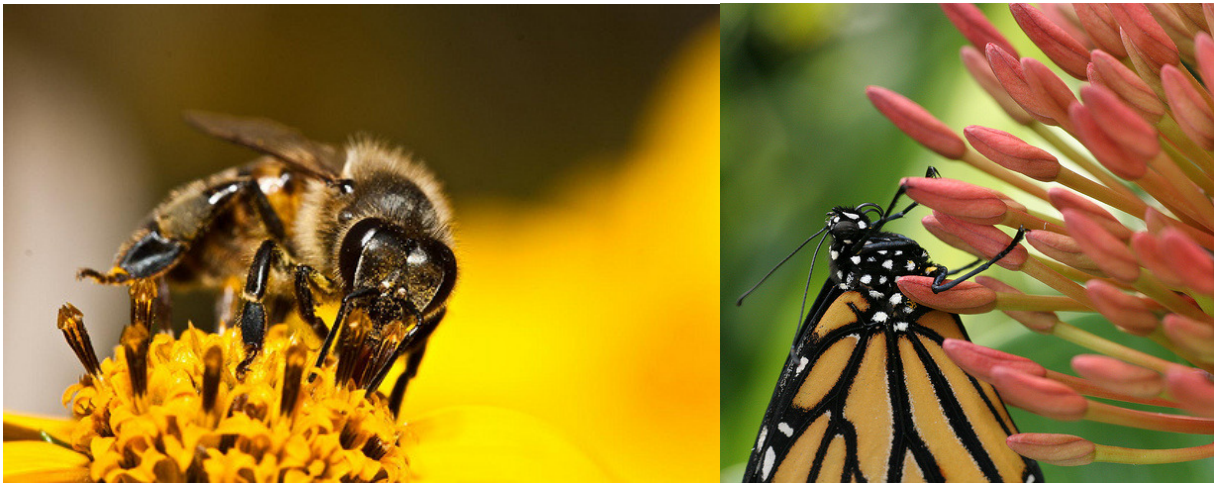


Buzzing For Blooms



How pollinators such as bees and butterflies work together with plants for pollination.

2nd Grade Unit Plan

Time Frame: One Month~24 days

LeAnn Larson

Name: LeAnn Larson

Unit Title: Buzzing for Blooms: How pollinators such as bees and butterflies work together with plants for pollination.

Target Grade: Second Grade

Time Frame: One Month- 24 class days

References Utilized:

Books:

Designs of Nature, Honeybees. Pgs. 234-241

Heiligman, Deborah. From Caterpillar to BUTTERFLY. Harper Collins Publishers. 1996

Lovel, John. The Flower and the Bee: Plant Life and Pollination. Nabu Press. 2008

Micucci, Charles. The Life and Times of the Honeybee. Sandpiper. August 1997

Scrace, Carolyn. The Journey of a Butterfly (Lifecycles). Franklin Watts Ltd. March 2003

Slade, Suzanne. What if There Were No Bees? A Book About Grassland Ecosystem (Food Chain Reactions). Picture Window Books, 2009.

Videos:

Butterflies and Bees. Discovery Education. 2001. Discovery Education. April 2010. <http://streaming.discoveryeducation.com/>>

How they live: Bees. Discovery Education.1993. Discovery Education. April 2010. <http://streaming.discoveryeducation.com/>>

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Wild by nature for kids: The blooms and the bees. Discovery Education. 2003. Discovery Education. April 2010. <http://streaming.discoveryeducation.com/>>

Worksheets:

Label the Butterfly Life Cycle. Worksheet. Enchanted Learning.com. April 2010.
<http://www.enchantedlearning.com/butterfly/>

Label the Butterfly. Worksheet. Enchanted Learning.com. April 2010.
<http://www.enchantedlearning.com/butterfly/>

Pollination Parties!. Worksheet. Discovery Channel School. March 2010.
<http://school.discoveryeducation.com/lessonplans/worksheets/tlc-butterflies/worksheet1.html>

Plant Vocabulary Matching Worksheet. Super Teacher Worksheets. 2010.
<http://www.superteacherworksheets.com/science/plant-matching.pdf>

Home School Helper. 2006-2010. "Label the Parts of a Plant Worksheet"

http://www.homeschoolhelperonline.com/worksheets/label_parts_plant.htm

Special Materials and Equipment:

