

# Interesting Insects

**Grade Level or Special Area:** 2<sup>nd</sup> Grade

**Written by:** Jenny Gambill, Platte River Academy, Highlands Ranch, CO

**Length of Unit:** Eight lessons (11 days; one day = 40-50 minutes)

## I. ABSTRACT

In this unit students will learn about the characteristics of insects. They will explore insects through cooperative learning, group projects, class discussions, hands on opportunities and poetry. This unit ends with an insect project presentation by each student.

## II. OVERVIEW

### A. Concept Objectives

1. Students understand the characteristics of living things, the process of life, and how they interact with each other and their environment. (Colorado State Science Standard #3)

### B. Content from the *Core Knowledge Sequence*

1. 2<sup>nd</sup> Grade Science: Insects (pp. 59-60)
  - a. Insects can be helpful and harmful to people.
    - i. Helpful: pollination; products like honey, beeswax, and silk; eat harmful insects
    - ii. Harmful: destroy crops, trees, wooden buildings, clothes, carry disease; bite or sting.
  - b. Distinguishing characteristics
    - i. Exoskeleton, chitin
    - ii. Six legs and three body parts: head, thorax and abdomen
    - iii. Most but not all insects have wings.
  - c. Life cycles: metamorphosis
    - i. Some insects look like miniature adults when born from eggs, and they molt to grow (examples: grasshopper, cricket).
    - ii. Some insects go through distinct stages of egg, larva, pupa, adult (examples: butterflies, ants).
  - d. Social Insects
    - i. Most insects live solitary lives, but some are social (such as ants, honeybees, termites, wasps).
    - ii. Ants: Colonies
    - iii. Honeybees: workers, drones, queen
2. 2<sup>nd</sup> Grade Language Arts: Poetry (p. 44)
  - a. Bee! I'm expecting you (Emily Dickinson)
  - b. Caterpillars (Aileen Fisher)
  - c. Hurt No Living Thing (Christina Rossetti)

### C. Skill Objectives

1. Students will learn to make a distinction between insects and spiders through the use of a Venn diagram.
2. Students will be able to describe some characteristics of an insect.
3. Students will create a three-dimensional insect.
4. Students will identify an insects' size, environment, colors, body parts, type of movement, enemies and whether it is helpful or harmful.
5. Students will learn how to read a rubric.
6. Students will create their own insect.
7. Students will be able to identify the parts of an insect.

8. Students will learn the importance of pollination and how it works.
9. Students will indicate how insects are helpful and harmful.
10. Students know the order of the life cycle of a butterfly.
11. Students will learn that some insects molt.
12. Students will learn about a variety of social insects.
13. Students become experts on one social insect and present that insect to the rest of the class.
14. Student will learn to enjoy poetry.
15. Students will make connections between poetry and our unit on insects.
16. Students will make a class book with similes, for different types of insects.

### III. BACKGROUND KNOWLEDGE

- A. For Teachers
  1. Hirsch, E.D. *What Your Second Grader Needs To Know*
  2. McLaurin, Thad H. *Insect*
  3. Schwartz, David M. *Monarch Butterfly*
- B. For Students
  1. First Grade: Science: Living Things and Their Environments
  2. Kindergarten: Science: Plants and Plant Growth: Animals and Their Needs

### IV. RESOURCES

- A. Anne Rockwell, *Bugs are Insects* (Lesson Two)
- B. Baker, Wendy and Haslam, Andrew, *Make it Work! INSECTS* (Lesson Two)
- C. David M. Schwartz, *Monarch Butterfly* (Lesson Five)
- D. Hirsch, E.D. *What Your Second Grader Needs To Know* (Lesson Seven)
- E. Wood, Audrey. *Quick as a Cricket* (Lesson Eight)
- F. \*Optional- a great addition to this lesson is to order live caterpillars, and watch them change into adult butterflies. It makes a great hands-on teaching experience for the students. To find these, go to [www.insectlore.com](http://www.insectlore.com). (Lesson Five)

### V. LESSONS

#### Lesson One: Introduction (45- 50 minutes)

- A. *Daily Objectives*
  1. Concept Objective(s)
    - a. Students understand the characteristics of living things, the process of life, and how they interact with each other and their environment. (Colorado State Science Standard #3)
  2. Lesson Content
    - a. Insects (p. 59)
      - i. Insects can be helpful and harmful to people.
        - a) Helpful: pollination; products like honey, beeswax, and silk; eat harmful insects
        - b) Harmful: destroy crops, trees, wooden buildings, clothes, carry disease; bite or sting.
      - ii. Distinguishing characteristics
        - a) Exoskeleton, chitin
        - b) Six legs and three body parts: head, thorax and abdomen
        - c) Most but not all insects have wings.

- iii. Life cycles: metamorphosis
        - a) Some insects look like miniature adults when born from eggs, and they molt to grow (examples: grasshopper, cricket).
        - b) Some insects go through distinct stages of egg, larva, pupa, adult (examples: butterflies, ants).
  - 3. Skill Objective(s)
    - a. Students will learn to make a distinction between insects and spiders through the use of a Venn diagram.
    - b. Students will be able to describe some characteristics of an insect.
- B. *Materials*
  - 1. Overhead copy of Appendix A, Sample KWL chart
  - 2. Plastic insects and spiders; grouped in bags of 10 with a variety of insects and spiders; enough bags for each small group three to five students/group
  - 3. Appendix B, Venn Diagram (one for every student and an overhead)
  - 4. Appendix C, Venn Diagram teacher copy
  - 5. Pencil
- C. *Key Vocabulary*
  - 1. Insect – a tiny animal with six legs, usually two pairs of wings, and a body divided into three parts; bees, wasps, flies and mosquitoes are insects
- D. *Procedures/Activities*
  - 1. This lesson is designed to evaluate the background knowledge of the students. This is done by using a KWL chart. The K column will help one to find out what the students already know about insects. The W stands for what they want to know, and the last column is used at the end of the unit to find out what they have learned.
  - 2. Appendix A is needed for this discussion with the students. With this on an overhead, ask the students what they already know about insects. Students should respond with they have six legs, wings etc. If they do not, guide them to those answers. Write these responses in the *Know* column of the chart.
  - 3. Ask the students what they would like to learn about insects. Record this information in the *want to know* column. Discuss this information and if needed, ask them questions that might get them interested in learning about insects. Questions you may want to ask them are:
    - a. Are insects helpful?
    - b. How do they help us?
    - c. Do all insects have the same body parts?
    - d. Do they live together or alone?
  - 4. Save Appendix A for the culminating activity to discuss the *what we have learned* column. They will find out if their questions were answered and record what the students have learned.
  - 5. Divide students into small groups. Groups of three to five work best. You will need a bag of insects/spiders for each group.
  - 6. Students will work in cooperative groups. When working in groups remind students that they need to respect and listen to each other. Model what the group will look like. Gather three students around you. Explain to the students that this is a practice of what they will be doing. Take the bag of insects/spiders and pass them out to everyone in the group, including yourself. Once all have been passed out have each person in the group describe the pieces received. Once everyone has described them now ask the students to sort them, by characteristics that the animals might have into two columns. There is no right or wrong to this part of

the activity. They may decide to sort them by colors, size, six legs vs. eight legs or wings and no wings.

