



Down on the Farm

An Agriculture Unit for First Grade

Emily Petiprin
August 2007
AEE 596
Dr. Ed Yoder
Penn State University

Lesson 1 Introduction to Animals and Plants

Lesson 2 Cows

Lesson 3 Horses

Lesson 4 Sheep

Lesson 5 Pigs

Lesson 6 Chickens

Lesson 7 Bees

Lesson 8 Life of a Plant

Lesson 9 Parts of a Plant

Lesson 10 Seeds

Conclusion: Class book

Note: These lessons were prepared for a first grade classroom in the Downingtown Area School District. While many components are science based in conjunction with other academic areas, the standards listed are for reading, writing, math, and social skills. This was done rather than listing science standards because at the current time Downingtown Area School District only lists the reading, writing, math, and social skill standards on the report cards. Yes, science is required to be taught however it is not evaluated on the report cards.

Lesson 1: Introduction to Animals and Plants

Standards: A 2.1.2, A 2.1.3, A 3.1.4, A 5.1.7

Benchmarks:

- Reads/understands using a variety of strategies
- Writes top to bottom/ left to right
- Uses consonants to spell words
- Clearly communicates ideas and experiences

Objectives: Students will be able to identify initial consonant and vowel sounds as measured by D.I.B.E.L.S, Harcourt Reading Series, and PA standards.

Materials: “Spots” the cow puppet, red roll paper to make red barn chart for word bank, farm animal figurines of animals and plants, plastic cups (26 for each group of students) with alphabet letter printed on each, worksheet on beginning sounds

Anticipatory Set:

Gather students on carpet and introduce “Spots” the cow puppet. Explain that “Spots” is going to help us to learn about food and farms. Have students brainstorm a list of words that pop into their heads when they hear the word “Farm” and teacher records the words on the “Big Red Barn” word bank. (Have students help to spell by sounding out words using Harcourt finger spelling skills)

Teacher Activities (Procedure)

1. Read aloud, “What’s On My Plate” by Ruth Belov Gross, and discuss how all food comes from plants or animals.
2. Introduce activity of sorting plants and animals by beginning sounds. Model how to sort alphabet cups on tables and place farm figurines into appropriate cup for beginning sounds.
3. Dismiss students to tables and allow them to work with partners on sorting farm figurines. (Distribute materials-set of ABC cups and farm figurines per group)
4. Monitor and assist as necessary. Check student work for accuracy.
5. Clean up and discuss findings of animals/plants and beginning sounds.
6. Explain worksheet on beginning sounds and allow student to complete independently

Student Activities

- Identifying farm words and helping to sound out spelling
- Sorting farm animals and plants into plastic cups by using beginning sounds.
- Worksheet on beginning sounds.

Conclusion

Hold alphabet cups up and have students recall farm animals that start with specific letters.

Evaluation

Most evaluation will be informal feedback that the teacher observes through the sorting activity, however the worksheet on beginning sounds will serve as written evidence of mastery of beginning sounds.

Lesson 2: Cows

Standards:D .1.1.1, D 2.1.2, A 5.1.7

Benchmarks:

- Demonstrates one to one correspondence
- Measures objects using units
- Clearly communicates ideas and experiences

Objectives: Students will be able to follow written and verbal directions and write a legible, complete sentence containing proper beginning and ending punctuation as measured by the Harcourt Reading Series and PA Standards.

Materials: “Spots” the cow puppet, chart paper with mixing instructions, milk, sugar, vanilla, small and large coffee cans, ice, rock salt, serving cups and spoons, writing paper

Anticipatory Set: Gather students on carpet and have “Spots” the cow ask students to name some of the things that cows are famous for doing. Solicit responses and discuss how cows give us many foods and goods (things).