- Computer/Projector/Internet Access
- Real Flower Sample (Tulip or Iris) (One for teacher and one for each group)
- Real Plant Sample (One for teacher and one for each group)
- Tweezers
- Hand lens (20)
- Paper Towel
- Markers/Colored Pencils/Crayons
- Pencil
- Observation Journals
- Clear Plastic Cups
- Clear extract scents (ex. Peppermint, Mint, Lemon, Coconut, Banana, Lemon, Cinnamon, Vanilla) (*Note: If the extracts are not clear: paper cups can be use instead and covered with aluminum foil with small holes poked in the top to smell. This way the color will not reveal the scent.*)
- Cotton Balls (at least 5 per clear plastic cup)
- Flower Place Holders for Scent Testing
- A Bee's Nose Knows testing data sheet (designed by myself)
- Scent Identification Chart
- Yellow Balloons
- Giant Flower (for pollination simulation)
- Honey
- Spoons
- Clear tape
- Pictures of bees and butterflies
- Live caterpillars/butterflies
- Construction Paper

- Chart Paper
- Scissors
- Glue
- Tervo Strawberry Field (Field Trip)
- Bee Puppet
- Word wall with pictures of bees, butterflies, and plants as well as new vocabulary words as the unit progresses

Grade Level Content Expectations:

Science Processes- Inquiry Process

S.IP.02.11- Make a purposeful observation of the natural world using the appropriate senses.

S.IP.02.12- Generate questions based on observations.

S.IP.02.14- Manipulate simple tools (ruler, meter stick, measuring cups, hand lens, thermometer, balance) that aid observation and data collection.

S.IP.02.16- Construct simple charts and graphs from data and observations.

Inquiry Analysis and Communication

S.IA.02.12- Share Ideas about science through purposeful conversation.

S.IA.02.13- Communicate and present findings of observations.

Life Science-Organization of Living Things

L.OL.E.1 Life Requirements- Organisms have basic needs. Animals and plants need air, water and food. Plants also require light. Plants and animals use food as a source of energy and as a source of building material for growth and repair.

L.OL.02.14- Identify the needs of plants.

L.OL.E.2 Life Cycles- Plants and animals have life cycles. Both plants and animals begin life and develop into adults reproduce, and eventually die. The details of this life cycle are different for different organisms.

L.OL.02.22- Describe the life cycle of the familiar flowering plants including the following stages: seed, plant, flower, and fruit.

Science Process Skills Utilized:

Observing

Predicting

Communicating

Planning an investigation

Collecting/recording data

Drawing conclusions

Facets of Understanding Utilized:

Explain how flowers and pollinators work together for a common goal.

Apply observations by creating drawings and writings and presenting a final project.

Perspective of life without bees and butterflies.

Empathy for the hard working bee who travels long distances for the sake of making food.

STAGE ONE: DESIRED RESULTS

Established Goals:

1. The students will be able to develop an understanding of the basic needs of animals through the study, care and observation of the caterpillars and the stages they go through.
2. Students will understand that all living things have a life cycle
3. The students will be able to appreciate the contributions that pollinators have on the environment and our food supply.
4. The students will be able to broaden their understanding of bees, butterflies and plants as they learn more about pollination and how they affect one another.

Overarching Understandings:

1. All living things require the basic needs of life (air, food, water) for survival.
2. All living things have a life cycle including insects and humans that eventually result in death.

3. All living things have specific body parts that perform essential life functions for survival.
4. If pollinators such as bees and butterflies disappeared the scale of the food supply for humans and animals would be affected.

Essential Questions:

1. To what extent do all living things need and depend on each other?
2. Are pollinators such as bees and butterflies responsible for human life?
3. What would happen if bees and butterflies disappeared?
4. Are the life cycles of butterflies and humans alike?

Knowledge and Skills:

1. Students will develop an understanding that plants and animals have basic requirements for maintaining life, which include a need for air, water and a source of energy.
2. Students will develop an understanding that all plants and animals have a definite life cycle, body parts and systems to perform specific life functions.
3. Students will be able to describe the life cycle of familiar flowering plants including the stages: seed, plant, flower and fruit.
4. Students will be able to describe and draw the life cycle of butterflies.
5. Students will be able to simulate the pollination process through scent and motion.

STAGE 2: ASSESSMENT EVIDENCE

Performance Tasks and Projects:

1. Plant dissection: The students will dissect a flower and plant to observe and gain further understanding of its parts and components. This will be assessed by the students completed worksheets and plant diagrams.