7. Let the students get into their own groups. Pass out the bags of insects/spiders to each group. The person you give the bag to gets to divide them between their groups. Have the students describe them and sort them.
8. Ask the students if all of the animals are insects. *They are not because some have eight legs.* Ask them how they can distinguish an insect from the other animal. What are the other animals called? *Spiders.* Have students divide the insects from the spiders.
9. Pass out the Appendix B- Venn diagram. With the overhead copy, ask the students what characteristics the insect has; write these characteristics in the side of the circle that says insects. Now ask what characteristics a spider has. Write these characteristics on the other side of the circles. Ask what they have in common. Write these answers in the middle of the two circles where they intersect. Appendix C has the answers for the teacher. Have students write these down on theirs as well.

E. *Assessment/Evaluation*

1. The teacher should go around the class and observe the students' ability to describe and sort their plastic insect/spider.
2. Students have completed the Venn diagram with similarities and differences between insects and spiders.

**Lesson Two: Assign Science Project (45 minutes)**

A. *Daily Objectives*

1. Concept Objective(s)
  - a. Students understand the characteristics of living things, the process of life, and how they interact with each other and their environment. (Colorado State Science Standard #3)
2. Lesson Content
  - b. Insects (p. 59)
    - i. Insects can be helpful and harmful to people.
      - a) Helpful: pollination; products like honey, beeswax, and silk; eat harmful insects
      - b) Harmful: destroy crops, trees, wooden buildings, clothes, carry disease; bite or sting.
    - ii. Distinguishing characteristics
      - a) Exoskeleton, chitin
      - b) Six legs and three body parts: head, thorax and abdomen
      - c) Most but not all insects have wings.
    - iii. Life cycles: metamorphosis
      - a) Some insects look like miniature adults when born from eggs, and they molt to grow (examples: grasshopper, cricket).
3. Skill Objective(s)
  - a. Students will create a three-dimensional insect
  - b. Students will identify an insects' size, environment, colors, body parts, type of movement, enemies and whether it is helpful or harmful.
  - c. Students will learn how to read a rubric.

B. *Materials*

1. *Bugs are Insects*, Anne Rockwell
2. *Make it work, INSECTS*, Baker, Wendy and Haslam, Andrew

3. Appendix D, Science Project Sheet (one copy for each student)
  4. Appendix E, Rubric for grading science project (one copy for each student)
  5. Appendix F, Sheet with different names of insects (one copy)
  6. Scissors (one pair)
  7. Glue (one stick)
- C. *Key Vocabulary*
1. Camouflage – color, shape, or other quality that acts like a disguise in nature
- D. *Procedures/Activities*
1. Gather the class together as you would for a read aloud. Introduce the book *Bugs are Insects*, by Anne Rockwell. Ask the class what they think the book will be about, making predictions. Begin reading the first page of the book, stop and talk about whether they think the Lady Bug is an insect or not. Ask why it is, or is not, an insect. Continue reading the book with the class. Ask them if their answer was correct. What makes an insect different from a spider? (This book is a review of what was learned in the previous lesson.) Answer: A spider has eight legs and two body parts.
  2. Download Appendix D. You will want to enter a date that this project is due. For the culminating activity the students will be presenting this project, use your calendar to figure out the date due. Enter these dates in and then print.
  3. This science project consists of two parts, learning about a specific insect and answering specific questions about this insect and creating a three dimensional insect. This project does require time at home and creativity. Students will need to use resources at home or the library such as books, Internet, encyclopedias. Read over the “Science project sheet” with the students. Ask if there are any questions. To be sure they understand the assignment, ask if they only need to make an insect. *No, they need to make a poster board or do an interview and somehow answer the questions on the sheet.* If students have questions as to how to make a 3 dimensional insect refer to the book *Make it Work! INSECTS* by Wendy Baker and Andrew Haslam. There are some really creative ideas in this book.
  4. Be sure everyone understands when this project is due.
  5. Pass out Appendix E. This is a rubric for grading the assignment. Go over this sheet with the students to be sure they understand what their expectations are. Be sure they know they need to answer all the questions in some sort of presentation, have a picture of their insect with the parts labeled and have a three dimensional representation of their insect.
  6. Assign insects to the students. Use Appendix F, and cut them out on the grid lines. Place them in a hat and have the students pick out their insect.  
**Accommodations:** For students that do not get much support from home you may want to give them an easier insect for example: a honeybee, an ant.
  7. Once they pick out their insect have them glue it on the square on Appendix D labeled, “My Insect.” You may want to make record of which insect each child has, in case this paper is lost. This can be done easily by making an extra copy of Appendix F and writing the students name on the insect that they picked.
- E. *Assessment/Evaluation*
1. Student participation in read aloud discussion.
  2. Science project completed and turned in on time.

### **Lesson Three: Edible Insects (45 minutes)**

#### **A. Daily Objectives**

1. Concept Objective(s)
  - a. Students understand the characteristics of living things, the process of life, and how they interact with each other and their environment. (Colorado State Science Standard #3)
2. Lesson Content
  - a. Distinguishing Characteristics
    - i. Exoskeleton, chitin
    - ii. Six legs and three body parts: head, thorax and abdomen
    - iii. Most but not all insects have wings
3. Skill Objective(s)
  - a. Students will create their own insect
  - b. Students will be able to identify the parts of an insect

#### **B. Materials**

1. Parent volunteer would be helpful for this lesson
2. Ice cream scoop
3. Plastic spoon for each student
4. One gallon of vanilla ice cream
5. Paper plates, enough for each student
6. Licorice, two, two-inch strings for each student
7. Six pretzel sticks for each student
8. Three Skittles candies for each student (one needs to be cut in half)
9. Magic shell chocolate topping

#### **C. Key Vocabulary**

1. Exoskeleton – the hard outer shell on an insect’s body
2. Chitin – the material that makes up the hard outer shell or the exoskeleton of an insect’s body
3. Thorax – the middle part of an insect’s body
4. Abdomen – the rear part of an insect’s body
5. Mandibles – mouth of an ant used to carry and break down food

#### **D. Procedures/Activities**

1. To prepare for this activity you need to cut one of each of the students’ Skittles in half. The parent volunteer may help you do this while you are doing step two.
2. Discuss with the class the three main body parts of an insect’s body. Tell them you want to draw an ant on the board and ask what you need. Three main body parts. Ask the students what the parts are called. *Head, Thorax, Abdomen*. How many legs does my ant need? *Six legs*. Draw the legs on your ant. Does it have anything else? *Antennae and mandibles (front of the head)*.
3. Give each student a paper plate, a spoon, three Skittles candies, two strings of licorice, and six pretzel sticks.
4. To more effectively use class time, have a parent help place three small scoops of ice cream side by side to form an ant’s body on each child’s plate.
5. The ant now needs eyes, have the students place the two whole skittles candies on the ant’s head. Place the two halves just below the eyes as the mandibles. Now insert the two licorice strings for antennae just behind the eyes.
6. Ants have six legs, three on each side, insert three pretzel sticks on each side of the thorax (the middle scoop of ice cream).
7. All insects have an exoskeleton or a hard shell. To make each insect have a hard shell pour Magic Shell topping over the entire ant. The Magic Shell topping will then harden over the ice cream.

8. Let the students enjoy their ant. Encourage them to talk about the parts of the ant. You may all want to eat the legs first, the eyes, antennae, head, thorax etc. Eat each body part together. (Activity Adapted from *Insects*, by Thad H. McLaurin p. 39.)
  9. Class discussion:
    - a. What did you learn from this activity?
    - b. What did you like about it?
    - c. What didn't you like?
    - d. What does exoskeleton mean?
    - e. Does every insect have one? *Yes.*
    - f. How many body parts do an insect have? *Three.*
    - g. Name the three body parts. *Head, thorax, abdomen.*
- E. *Assessment/Evaluation*
1. Students have correctly placed and can identify the parts of an ant.
  2. The teacher should listen and observe as students eat their ants and name the parts of the ant while they eat.