Teacher Activities (Procedure)

1. Explain that today we are doing an experiment with milk and how to make ice cream.
2. Read over chart paper with directions for making ice cream:
1C milk, 1t vanilla, 2T sugar into small coffee can. Seal and place small coffee can in large coffee can. Fill with ice and $\frac{1}{4}$ C rock salt. Shake/ roll for 10 minutes.
3. Model procedure.
4. Distribute materials to groups and allow students to work independently. Monitor and assist as necessary.
5. After rolling for 10 minutes, assist students in removing the ice cream from the center container and serving.
6. Allow students to sample ice cream and write one sentence to the prompt, “All About Ice Cream”. Illustrate. (Remind students about punctuation and legibility)

Student Activities

- Reading a recipe
- Measuring materials
- Tasting and describing final product

Conclusion: After students have had a chance to sample the ice cream and clean up from the experiment, allow them to write and illustrate to the prompt, “All About Ice Cream”.

Evaluation: Students will be informally evaluated on their ability to work with a group to complete a task by following written and verbal directions. Students will also be evaluated on their ability to write a complete sentence about a specific topic.

Lesson 3: Horses

Standards: D 1.1.1, D 2.1.2, A 5.1.7

Benchmarks:

- Demonstrates one to one correspondence
- Uses numbers to represent quantities
- Measures objects using units
- Clearly communicates ideas and experiences

Objectives: Students will be able to measure length of objects using nonstandard units as specified by the Scott Foresman Math Series and PA Standards.

Materials: Overhead projector, image of a horse for overhead projector, worksheet on nonstandard measurement, various classroom materials to be measured such as a book, door, desk, chair, etc.

Anticipatory Set: Show life size overhead projector picture of a horse and ask students to guess how tall it is. Discuss how when measuring horses, “hands” are used and model how to measure using “hands”.

Teacher Activities (Procedure)

1. Discuss term measurement and explain that we can use ordinary objects (like hands) to help us compare the size of two items rather than a ruler.
2. Discuss how to measure using hands and allow student to assist in measuring various objects from the class room such as a text book, a shoe, a classmate, etc.
3. Explain to students that they have a task to measure a buddy, their desk top from side to side, the width of a door, the length of a computer keyboard and a pencil by using “hands” and recording on a worksheet.
4. Distribute materials and allow students to work independently. Monitor and assist as necessary.
5. While students are working, pull individual students to complete performance assessment. (Have student measure particular item such as rocking chair by using nonstandard measurement). Record data for instructional feedback.

Student Activities:

- Measuring using their “hands” as a nonstandard unit
- Recording data

Conclusion

Gather and discuss data that was recorded. Discuss discrepancies because of the difference in hand sizes. Review terms and allow for questions/ comments.

Evaluation: Students will be evaluated by completing a performance assessment on nonstandard measurement.

Lesson 4: Pigs

Standards: D 1.1.1, D 3.1.3, D 4.1.4, A 5.1.7

Benchmarks:

- Demonstrates one to one correspondence
- Demonstrates number sense
- Creates and solves story problems using a variety of strategies
- Clearly communicates ideas and experiences

Objectives: Students will be able to identify place of objects by using ordinal numbers as measured by Scott Foresman math series and PA Standards.

Materials: “All About Pigs” by Margaret Gallo, magnetic poster of mother pig and 10 piglets (or drawing on chalkboard), set of 10 cardstock piglets of various colors for each student and worksheet with coordinating ordinal numbers.

Anticipatory Set: Gather students on carpet and read aloud, “All About Pigs” by Margaret Gallo. Discuss facts from the story and key words. Display magnetic poster of mother pig from the story and her 10 piglets.

Teacher Activities (Procedure)

1. Explain how we are going to use pigs to help us with ordinal numbers.
2. Discuss term ordinal numbers and explain how to count using words such as first, second, third, etc.
3. Have students assist in identifying the order of piglets and describing which piglet is in particular order. Remind students to be cautious of the direction the piglets are facing.
4. Distribute set of piglets for each student and practice lining up the piglets in order by stating different orders. (i.e. the green piglet is 4th in line, place the yellow piglet in the fifth spot)
5. After practicing identifying ordinal numbers, explain to students how to glue piglets to worksheet with ordinal numbers and coordinating colors written at the bottom of the worksheet.
6. Allow students to work independently. Monitor and assist as necessary.

