highlight the nutritional value of each of the food items. Instruct students to work in their group planning a meal that includes at least one of each plant part. Students may also draw illustrations of their meal and present their illustration to the class, explaining their healthy choices.

Lesson Extender:

1. Discuss with students where they can find these types of foods. Be sure to include places like the grocery store, farmer's markets, and local growers.

This lesson has been adapted from a California Ag in the Classroom lesson activity.

Bug Sweep

Objective: Students will collect, observe and categorize the various insects in the garden.

Illinois Learning Standards: 1.A.1a, 1.A.1b, 1.C.1a, 1.C.1f, 3.A.1, 3.C.1a, 4.A.1a, 11.A.1a, 11.A.1b, 11.B.1c, 11.B.1d, 12.A.1a

Assessment Framework: 1.3.07, 1.3.08, 1.3.12, 3.3.09, 3.3.10, 12.4.01, 12.4.02, 12.4.03, 12.4.05, 12.4.07, 12.4.08, 12.4.09, 12.4.10

Suggested Reading Materials:

Diary of a Fly by Doreen Cronin

Diary of a Worm by Doreen Cronin

Backyard Insects by Millicent E. Selsam and Ronald Goor

In the Garden by David Schwartz



Materials Needed:

Gallon zipper-type plastic bag or panty hose, one per group

Coat hangers, one per group

Tape

Insect identification book

Notebook or journal

Magnifying glass

Jars and lids with holes

Pest identification resources

Vocabulary:

Antennae - a feeler organ on the head of an insect, crustacean, or other animal.

Beneficials - organisms that provide a benefit to crop production, applied especially to natural enemies of pests and to pollinators such as bees.

Entomologist - a person who studies the classification, life cycle and habits of insects and related life forms.

Pest - any unwanted and destructive insect or other animal that attacks food, crops or livestock.

Directions:

1. Explain to the class that there are countless insects found in the garden. Some insects are beneficial, while others are considered pests. Distribute one hanger, tape and a gallon zipper-type plastic bag or panty hose to each student group. Tell students to stretch the bag (or panty hose) across the frame of the hanger to create a bug sweeper to collect garden pests.
2. Give students 15 minutes to collect as many different bugs as possible in the garden area. Encourage students to gently examine the leaves of plants to locate bugs. Transfer each group's collection to a clear jar with holes.
3. Ask students to count and categorize the insects according to physical attributes. Students may select their own criteria to categorize their findings. This may include the number of legs, winged or non-winged, color, weight, body structure, size, antennae, etc. Encourage students to share their discoveries with the class.
4. Instruct students to closely observe their pests and draw realistic pictures of their pests in an insect journal. Challenge students to make their drawings as detailed as possible. Students may need to use a magnifying glass or in some cases, a microscope, to make their observations. Once groups have completed their drawings, they can use an insect guide to identify their collection. Try to determine if each insect is a beneficial insect or a pest. Discuss with students why it is important for gardeners and farmers to identify the insects in their growing area.
5. Release the insects outside when the study is completed. Students can gently tip their collecting jar on its side and remove the lid. The insects should crawl or fly out of the jar.

This lesson has been adapted from a California Ag in the Classroom lesson activity.



Six of One, Half Dozen of the Other

Objective: Students will use their senses to identify and classify objects in the garden.

Illinois Learning Standards: 1.A.1a, 1.A.1b, 11.A.1b, 11.A.1c, 11.A.1e, 11.A.1f, 12.A.1b, 12.B.1a, 12.E.1c

Assessment Framework: 1.3.11, 1.3.12, 1.3.13, 11.4.02, 11.4.03, 12.4.01

Suggested Reading Materials:

IAITC's Horticulture Ag Mag

Garden Colors by Gary Thompson

Growing Things by Angela Wilkes

Growing Vegetable Soup by Lois Ehlert



Materials Needed:

One egg carton for each group of three.

Vocabulary:

Adjective - the part of speech used to limit or describe the noun or pronoun it modifies, as in “wet” leaf.

Classification - the act of distributing things into classes or categories of the same type.

Specimen - a sample, especially one used for diagnostic analysis.

Directions:

On the bottom of each egg carton, write two adjectives. One should be a likely quality of a garden object, such as “wet.” The other should be the opposite (“dry”). Use a variety of words that will encourage students to use their senses, such as dark/light, rough/smooth, scented/unscented, etc.