**Lesson Four: Pollination/ Helpful and Harmful Insects (45 minutes)**

A. *Daily Objectives*

1. Concept Objective(s)
  - a. Students understand the characteristics of living things, the process of life, and how they interact with each other and their environment. (Colorado State Science Standard #3)
2. Lesson Content
  - a. Insects can be helpful and harmful to people.
    - i. Helpful: pollination; products like honey, beeswax, and silk; eat harmful insects
    - ii. Harmful: destroy crops, trees, wooden buildings, clothes, carry disease; bite or sting.
3. Skill Objective(s)
  - a. Students will learn the importance of pollination and how it works.
  - b. Students will indicate how insects are helpful and harmful.

B. *Materials*

1. Large plastic container with a wide mouth
2. Pieces of candy (one for each student)
3. One container of cheese balls
4. Wet wipes (one for each student)
5. Scissors (one pair)
6. Tape
7. One large piece green construction paper
8. Two large pieces yellow construction paper
9. Appendix G Helpful/Harmful (one copy for each student)
10. Appendix H Helpful/Harmful Answer Key (teacher copy)
11. Appendix I Flower, pollination activity

C. *Key Vocabulary*

1. Pollen – the yellow powder that is found in the center of a flower
2. Pollinate/ pollination – to place pollen on the flower so that a new plant can develop
3. Fertilize – to bring a male germ cells to a female egg cell so that a new plant can develop; bees *fertilize* flowers by carrying pollen from one to another

D. *Procedures/Activities*

1. To prepare for this lesson, take the large plastic container and cover the outside with green construction paper. Now cut the yellow construction paper in an almond shape to represent petals of a flower. There is a master in Appendix I. Tape these pieces to the top outer ring of your plastic container. Your container should look like a large flower. Example in Appendix I.
2. Place the candy in the bottom of the plastic container. Now place the cheese balls over the candy.
3. I like to have my class on the floor for discussions, in a closer setting while I sit in a chair. This would be ideal for this part of the lesson. Many insects, bees in particular, help pollinate flowers. This lesson is designed to help the students understand what pollinate means. Hold up your large flower. Pretend that your hand is a bee, waving it in the air and making a buzzing sound. Ask the students where they usually see bees? *On flowers.* Make your hand go on (in) the flower. As you do this explain that flowers contain pollen in them. It is usually yellow in color and found in the center of the flower. When a bee lands on flower pollen sticks to them. Now stick your hand in the flower and roll it in the cheese balls to show that pollen stuck to you. Pull out your hand and show them the pollen. Just as the yellow stuck to my hand, the pollen sticks to the bees when they land on it.
4. When the bee flies and lands on another flower, what do you think happens? Does all the pollen stay on that bee? *The pollen falls off, which will help fertilize the flower so that new flowers can grow.*
5. Let the students take turns getting “pollinated” as they put their hand in the flower. They can reach in as they get pollen on their hands let them find a piece of candy at the bottom. Students might need a wet wipe to wash their hands after the pollen gets on it. (Activity Adapted from *Insects*, by Thad H. McLaurin p.29.)
6. Discussion. Ask the students,
  - a. How new flowers grow? *Bees carry pollen from one flower to the next.*
  - b. Are insects helpful? *Yes, they help new flowers to grow.*
  - c. What are some other ways insects help us? Students should be able to come up with most of these answers. If they are working on their insect project at home, they should have some good ideas. *Honey, silk, eats other insects, beeswax.*
  - d. What are some ways insects are harmful to us? *Destroy crops, eat trees, eat clothes, disease (west Nile virus) bite, and sting.*
7. Let the students go back to their seats. Pass out Appendix G. Individually have students work to list the ways insects are helpful and harmful. After a few minutes, let them work in pairs, and then in small groups to share answers.
8. Collect Appendix G.

E. *Assessment/Evaluation*

1. Teacher will collect Appendix G; USE Appendix H to grade.

**Lesson Five: Life Cycle (45 minutes)**

A. *Daily Objectives*

1. Concept Objective(s)
  - a. Students understand the characteristics of living things, the process of life, and how they interact with each other and their environment. (Colorado State Science Standard #3)

2. Lesson Content
    - a. Life cycles: metamorphosis
      - i. Some insects look like miniature adults when born from eggs, and they molt to grow (examples: grasshopper, cricket).
      - ii. Some insects go through distinct stages of egg, larva, pupa, adult (examples: butterflies, ants).
  3. Skill Objective(s)
    - a. Students know the order of the life cycle of a butterfly.
    - b. Students will learn that some insects molt.
- B. *Materials*
1. \*Optional- A great addition to this lesson is to order live caterpillars, and watch them change into adult butterflies. It makes a great hands-on teaching experience for the students. A class set of about 50 caterpillars cost about \$40. I purchase them on the Insectlore web site, [www.insectlore.com](http://www.insectlore.com)
  2. \*Optional – if you go to a pet store and ask for molt, they may give you a spider, snake, or crickets skin
  3. *Monarch Butterfly*, by David M. Schwartz
  4. Appendix J, Life cycle work sheet (one for each student)
  5. Appendix K, Stages of the Life Cycle (one for each student)
  6. Colored Pencils (for each student)
  7. Glue (for each student)
  8. Scissors (for each student)
- C. *Key Vocabulary*
1. Metamorphosis – the change in form that some animals go through in developing; the change from caterpillar to butterfly or from tadpole to frog are examples of metamorphosis
  2. Larva – the young form of an insect; a larva looks like a worm and has no wings. A caterpillar is the larva of a butterfly
  3. Pupa (chrysalis) – an insect in the stage of development between a larva and an adult
  4. Molt – to shed skin, feathers, hair or a shell before getting a new covering
- D. *Procedures/Activities*
1. \*Optional Activity- If you have ordered the caterpillars through Insectlore, talk about the change (if any) that they have made over time.
  2. If you did not order the caterpillars talk about the changes they make. Ask the students if anyone has observed the life cycle of a caterpillar. The caterpillars come very tiny and grow to almost double in size. Next, they start to spin their silk and hang upside down in a J shape. One to two days later their chrysalis begin to form. They stay in their chrysalis for about two weeks as they begin to develop into a butterfly inside this tiny shape. The chrysalis begins to emerge open and out comes an adult butterfly. Its wings are wet and full of red dye as it tries to spread its wings. The wings take about one to two hours to dry before the butterfly is ready to take flight.
  3. Read the book *Monarch Butterfly* with the class. This book has wonderful pictures and describes the life cycle of a butterfly in a very simple way. Another insect that goes through this same life cycle is an ant.
  4. After reading the story, give directions for Appendices J and K. Show the students Appendix K, this needs to be colored, doing their very best job. Next, cut out the squares and place them in order on Appendix K. Square one the first step in the life cycle and square two the next stage. Be sure students put their

name on Appendix K. Next, they need to use the word bank and label each stage of the life cycle of the butterfly.

5. After this activity regroup the class back together. Explain that all insects do not go through this life cycle or metamorphosis. Some insects such as grasshoppers and crickets look like miniature adults when they are born. As they get bigger they molt or lose their skin. Has anyone seen a snake's skin? When they grow, they crawl out of their old skin and have a new one. An insect is just like a snake. It crawls out of its old skin and has a new one underneath.