2. Caterpillar to Butterfly Lifecycle Drawings: Students will create lifecycle drawings of the stages of a caterpillar to butterfly. This will be assessed by observation and a rubric that will be sent home to the parents.

3. Bee Simulation Activity: The students will participate in several bee simulation activities to enhance their understanding of how bees work. The students will participate in scent identification by trying to guess what the correct scents are. They will also scout for scents by trying to locate a specific scent, and finally students will reenact the pollination process by carrying large pollen (balloons) without using their hands back to the hive. This will be assessed by the completed data sheets and by observation.

4. Pollination Book: The students will create a book on pollination along with a daily observation journal on the classroom caterpillars. The teacher will bind all of the pictures, diagrams and observation writings together for each student to create the book. This will be assessed by a rubric and will be sent home to the parents.

Quizzes, Tests, and Academic Prompts:

1. There will be quizzes on day 6, 12, 19. Day 6 will be on the parts of a plant and consist of matching and short answer. Day 12 will be on the parts of a butterfly and the butterfly life cycle. It will consist of labeling with a word bank and matching. Day 19 will be on the parts of a bee and how bees pollinate and consist of matching and short answer.

2. On day 21 the students will take a field trip to a local berry farm and to meet a local beekeeper. The students will experience what it's like to run a large farm and observe how to take care of a bee hive and what tools are required.

Other Evidence (observations, journals, work samples, portfolios):

1. The students will be making observations every day on the growth and transformation of the caterpillars and will be recording them in their science observation journals.

2. The students will also do a write up about what they predict the caterpillar will look like or how it will change for the upcoming day and then will evaluate their predictions.

3. The students will save all of their work including drawings and diagramming in a portfolio that will be added to their book at the end of the unit.

4. The students will take a field trip to a local strawberry farm and to meet a local beekeeper Todd Gemelli. There they will learn the importance of a farm and what is involved and necessary to maintain one and the factors that play in having successful

crops. They will also get to observe a live bee hive and learn what types of equipment a beekeeper uses and sample local honey. Students will return to the classroom to write an entry in their journals about what they learned and observed during the field trip, as well as drawing a picture for their pollination book.

END-OF UNIT ASSESSMENT

Teacher Instructions:

Students will individually create their own book about pollination. This will include all components including: the parts of both bees and butterflies, the life cycle of butterflies, the parts of plants, and the pollination process. This will be a compilation of the students' everyday observations, drawings and thoughts and explanations. Each student will present their book to the class using the author's chair and then will explain what they learned about bees, butterflies, the parts of plants, and how they work together to complete the pollination process. The students will also write out a written evaluation that they will fill out after the completion of their book.

Student Instructions:

To end our unit on pollination, each of you will be making your own book which will include the following components: the life cycle of a butterfly, drawings of the parts of a bee and butterfly, identification of the main parts of a plant. These book components will be based on your observations and thoughts during the unit and should include drawings and explanations of the pollination process. Your book must be colorful and include a cover page with title, picture, and author. You must do your best work when writing, use capital letters, proper punctuation and use complete sentences. You will also be responsible to complete a self evaluation sheet with the teacher during a mini conference that will ask you questions like what you learned during this pollination unit.

You will also be required to use the author's chair to present and read your book to your classroom audience. You should be proud of all your hard work, so you should speak with plenty of enthusiasm when presenting in the author's chair.

End-of-Unit Assessment Grading Rubric

COVER PAGE	TITLE	AUTHOR'S NAME	ILLUSTRATION/ DRAWING	COLOR
ONE POINT FOR HAVING EACH	1	1	1	1
DRAWINGS/ DIAGRAMS	Has all required drawings and diagrams, neat and uses best work	Has most of the required drawings and diagrams, mostly neat	Has some of the required drawings and diagrams, somewhat neat	Has very few of the required drawings and diagrams, not neat or best work
POSSIBLE POINTS	5	4	3	2
WRITING/ JOURNALS	Uses best writing skills, neat handwriting and proper use of punctuation	Mostly uses best writing skills, handwriting mostly neat and punctuation is mostly correct	Writing skills are average handwriting skills are average and uses some punctuation	Writing skills are minimal, poor handwriting and poor use of or no punctuation
POSSIBLE POINTS	5	4	3	2
AUTHOR'S CHAIR PRESENTATION	Speaks clearly and gives good eye contact	Mostly clear and fair amount of eye contact	Clear, but no eye contact, or good eye contact but not clear	Doesn't speak clearly or has poor eye contact
POSSIBLE POINTS	5	4	3	2

Self Evaluation and Reflection of Pollination Book

Name: _____ Date: _____

Please take a few minutes to evaluate your performance. You will not be graded on this evaluation so feel free to be honest. This is intended to help you with future assignments.