1. Ask the class what senses can be used to explore opposites in the garden. Ask students to share examples of opposites. Explain that in a few moments they will be searching for objects that have a specific quality and those that have the opposite quality.
2. Divide the class into groups of three. Tell the class that each group will get a container for collecting 12 items. They should not let any other group see the secret information on the bottom of the carton.
3. Distribute the cartons and demonstrate to each group how the opposites will be placed, with six of each category in a long row. On the bottom of the carton are secret words that describe what kind of objects to collect. Each group will be collecting different opposites.
4. Remind students to handle everything gently and take only small specimens. Allow enough time for students to explore the site and gather objects.
5. When groups are finished, have them exchange cartons and determine the opposite adjectives the other groups collected without looking on the bottom of the carton.
6. Discuss strategies groups used to identify the other groups' classification. Ask each group to share how they used their senses during this activity.

This lesson has been adapted from a California Ag in the Classroom lesson activity.

Three Types of Communities

Objectives:

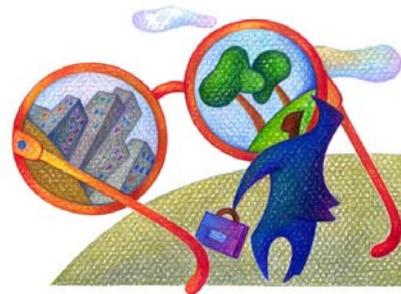
1. Students will be able to identify characteristics of their own community.
2. The students will be able to define vocabulary: Community, Suburban, Rural, and Urban.

Illinois Learning Standards: 15.B.1, 15.C.1a, 16.C.1a, 16.D.1

Assessment Framework: 1.3.01,n 1.3.03, 1.3.05, 1.3.06, 1.3.13, 1.3.19, 3.3.09, 3.3.10

Suggested Reading Materials:

Living in Rural Communities by Kristin Sterling
Living in Urban Communities by Kristin Sterling
Living in Suburban Communities by Kristin Sterling



Materials Needed:

Pictures of different types of communities.
Chalkboard or Chart paper

Directions:

Read aloud “If I Could Build a Town” by Betsy Franco. Ask students what types of things they saw on the way to school this morning. Did they see any cars on the road? Did anyone see a supermarket? How about the mail truck or a bank or post office? After determining several characteristics, help students to understand that all of these things make up your community and that there are several types of communities including urban, suburban and rural communities.

1. Divide class into three groups.
2. Hand out groups of pictures representing rural settings, urban settings, and suburban settings.
3. Have students brainstorm ideas of what types of things they see in the pictures. They can also add ideas that they think could be part of the pictures. To help get the groups started, you could ask questions: Can children play games in the front yard? What types of sounds would you hear? Are the buildings tall or are there just houses? Are there farms? Can these farms grow food?
4. After about 4-5 minutes of brainstorming, create three columns on the board labeled Urban, Suburban, and Rural. Have students place their pictures under the heading they think most closely represents the community in the picture.
5. Discuss with students the differences and similarities between these three types of communities.

Lesson Extender:

1. Write your own “If I Could Build a Town” poem.

If I Could Build A Town by Betsy Franco

If I could build a town, well then,
I know just what I'd make:
an ice cream store, a toy shop,
and a store with bread and cake.

I guess I'd make a park
and build a nifty fire station.
Say, would you like to help me?
It just takes imagination!

If I Could Build A Town by _____

If I could build a town, well then,
I know just what I'd make:
a _____, a _____
and a store with _____.

I guess I'd make a _____
And build a _____.
Say would you like to help me?
It just takes imagination!

Urban vs. Rural

Objective:

1. The students will be able to examine and identify similarities and differences between urban and rural communities.
2. The students will be able to use language arts skills to read from the poster boards.
3. The students will be able to use primary sources to determine the characteristics of different types of communities.

Illinois Learning Standards: 1.A.1a, 1.B.1d, 1.C.1c, 3.B.2a, 4.A.2a, 15.B.1, 15.C.1a, 16.C.1a, 16.D.1, 26.B.1d

Assessment Framework: 1.3.01, 1.3.03, 1.3.05, 1.3.06, 1.3.13, 1.3.19, 3.3.09, 3.3.10

Suggested Reading Materials:

Town Mouse, Country Mouse by Jan Brett
County Kid, City Kid by Julie Cummins



Materials:

Poster Board
Newspapers

Magic Markers
Scissors

Magazines
Glue

Directions:

Ask the students to list the characteristics of urban and rural communities. Make a list on the board or on chart paper. Encourage students to discuss the following aspects of communities: transportation, schools, homes, shopping, nature, businesses.