E. *Assessment/Evaluation*

1. Collect and grade Appendix K.

**Lesson Six: Exploring Insects through Literature (two days, 45 minutes each day)**

A. *Daily Objectives*

1. Concept Objective(s)
  - a. Students understand the characteristics of living things, the process of life, and how they interact with each other and their environment. (Colorado State Science Standard #3)
2. Lesson Content
  - a. Social Insects
    - i. Most insects live solitary lives, but some are social (such as ants, honeybees, termites, wasps).
    - ii. Ants: Colonies
    - iii. Honeybees: workers, drones, queen
3. Skill Objective(s)
  - a. Students will learn about a variety of social insects.
  - b. Students become experts on one social insect and present that insect to the rest of the class.

B. *Materials*

1. Grade level books on ants, honeybees, termites, wasps (see Appendix L)
2. Poster board (enough for each small group to have one)
3. Markers (a set for each small group)
4. Pencils
5. Appendix M, Student check off sheet
6. Appendix N, Rubric to grade poster presentation

C. *Key Vocabulary*

1. Social – living in groups or colonies

D. *Procedures/Activities*

**DAY 1**

1. Students will be working in small groups to teach themselves how insects work together. They will read materials and find the important information to later share with their classmates. Use Appendix L to help you choose appropriate literature for this activity. You will want a variety so that each social insect will be shared with the class. Each small group will have one book, or a page that is copied from a book to gain facts about their insect. It is okay for two or three groups to have the same insect. Each group will gather and share different information from those insects.
2. In a group setting, explain to the class that social insects work together to help each other. There are four types of social insects, ants, honeybees, termites and wasps. Explain that the students will become experts on their assigned insect and later share it with the class. They will need to make a poster board with the insect's name, important facts and pictures they want to share with the class.

This all needs to be shared with the class in a presentation tomorrow. They will be given some more time tomorrow to finish up. Remind students while working in groups to listen to each other's ideas and to stay on task.

3. Put students into small groups, three to five students/group. Assign each group an insect and give them a book (or photocopy of a page). Let students spread out around the classroom, and begin to research their insect.
4. After students have read through their material give them a piece of poster board and let them show their understanding of their assigned insect. Remind them they need to have a picture and a clear title and explain important information that they have learned.
5. Use Appendix M to check off students' participation and behavior while in group settings.

### **DAY 2**

1. Give the students 20 minutes to finish working on their poster. Before they begin working ask the students what they need to include on their poster. *Title, picture, and important information about their insect.*
  2. Give the students a five-minute warning so they can put finishing touches on their poster. With 20-25 minutes left of class, gather the students together, and let the groups share their posters with the rest of the class.
  3. Use Appendix N as a rubric to grade their poster presentation.
- E. *Assessment/Evaluation*
1. Students will be evaluated by their behavior using Appendix M to ensure active participation in this project.
  2. Students will be graded on their final project using the rubric in Appendix N.

### **Lesson Seven: Core Knowledge Poems (45-50 minutes)**

- A. *Daily Objectives*
1. Concept Objective(s)
    - a. Students understand the characteristics of living things, the process of life, and how they interact with each other and their environment. (Colorado State Science Standard#3)
  2. Lesson Content
    - a. Poems (p. 44)
      - i. Bee! I'm expecting you (Emily Dickinson)
      - ii. Caterpillars (Aileen Fisher)
      - iii. Hurt No Living Thing (Christina Rossetti)
  3. Skill Objective(s)
    - a. Student will learn to enjoy poetry.
    - b. Students will make connections between poetry and our unit on insects.
- B. *Materials*
1. Hirsch, E.D. *What Your Second Grader Needs To Know*
  2. Copy of poems (for each student)
- C. *Key Vocabulary*
- None
- D. *Procedures/Activities*
1. \*Optional- With the copies of the poems, have each student start a poetry notebook. This is a great place to keep any poetry you may study as well as all of the Core Knowledge poems.
  2. In a group setting, such as a reading corner, gather students around you to talk about poetry. If the students have a poetry notebook, have them bring it to the reading corner.

3. Pass out “Bee! I’m expecting you.” Have students read silently. Now read it out-loud to the students. Ask the students what this reminds them of. *After studying letters in Core Knowledge the students should say it is like a letter.* Ask who is writing it. *The fly.* Who are they writing to? *The bee.* What do you like about this poem? *Answers may vary.*
4. Pass out the poem “Caterpillars.” Let students take turns reading this with a partner. Then read it aloud to the class. This is a great poem to make connections with Lesson Five, life cycles, as it talks about how much caterpillars grow and turn into butterflies. What do you like about this poem? *Answers may vary.*
5. Pass out the poem “Hurt no living thing.” Have students wait to read it, and let students read aloud line by line. When they are finished, read the poem aloud to them again. Ask students what is this poem about. *Insects.* Why do you think this author choose to write about these things? *So we do not hurt them.* Have you ever hurt an insect? *Most students will reply yes.* Why do you think this author says that we shouldn’t? *Because we are bigger than them, they cannot defend themselves.* What do you like about this poem? *Answers may vary.*
6. Let the students divide into small groups and pick one of these three poems that they would like to present to the class. They may act it out or read it. Items around the classroom may be used as props. Lines do not need to be memorized. This is a fun approach to get students to interact with the poems on a more personal level.

E. *Assessment/Evaluation*

1. Participation in presentation of a poem.

**Lesson Eight: Quick as a Cricket, Class Book (40 minutes)**

A. *Daily Objectives*

1. Concept Objective(s)
  - a. Students understand the characteristics of living things, the process of life, and how they interact with each other and their environment. (Colorado State Science Standard #3)
2. Lesson Content
  - a. Insects (p. 59)
    - i. Insects can be helpful and harmful to people.
      - a) Helpful: pollination; products like honey, beeswax, and silk; eat harmful insects
      - b) Harmful: destroy crops, trees, wooden buildings, clothes, carry disease; bite or sting.
    - ii. Distinguishing characteristics
      - a) Exoskeleton, chitin
      - b) Six legs and three body parts: head, thorax and abdomen
      - c) Most but not all insects have wings.
    - iii. Life cycles: metamorphosis
      - a) Some insects look like miniature adults when born from eggs, and they molt to grow (examples: grasshopper, cricket).
      - b) Some insects go through distinct stages of egg, larva, pupa, adult (examples: butterflies, ants).
3. Skill Objective(s)
  - a. Students will make a class book with similes, for different types of insects.

B. *Materials*

1. Wood, Audrey. *Quick as a Cricket*
2. Notebook paper (one for each student)
3. Pencils (one for each student)
4. Colored pencils (for each student)
5. White construction paper 9"x 12" (one for each student)
6. Appendix O, an example of the class book page
7. Three, one-inch loose-leaf rings

C. *Key Vocabulary*

1. Simile – used to compare two things with the words *like* or *as*

D. *Procedures/Activities*

1. Gather the class for a read aloud. Read the cover of the book to the students. Ask them what they think the book will be about. Let the students make predictions. Read aloud the book *Quick as a Cricket*. Stop to discuss the book, as you feel necessary. Explain to the class there are many ways we can describe insects, and many fun and different qualities they have that we can learn about.
2. Together with the class names of insects that we have learned about. *Students may respond with bees, ants, crickets, grasshoppers, or flies (they may even name the insect they are assigned for their insect project)*. Write these names of insects on one side of the board or on one side of an overhead. Now have the class help think of characteristics that would help describe that insect. *For example: strong as an ant, busy as a bee, hops like a grasshopper, delicate as a butterfly.*
3. Assign each student an insect (picking names out of a cup, let them choose). Pass out a sheet of notebook paper and ask them to write a simile with their insect using the words *like* or *as*. Have them raise their hand and check spelling and to make sure the simile works.
4. Show the students Appendix O. Their writing goes at the bottom of the page and they need to draw a picture of their simile. *If I were to draw a picture of my simile what could I draw? An ant holding something heavy.* Now the students know what the finished product should look like. Be sure to tell the students to write the long ways (horizontal) on their paper, and put their name on the back of the sheet.
5. Pass out pieces of construction paper as you check each student's simile. Let them begin their class book page. When everyone is finished, three-hole punch these and bind the book together with loose-leaf rings.
6. Read aloud the book to the class.