Student Activities

- Identifying ordinal numbers
- Using manipulatives to demonstrate comprehension of ordinal numbers
- Following written instructions to match colors and ordinal numbers

Conclusion: As students are finished with worksheet, instruct them to line up and explain what position they are in the line by using ordinal numbers.

Evaluation: Verbal feedback and worksheet on ordinal numbers.

Lesson 5: Sheep

Standards: D 1.1.1, D 3.1.3, A 5.1.7

Benchmarks

- Demonstrates one to one correspondence
- Recognizes/continues patterns of numbers/objects
- Clearly communicates ideas and experiences

Objectives: Students will be able to create a pattern that repeats with at least 3 colors as measured by the Scott Foresman math series and PA Standards.

Materials: bundle of yarn, book “Charlie Needs A Cloak” by Tomie DePaola, worksheet of a cloak picture, crayons/markers, magnets for patterning

Anticipatory Set:

Show student a bundle of yarn. Discuss how wool comes from a sheep and display several clothing items that are made from wool. Read aloud, “Charlie Needs A Cloak” and discuss sequence of events from the story.

Teacher Activities (Procedure)

1. After reading the story discuss how we need to decorate Charlie’s cloak with a pattern.
2. Discuss term pattern, the repeating aspects of it, and how to identify a pattern.
3. Allow volunteers to practice making a pattern by using magnets on the chalkboard.
4. After students seem confident building and identifying patterns, discuss how to color picture of Charlie’s cloak in a pattern.
5. Dismiss students to seats and allow them to color cloak in a pattern. Share.

Student Activities

- Identifying a pattern
- Making individual patterns

Conclusion: After students have finished decorating cloak pictures, allow students to share pictures with classmates and have them call on a friend to identify the pattern.

Evaluation: Students will be evaluated on their ability to identify and create a pattern on their cloak picture.

Lesson 6: Chickens

Standards: A 2.1.2, A 2.1.3, A 3.1.4, A 5.1.7

Benchmarks:

- Participates in reading familiar books
- Demonstrates one to one matching
- Identifies story elements
- Uses consonants sounds to spell words
- Clearly communicates ideas and experiences

Objectives: Students will be able to identify the short vowel sounds as measured by D.I.B.E.L.S, Harcourt Reading Series, and PA Standards.

Materials: book and cassette “Hattie and the Fox” by Mem Fox, short vowel picture cards, cut out drawings of each animal in the story(cow, fox, chicken, duck, pig, goat) and other various animals, used magazines, scissors, glue, paper

Anticipatory Set: Introduce the book, “Hattie and the Fox” and have students brainstorm any correlations (things they think of) with chickens and fox. Solicit responses. Play audio cassette of “Hattie and the Fox” by Mem Fox while student track print in books.

Teacher Activities (Procedure)

1. After listening to the story, discuss the lesson learned and recall the characters, setting, problem, lesson learned, and other literary elements.
2. Review the alphabet and the importance of vowels because they have 2 sounds.
3. Display the vowels on the chalkboard and discuss their short sounds with picture cards (a=apple, e=eddie, I=itchy, o=olive, u = up). Have students volunteer words or names that fit into each vowel sound.
4. Display the animals from the story and have students help to decide which vowel sound each animal has. Also display other animals from a farm and discuss their short vowel sounds.
5. Discuss how students will cut out animal pictures from magazines and create a collage of short vowel sounds.

Student Activities

- Tracking print while listening to audio cassette
- Identifying short vowels
- Cutting out pictures to relate to specific vowels.

Conclusion

After cleaning up materials allow students to share their collages to their classmates and explain why they chose particular pictures. (ex: the picture might be a calf, not a cow and that is why it fit with the “A” vowel)

Evaluation: Informal observation while students are working and sharing; taking note of student needs.