1. Did you do your best work? Explain.

2. What was the best part about your book?

3. Was there anything you would change or do differently? What was it?

4. Do you feel you learned anything new from this unit? What new facts or things did you learn?

5. How well do you think your classmates responded to your book while you were presenting in the author's chair?

6. What grade do you feel that you deserve based on the work that you presented and turned in?

STAGE 3: LEARNING PLAN

Day 1: To introduce the unit to the students being with a KWL about pollination. First ask the students what they already know about pollination and what is involved and necessary for the process. Then record their answers on chart paper for future reference. Then ask the students what they want to know about pollination and record their answers on the same paper. Read the book *The Flower and the Bee: Plant Life and Pollination* by John Lovel and have a class discussion on it. Ask the students what they learned that was new.

Day 2: Introduction to plants by beginning with a KWL. First ask the students what they already know about plants and write it on the chart paper from the previous day. Then ask the students what they want to know and record their answers on the chart paper. Begin introducing plant vocabulary and placing the new words along with pictures onto the word wall for the unit.

Day 3: Students will continue to learn about plants and will discuss their life cycle. Play the video *The Parts of a Flowering Plant*. Discovery Education. 2005. Discovery Education. March 2010. <http://streaming.discoveryeducation.com/>>

Day 4: Plant Dissection: Before class the materials needed for this lesson will be distributed onto individual trays for each group. Each tray will include a real flower sample, real plant sample, tweezers, hand lens (one for each group member), and paper towel. One the trays are put together they may be covered and put aside until needed. The students will work in pairs for this lesson to maximize visual and hands on observation. They will be randomly selected by picking number sticks out of the can. In the lab there will be one group per lab table. The teacher will lead the dissection as the students follow along with their own materials. Once the main parts have been identified and explained along with their function the students will be free to further observe and explore their own specimen for further knowledge and understanding.

Day 5: Pass out plant labeling worksheet and plant vocabulary worksheets. Students will be instructed to work individually. The students will be free to add any new

vocabulary words to the word wall. Review current words on the word wall with the students.

Day 6: The students will work on a life cycle drawing of plants (seed, plant, flower, fruit). Students will be quizzed on the parts of a plant (matching, short answer).

Day 7: Introduction to butterflies. Begin with a KWL about butterflies. First ask the students what they already know about butterflies and record it on the chart paper. Then ask the students what they want to learn about butterflies and record it on the same chart paper. Read *From Caterpillar to BUTTERFLY* by Deborah Heiligman. Then ask the students what they learned about butterflies and record their answers on the chart paper. Continue to save the chart paper to add onto through the unit. Add any new vocabulary words to the word wall.

Day 8: Caterpillar introduction: Introduce the new additions to the classroom to the students: caterpillars and one larva. Explain to the students that they will be observing the caterpillars and larva for the remaining unit. Introduce the scientific journals and show how to record observations. Have the students record their first observations. The observations can be completed as part of a center. Explain to the students they will be creating a book about pollination from their observations, so remind the students to do their best work. Have the students predict what will happen to the caterpillars and what they will look like by the end of the unit by doing an additional write-up in their journals.

Day 9: Begin the class by having the students observe the caterpillars and larva and write their observations in their science journals. Read the book *The Journey of a Butterfly* by Carolyn Scrace. Pass out the label the butterfly and butterfly stage worksheets and have the students begin working on them.

Day 10: Begin the class by having the students observe the caterpillars and larva and write their observations in their science journals. Have the students finish working on the worksheets from the previous day. Students will add any new words to the word wall and the teacher will review the existing words with the students.

Day 11: Begin the class by having the students observe the caterpillars and larva and write their observations in their science journals. Assign the butterfly life cycle drawing assignment. Have the students fold a piece of white construction paper into four squares. The student will write the appropriate stage in each square, draw a picture, and then write about the stage in each of the four spaces.