*Assessment/Evaluation*

1. Completed page with legible writing and clear picture using a simile and an insect.

## VI. CULMINATING ACTIVITY

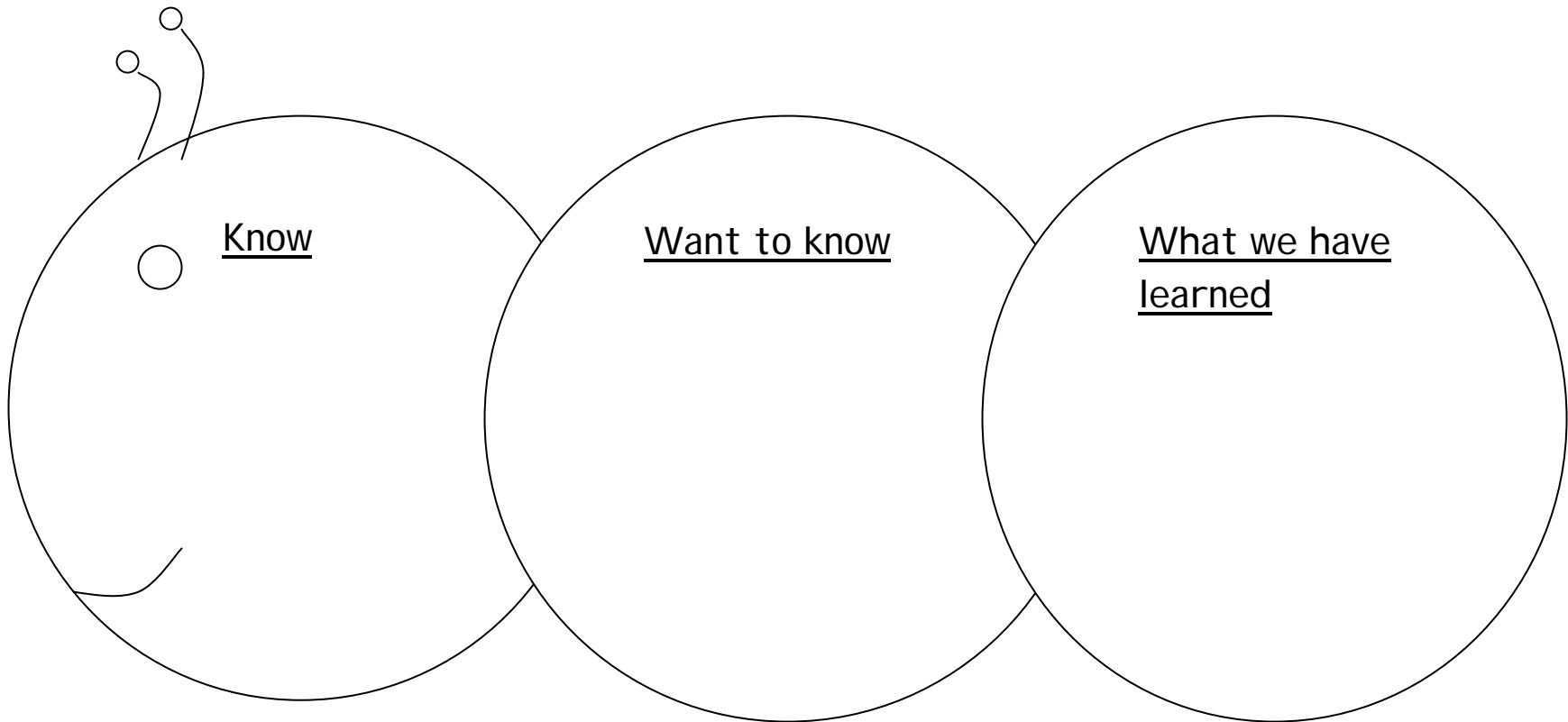
- A. This may take two days depending on number of students. Have the students share their Insect Project with the rest of the class. With your preference students may present from the front of the room with students at their desks, or you can have the class sit in the reading corner with the presenter in front of them. You will want enough copies of the rubric for each student, so that you can grade them while they are presenting.
- B. Appendix A, complete the L section, what they have learned about insects on the KWL chart.

## VII. HANDOUTS/WORKSHEETS

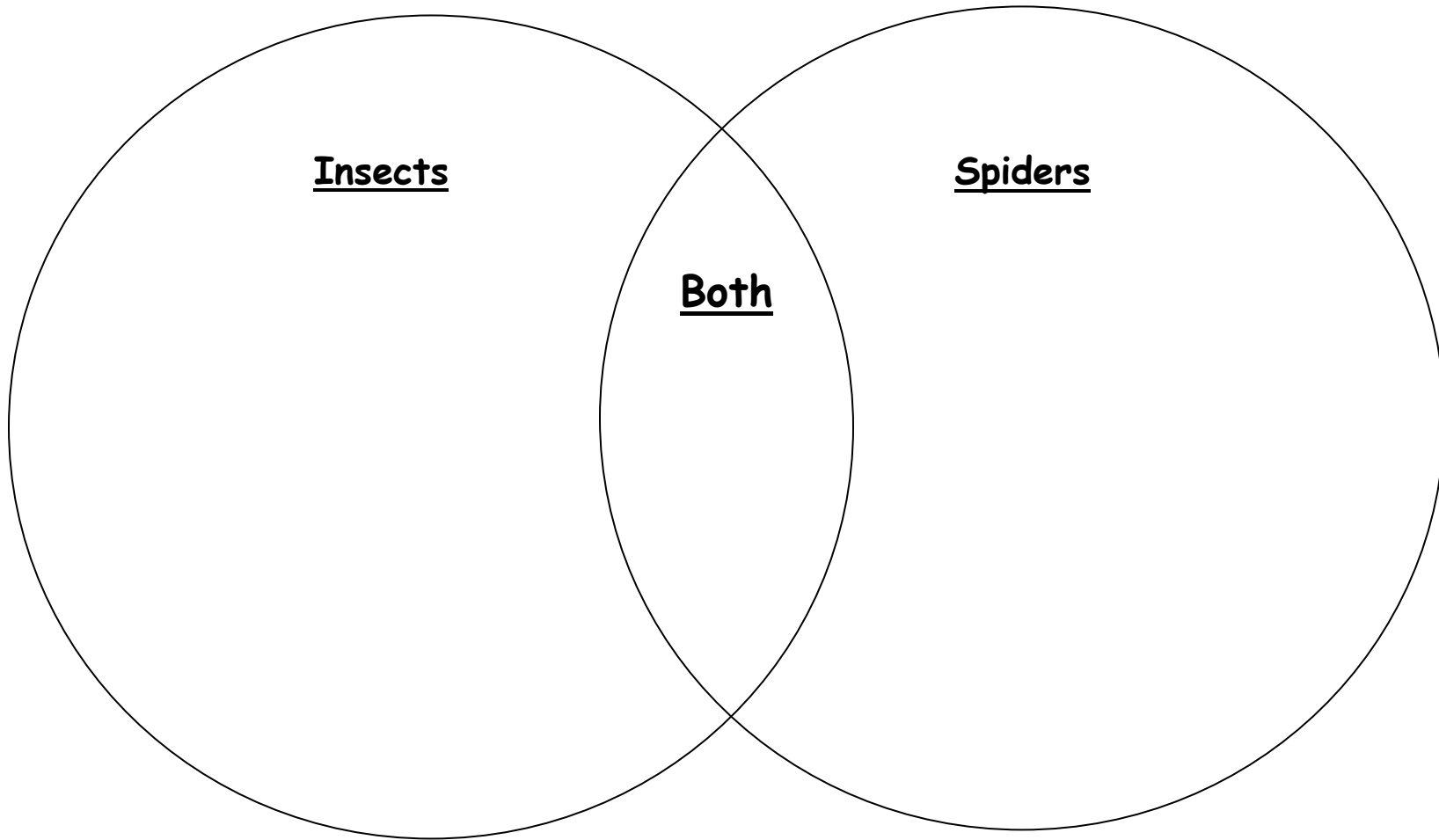
- A. Appendix A: Sample KWL Chart
- B. Appendix B: Venn Diagram
- C. Appendix C: Venn Diagram, teacher copy
- D. Appendix D: Science Project Sheet
- E. Appendix E: Rubric for grading science project
- F. Appendix F: Different insect names, for assigning insects for project
- G. Appendix G: Helpful/Harmful insects
- H. Appendix H: Helpful/Harmful insects answer key
- I. Appendix I: Flower, pollination activity master
- J. Appendix J: Life cycle work sheet
- K. Appendix K: Stages of the Life Cycle
- L. Appendix L: Book suggestion sheet
- M. Appendix M: Student check off sheet
- N. Appendix N: Rubric to grade poster presentation
- O. Appendix O: Example of the class book page