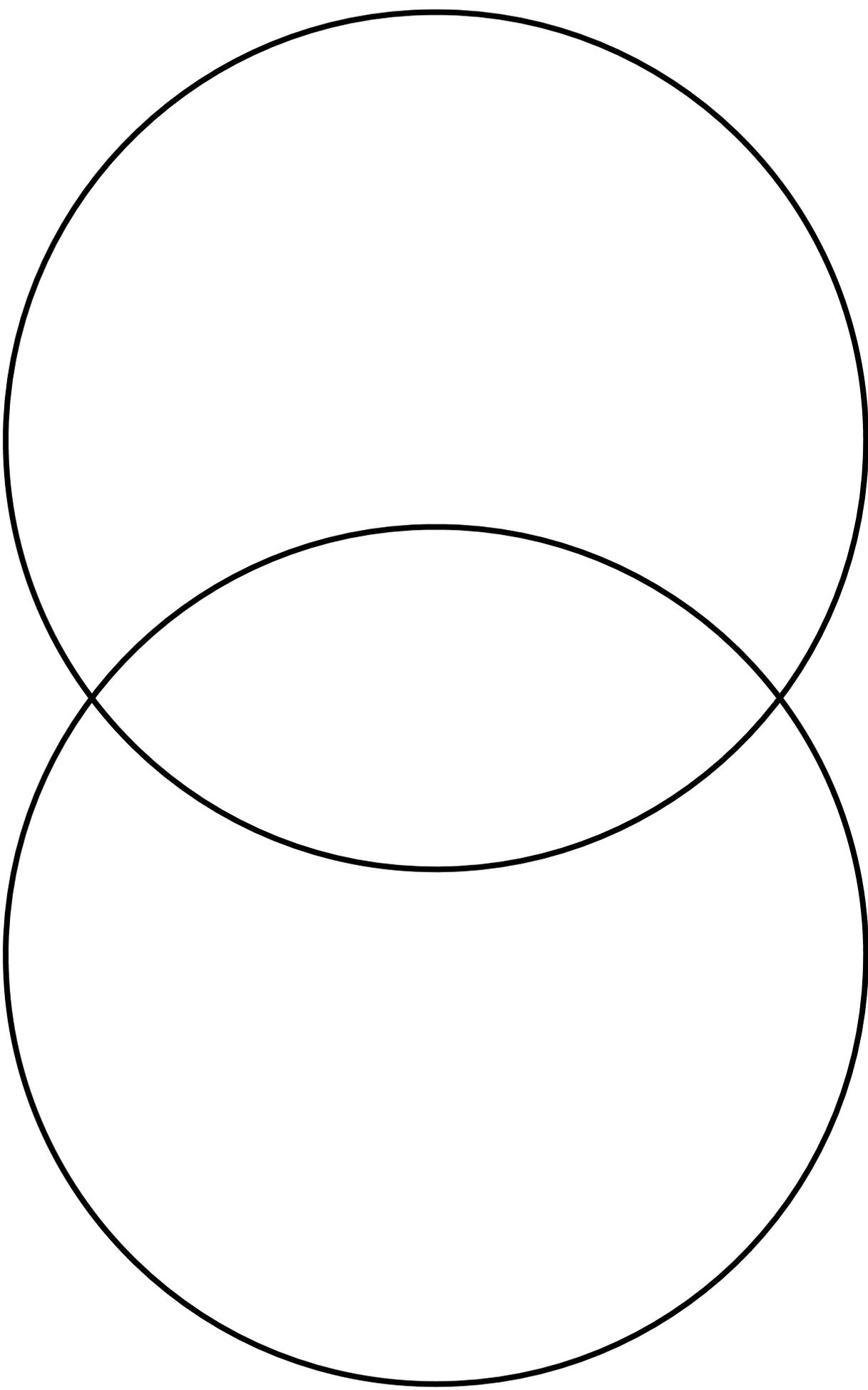
1. Read with students the book Town Mouse, City Mouse by Jan Brett.
2. After reading the book, look again at the list you made of characteristics of urban and rural communities.
3. Give each student a copy of the venn diagram and ask them to list characteristics of each that they observed in the book. Be sure to have them include areas where the two communities were similar in the middle part of the venn diagram.
4. Have students discuss what characteristics define each community and which are similar to both communities.

Lesson Extender:

1. What type of community do you live in? Ask students to cut out pictures from magazines or newspapers of anything that reminds them of their community. They will take these pictures and paste them to poster board to make a collage. In class, they can share their collages with their classmates and discuss similarities and differences of the collages that they have made. What type of community has the most people in it? How are the communities different? How are the communities the same?

Venn Diagram

Write details that tell how the subjects are different in the outer circles. Write details that tell how the subjects are alike where the circles overlap.

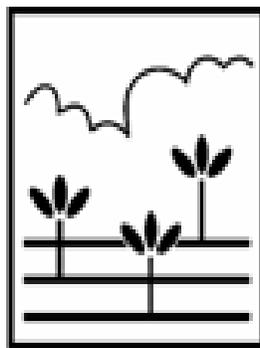


Sponsored by:



FINANCIAL

THE
IAA



FOUNDATION

1701 Towanda Avenue
Bloomington, IL 61701-2050

Phone: (309) 557-3334

www.agintheclassroom.org