Day 12: Begin the class by having the students observe the caterpillars and larva and write their observations in their science journals. The students will be able to finish their butterfly life cycle drawings. A short quiz will be given on the parts of a butterfly and life cycle. (the quiz will be labeling with a work bank provided and matching).

Day 13: Begin the class by having the students observe the caterpillars and larva and write their observations in their science journals. The students will watch the video

Butterflies and Bees. Discovery Education. 2001. Discovery Education. April 2010.
<http://streaming.discoveryeducation.com/>> and then have a class discussion.

Day 15: Begin the class by having the students observe the caterpillars and larva and write their observations in their science journals. Introduction to bees by beginning with a KWL. First ask the students what they already know about bees and write it on the chart paper. Then ask the students what they want to know and record their answers on the chart paper. Begin introducing the bee vocabulary and place the new words along with pictures onto the word wall for the unit. Read *The Life and Times of the Honeybee* by Charles Micucci and then discuss. Write any new knowledge on the chart paper.

Day 16: Begin the class by having the students observe the caterpillars and larva and write their observations in their science journals. Watch the video *How they live: Bees.* *Discovery Education. 1993. Discovery Education. April 2010.*
<http://streaming.discoveryeducation.com/>>

Day 17: Begin the class by having the students observe the caterpillars and larva and write their observations in their science journals. Introduce the idea of how bees are attracted to scent for pollination. Have a class discussion about bees and scent. The students will do a bee scent simulation "A bee's nose knows". After the students complete the scent simulation they will then do a scout activity by trying to go out and identify specific scents amongst others.

Day 18: Begin the class by having the students observe the caterpillars and larva and write their observations in their science journals. The students will watch the video *Wild by nature for kids: The blooms and the bees.* *Discovery Education. 2003. Discovery Education. April 2010.* <http://streaming.discoveryeducation.com/>> The students will then participate in the bee pollination simulation.

Day 19: Begin the class by having the students observe the caterpillars and larva and write their observations in their science journals. The students will take a quiz about the parts of a bee and how they pollinate. The students will watch the video *Insects that help Us and insect pests (food).* *Discovery Education. 1986. Discovery Education. April 2010.* <http://streaming.discoveryeducation.com/>> and then have a class discussion.

Day 20: Begin the class with the last observation of the caterpillars and larva. Have the students write their final entry in their observation journals. Then have the students look back on their original prediction in their observation journal and do a new write up about their findings and write a hypothesis. Make connections with plants and pollinators by reading the book *What if There Were No Bees? A Book About Grassland Ecosystem (Food Chain Reactions)* by Suzanne Slade and then have a class discussion.

Day 21: Field Trip: The students will take a field trip to a local strawberry farm and to meet a local beekeeper Todd Gemelli. There they will learn the importance of a farm and what is involved and necessary to maintain one and the factors that play in having successful crops. They will also get to observe a live bee hive and learn what types of

equipment a beekeeper uses and sample local honey. Students will return to the classroom to write an entry in their journals about what they learned and observed during the field trip, as well as drawing a picture for their pollination book.

Day 22: The class will have a discussion about the field trip and what they learned. The pollination parties worksheet will be passed out to be finished. The students will be instructed to finish any worksheets or drawings that need to be finished and well as being instructed to work on a title page for their pollination book. The title page must include a title, authors name, a picture and be colored. Remind the students that this book will be bound and to do their best work.

Day 23: The book binding process will begin. Students will continue to finish any remaining work as this will be the last day.

Day 24: Authors Chair Presentations: Students will present their pollination books to the class using the author's chair. The students should speak clearly and use eye contact when giving their presentations. The students will also have to complete a self evaluation on their pollination books. This will not be graded or affect their grade in any way. The class will complete the KWL that they originally started by filling it what they learned during the pollination unit.

Self-Assessment of Unit Plan

I feel that this unit plan process has made me grow as a future teacher in so many ways. In the beginning I was intimidated and even uncomfortable with the idea of teaching science as it is not one of my minors. The understanding by design process has shown me a way to guide students through the learning process while holding them more accountable for their own education. The understanding by design process works backwards but makes complete sense compared to other unit methods I have learned previously. I feel that I have completed a unit plan that will challenge students, make them think and explore, and learn my expected goals. I have included several worksheets for future reference as well as two lesson plans. My unit is set up to take 25 days, this could be tweaked to accommodate more or less time if needed. If I had more time I would write up more lesson plans to complete this unit further, but overall I am very pleased with how it turned out.