## VIII. BIBLIOGRAPHY

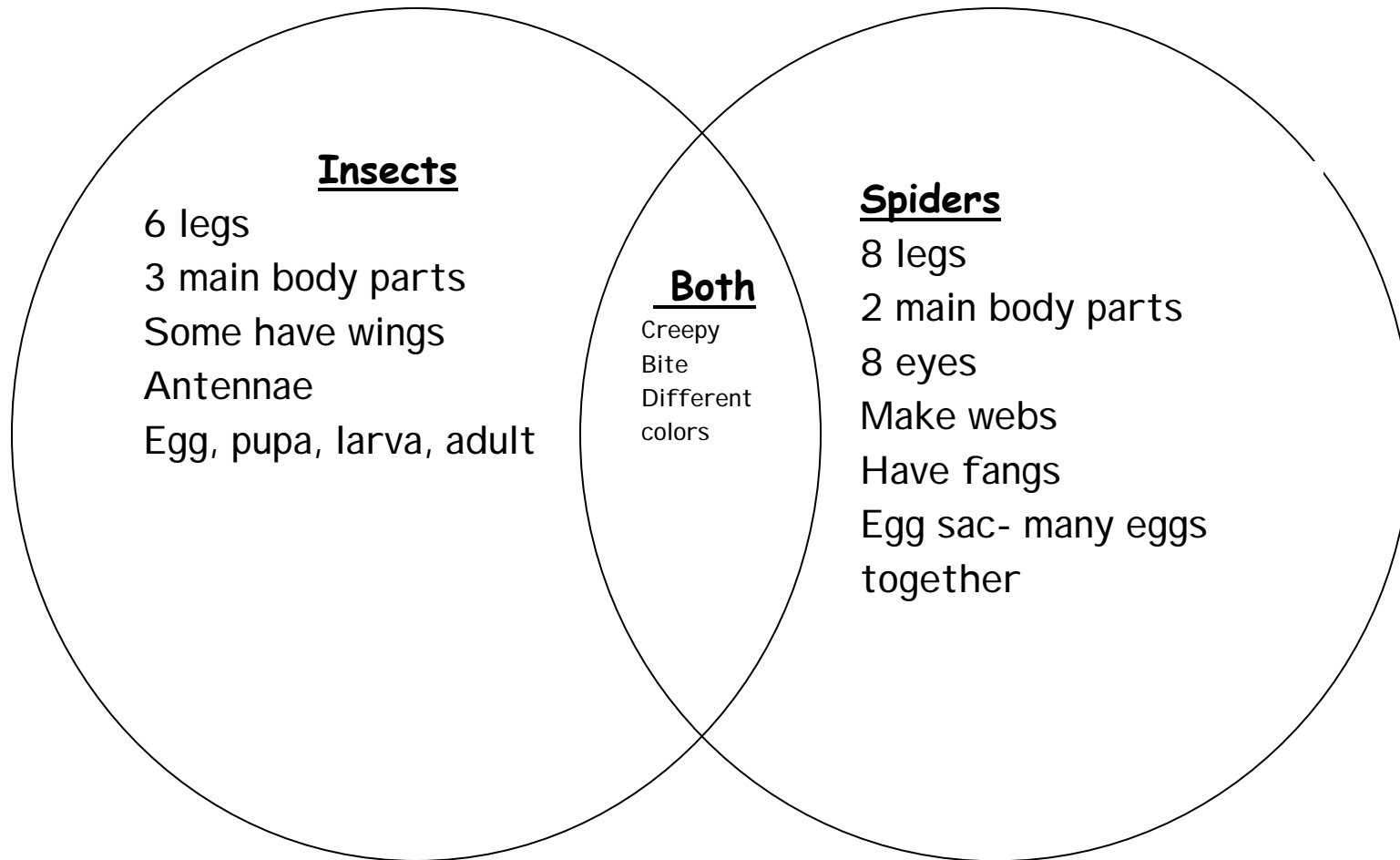
- A. Baker, Wendy and Haslam, Andrew. *Make it work! Insects*. New York, NY: Two-Can Publishing Ltd., 1993. 1-56847-257-9
- B. Hirsch, E.D., Jr. *What your 2<sup>nd</sup> Grader Needs to know*. New York, NY: Simon and Schuster Children's Publishing Division, 1995. 0-02742641-6.
- C. Holmes, Kevin J. *Bees*. Mankato, MN: Capstone Press, 1998. 1-56065-742-1.
- D. Holmes, Kevin J. *Spiders*. Mankato, MN: Capstone Press, 1998. 1-56065-605-0.
- E. Llewellyn, Claire. *I didn't know Spiders have fangs*. Brookfield, CT, 1997. 0-7613-0599-8.
- F. McLaurin, Thad H. *Insects*. Greensboro, NC: The Education Center, INC., 2000. 1-56234-388-2.
- G. Retan, Walter. *Armies or Ants*. New York, NY: Scholastic Inc., 1994. 0-7857-3268-3.
- H. Rockwell, Anne. *Bugs are Insects*. New York, NY: HarperCollins Publishers Inc. 2001. 0-06-028569-9
- I. Rubistar- Rubric-maker, <http://rubistar.4teachers.org/>
- J. Schwartz, David M. *Monarch Butterfly*. Huntington Beach, CA: Creative Teaching Press, Inc., 1999. 1-57471-579-8.
- K. Venn, Cecilia. *World Book's Animals of the world Ants and other Social Insects*. Chicago, IL: World Book, Inc. 2000. 0-7166-1205-4.
- L. Wood, Audrey. *Quick as a Cricket*. New York, NY: Scholastic Inc., 1982. 0-590-46900-2
- M. No author, [www.insectlore.com](http://www.insectlore.com)



Adapted from, *Insects*, McLaurin, Thad H.