Lesson 7: Bees

Standards: A 2.1.2, A 2.1.3, A 3.1.4, A 5.1.7

Benchmarks:

- Comprehends at a literal level
- Writes top to bottom/left to write
- Uses pictures and print to convey meaning
- Uses phonetic spelling to write independently
- Clearly communicates ideas and experiences

Objectives: Students will be able to identify, label, and write about the parts of a bee's body and discuss the importance of bees to pollination as according to Harcourt Reading Series and PA Standards.

Materials: jar of honey, spoons, book "The Honey-makers" by Gail Gibbons, worksheet "Build a Bug" (contains several drawings of heads, thorax' and abdomen), scissors, glue, paper, pencils, and crayons/markers

Anticipatory Set: Show students a jar of honey and ask them where it came from. Solicit responses and inform students that honey comes from bees. Discuss the importance of bees to plants as well.

Teacher Activities (Procedure)

1. Read aloud, "The Honey Makers" by Gail Gibbons, being sure to stop and explain parts of the book that may be confusing to children.
2. Discuss the importance of bees to pollinating flowers while they gather their food.
3. Discuss parts of an insect; wings, 6 legs, head, thorax, and abdomen.
4. Allow students to create their own bugs by using w.s "Build a Bug" and write about its special traits.

Student Activities

- Following along while teacher reads aloud
- Identifying 6 legs, wings, head, thorax, and abdomen as bee anatomy
- Assembling bugs
- Tasting Honey
- Identifying importance of bees to pollination

Conclusion Review how insects are important to the life of plants and how bees help to pollinate or spread plant parts that help to make new plants while they gather food for themselves (honey). Allow students to sample honey.

Evaluation: Students will be evaluated on their verbal responses and also their "Build A Bug" creations and writings.

Lesson 8: Life of a Plant

Standards: A 2.1.2, A 2.1.3, A 3.1.4, A 5.1.7

Benchmarks

- Comprehends at a literal level
- Identifies main idea and story elements
- Clearly communicates ideas and experiences

Objectives: Students will be able to identify the basic needs of plants according to the FOSS Science series and PA Standards.

Materials: several large coffee cans, paper towels, water, soil, seeds from outside or packets, “Plants” from the FOSS science series

Anticipatory Set: Introduce the topic of plants and how they often are grown on farms to be eaten but also occur in our own schoolyard. Take children outside for a brief nature walk and instruct them to pick a plant to bring into the class. Have students extract seeds (if applicable)

Teacher Activities (Procedure)

1. Read aloud, “Plants” from the FOSS science series by Delta Education.
2. Discuss how many plants start as seeds that grow from mature plants of the same kind.
3. Discuss how seeds travel and the needs required for a seed to grow into a plant (soil, sun, water and air.) Discuss how we are going to do an experiment that will explore what happens when any of these necessary parts are missing. (not experimenting with lack of air...too tricky)
4. Model how to create a seed home that is lacking light (black construction paper covered coffee can), a seed home that is lacking soil (ziplock baggie with wet paper towel), and a seed home that is lacking water (open coffee can with soil but no water).
5. Allow students to create one of the experiments and place seeds from outside or from a seed packet into experiment.
6. Allow students to monitor the experiment for several days and record data.
7. After 2 weeks of data collection, discuss results.

Student Activities:

- Exploring school habitat and various plants
- Experimenting with needs of plants
- Recording data and making conclusions

Conclusion

After students have observed the seeds for 2 weeks they should be able to see that seeds will sprout in wet paper towel because water is necessary to soften the seed coat. However the plant will not live very long without the proper nutrients from soil. Without light the seeds might sprout depending on variety, dry seeds will not sprout, bag with soil and water will sprout because of air in soil. Big conclusion is that seeds need water to start and that water is crucial to life.

Evaluation: Students will be evaluated on their ability to monitor and track data on a science experiment worksheet and also on their verbal questions and responses/ conclusions.