Name \_\_\_\_\_



## Insect Science Project

We have begun studying Insects in science. We will be studying different attributes insects have and environments they live in.

Your assignment is to explore your insect and share with the class what you have learned through a presentation. You may use a poster board display, a journal entry of the day in the life of your insect, or interview your insect. Use your creativity and teach us about your insect.

Part 1: Items you must include in your report are the following:

<p><u>My Insect</u></p>
-------------------------

What is the size of your insect?

Does it have any special colors or camouflage?

Does it have special body parts such as wings as wings or stingers?

How does it move around?

What does it eat?

Where does it live?

Is it helpful, or is it pesky?

What are its enemies?

Picture of your insect with body parts labeled.

## AND

Part 2: Make a three dimensional representation of your insect. This is the fun part. Design, make or somehow create your insect. Enjoy, relax and let your imagination flow. Be ready to explain how you made your insect.

**Due: two weeks from today!** We will be sharing these in class. Students will be graded on how well they show their use of understanding of the insect and explaining it to the class, as well as their creativity.

Parents: The more the children do on their own the more they will learn!

## Appendix E

Name \_\_\_\_\_ Date \_\_\_\_\_

Insect Assigned \_\_\_\_\_

Presentation in form of (circle one): Poster board, journal entry, Interview

	<b>8</b>	<b>6</b>	<b>4</b>	<b>2</b>
<b>Required Elements:</b> Size, body parts, movement, food, live, helpful or pesky, enemies.	The presentation includes all required elements as well as additional information	All required elements are included in the presentation	All but one of the required elements are included in the presentation	Several required elements were missing
<b>Attractiveness</b>	The visual representation was exceptionally attractive in terms of design, layout, and neatness.	The visual representation is attractive in terms of design, layout and neatness.	The visual representation is acceptably attractive though it may be a bit messy.	The visual representation is distractingly messy or very poorly designed. It is not attractive.
<b>Graphics/labeled Parts</b>	Picture of insect reflects understanding of body parts and all are labeled and easily identified.	Picture of insect reflects understanding of body parts. One is missing, but all are labeled and easily identified.	Picture of insect is difficult to understand. Two body parts labeled or they are difficult to read and appear messy.	Picture of insect is messy and is difficult to read, unattractive and poorly designed.
<b>Oral Presentation</b>	Interesting, well rehearsed with smooth delivery that holds audience attention.	Relatively interesting, rehearsed with a fairly smooth delivery that usually holds audience attention.	Delivery not smooth, but able to hold audience attention most of the time.	Delivery not smooth and audience attention lost.
<b>3-Demensional Insect</b>	Inset reflects an exceptional degree of student creativity in their creation	Insect reflects creativity in students' creation.	Insect reflects a valid effort to but appears a bit disorganized.	Insect needed more creativity and effort.
<b>Mechanics</b>	Capitalization and punctuation are correct.	There is one error in capitalization or punctuation.	There are two errors in the capitalization or punctuation	There are more than two errors in capitalization or punctuation.
<b>Column Totals</b>				
<b>Total Points Possible: 48 points</b>				

## Appendix F

Goliath Beatle	Leaf Insect	Walkingstick	Stag Beatle	Crane Fly
Fire Ant	Mosquito	Snake Fly	Horsefly	Swallowtail Butterfly
Rove Beatle	Monarch Butterfly	Army Ant	Stinkbug	Biddy Dragonfly
Cotton Ball Moth	Fruit Fly	Water Boatman	Praying Mantis	Cat Flea
Aphid	Head Louse	Giant Water bug		

Cut these out to use for the students to glue onto their science project sheet. You may want to make an additional copy, to write their name on the insect that they picked to use for your own records.