Lesson 9: Parts of a Plant

Standards: A 2.1.2, A 2.1.3, A 3.1.4, A 5.1.7

Benchmarks:

- Comprehends at a literal level
- Writes legibly
- Uses phonetic spelling to write independently
- Refers to word walls/word banks/labels/dictionary to support spelling
- Clearly communicates ideas and experiences

Objectives: Students will be able to identify and write about the 4 major parts of a traditional flowering plant as stated by the FOSS science series, Harcourt Reading Series and PA Standards.

Materials: live plant, diagram of plant with detachable labels, variety of seed packets (enough for each child to have 1), paper cut to double the size of seed packets and folded (2 for each child), pencils, crayons/markers, the book “Seeds Grow” by Angela Medearis

Anticipatory Set: Review with students the process of planting seeds from the previous lesson. Explain that once seeds sprout they will begin to develop special parts with special jobs. Display a live plant (with a flower) and have students brainstorm what part of the plant might have a particular job.

Teacher Activities (Procedure)

1. Read aloud, “Seeds Grow” by Angela Shelf Medearis
2. Discuss the life cycle of a plant from a seed to a shoot to a mature plant.
3. Discuss the job of: roots, stem, leaf, and flower. Have students help to label a large diagram of a plant with the stem, leaf, roots, and flower by attaching the labels.
4. After students attach labels, call on volunteers to discuss the jobs of each part.
5. Discuss how students will create “Seed Packet Booklets” by cutting seed packet, dumping seeds (save for later project), stapling 4 pages (2 folded) in each booklet to describe parts of plant and jobs with illustrations. Show model (prepared ahead of time). One page for roots (I help to gather water and nutrients), one for stem (I carry the water/nutrients to the leaves), one for leaves (I make the food), and one for flower (I make the seeds).
6. Have students return to seats and create “Seed Packet Booklets”.

Student Activities:

- Anticipating/exploring plant part jobs
- Labeling diagrams
- Assembling booklets and creating drawings/writings

Conclusion

After students have finished with assembling seed booklets allow them to share their projects with a buddy and practice quizzing each other on specific parts of the plant and the role of the part.

Evaluation: Students will be evaluated on their ability to make inferences, following oral instructions, and answering verbal questions.

Lesson 10: Seeds

Standards: D 5.1.5, D 6.1.6, A 5.1.7, A 3.1.4

Benchmarks:

- Identifies/applies concepts of 2-3 dimensional shapes
- Clearly communicates ideas and experiences
- Uses phonetic spelling to write independently

Objectives: Students will be able to sort, compare, and write descriptions about different seeds according to the Scott Foresman Math Series, Harcourt Reading Series, and PA Standards.

Materials: variety of seeds (with different shapes and colors), worksheet for recording different types of seeds (see sample below), pencils, chalkboard or chart paper

Anticipatory Set: Show children a mixed group of magnets or other small items. Ask the students to sort the objects by different colors and shapes. Explain the word “trait” as shape, color, size, etc.

Teacher Activities (Procedure)

1. Explain to children how a table is used to help us organize information like traits.
2. Model how to fill in a table by using large copy of student worksheet or draw a chart on the chalkboard with headings “color and shape”.
3. Use container of seeds from activity 9 and explain to students that they are going to sort seeds by traits.
4. Model how to sort seeds into different piles and also how to fill in the student worksheet containing the table by writing as many different colors and shapes the seeds can be sorted into.

Sample:

Sorting Seeds by Traits Table

Color	Shape
an	oval
white	round
	pointed at one end
	(continue table)

Student Activities:

- Exploring with sorting of objects
- Identifying properties of seeds
- Recording data in a table

Conclusion: When students have sorted seeds into piles of as many colors and shapes possible, have students share findings with the class. Have students recall the importance of seeds and plants.

Evaluation: Students will be evaluated on their ability to sort objects by traits, their ability to follow verbal directions, and their ability to complete/interpret data from a table.

Conclusion:

At the end of the unit, have students recall the importance of plants and animals, how they work together, and how without them we would not have food. Allow students to create a page for a class book on all of the facts they have learned about farms. Celebrate with a farm fresh vegetable tasting party!