# Insects

## Helpful

---

---

---

---

---

---

---

---

---

## Harmful

---

---

---

---

---

---

---

---

---

Name \_\_\_\_\_

# Insects

## Helpful

Pollinate

Honey

Bees Wax

Silk

Eat harmful insects

## Harmful

Destroy Crops

eat trees

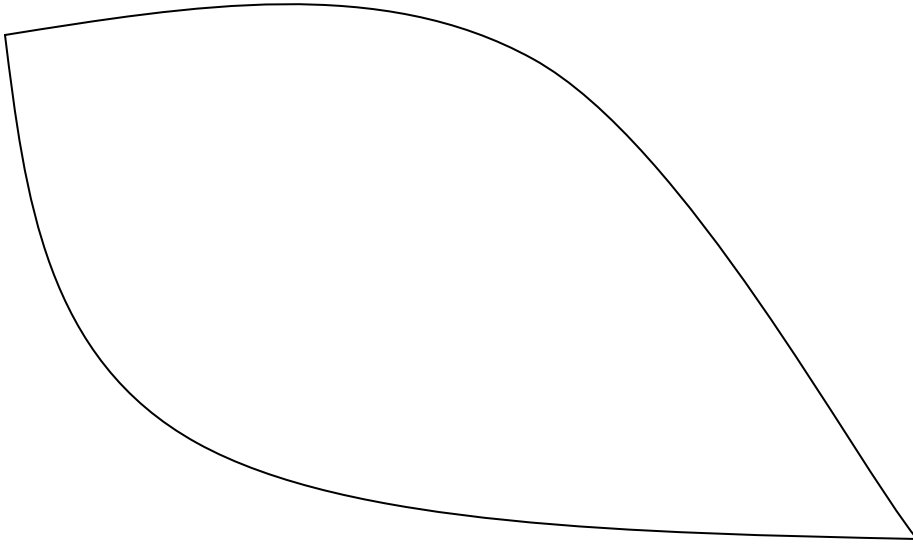
eat clothes

disease

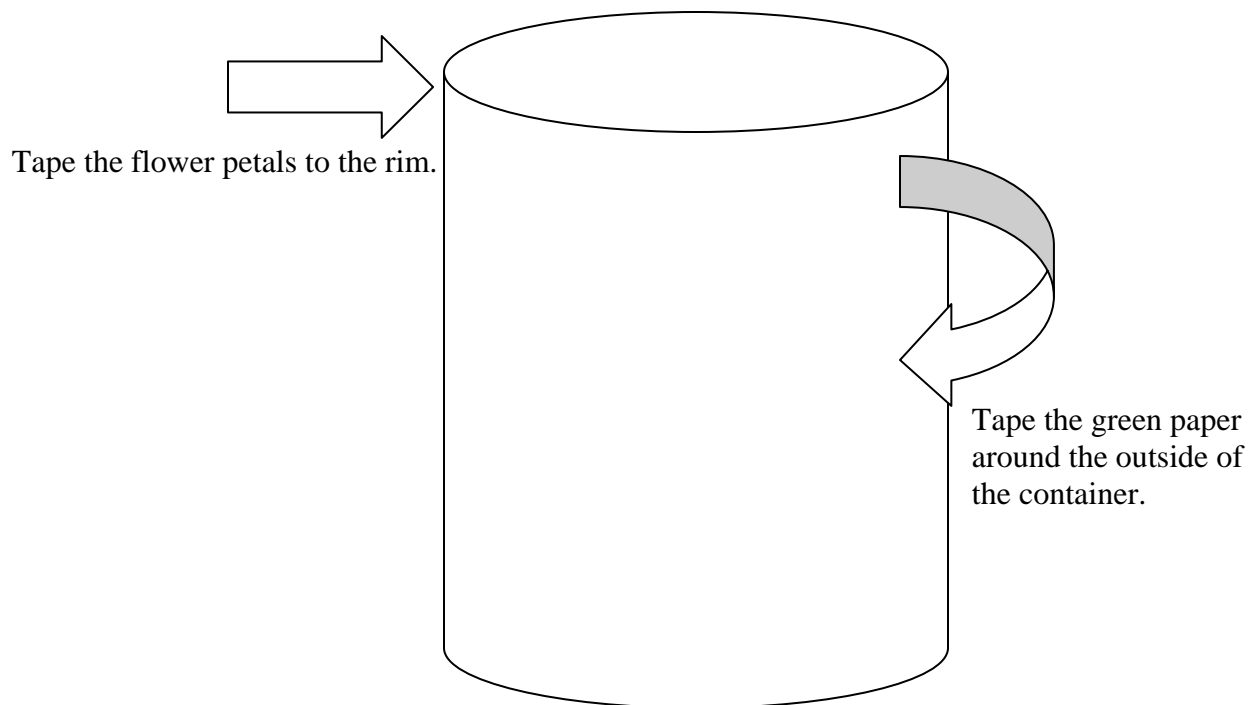
bite

Sting

## Appendix I



If needed use this shape as a guide for your flower petals to tape to the plastic container.



**Appendix J**

Name \_\_\_\_\_

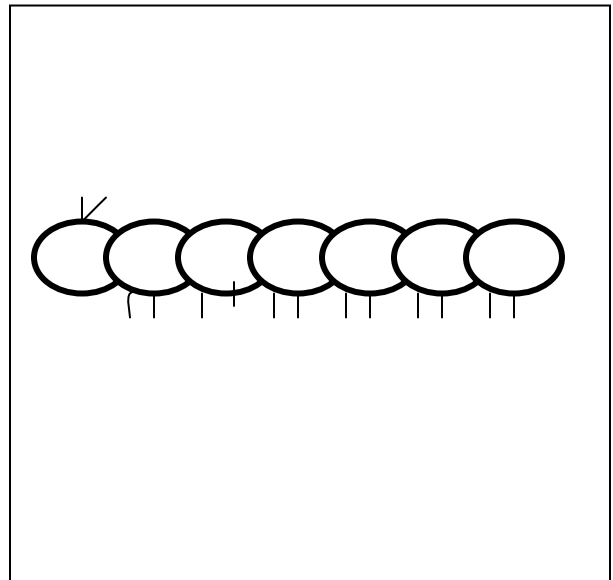
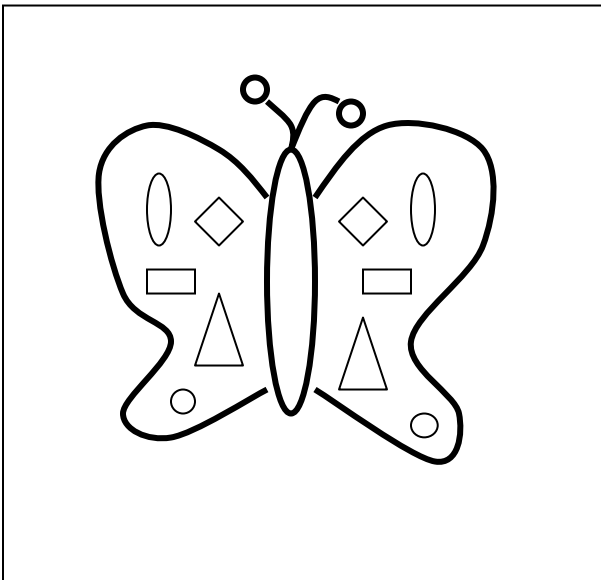
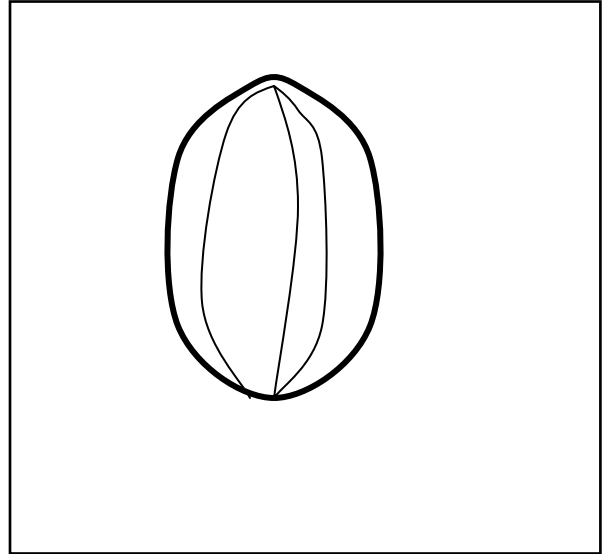
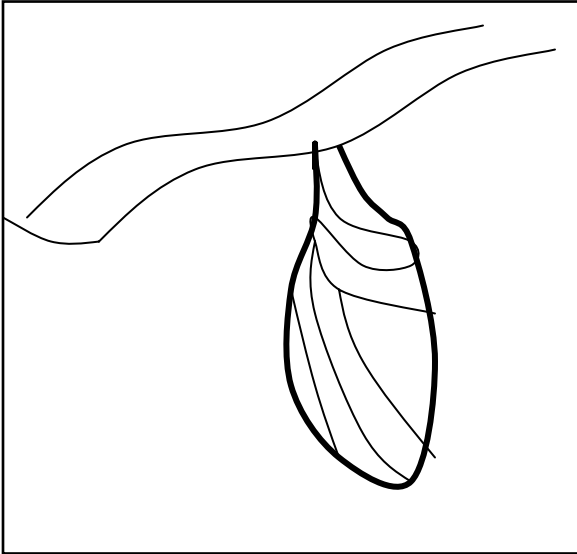
Life Cycle of a Butterfly: Fill in the appropriate label for each square:

Egg	Larva	Pupa	Adult
1.			2.
3.			4.

## Appendix K

### Stages of the Life Cycle

Color each stage of the life cycle. Glue and Label each stage on the next sheet.



## Appendix L

# Books

For this activity look for books on **Ants, bees, wasps and termites** that are age appropriate.

You may find these books at your school library or your local library. If you find one good book that has many of these insects, photocopy a page and let them use the information off of that page instead of a whole book.

Some books that I have found useful are:

*Ants and other Social Insects*, by Cecilia Venn. This book has all the social insects in it, it would be best to make copies of the termite pages and give it to one group, wasps to another etc.

This is a World Book's Animals of the World book.

ISBN 0-7166-1205-4

*Armies of Ants*, by Walter Retan. This book is a Hello Reader book; it has many chapters but has a lot of good information in it. You may only want to assign chapters 4,5,6. ISBN 0-7857-3268-3

*Bees*, by Kevin J. Holmes. This book has a great table of contents. It is broken down into Bees, appearance, homes etc. Page 7 has the most pertinent information. ISBN 1-56065-742-1



**Appendix N**

# Social Insects Poster Rubric

Names: \_\_\_\_\_  
 \_\_\_\_\_

	3	2	1	Points Earned
<b>Title</b>	Title is clearly stated and colorful	Title is clear, but not colorful	Title is hard to read	
<b>Coloring/ Drawing</b>	The coloring and drawing are neat.	Some parts of the poster are not colored.	Many parts of the poster are not colored	
<b>Handwriting</b>	Handwriting is neat and the letters are formed properly.	Handwriting is legible. Some letters are not formed properly.	Handwriting is not legible. It is hard to read	
<b>Correct Information</b>	The poster accurately describes facts about the insect.	One or more of the facts is incorrect about the insect.	The poster does not share facts about the insect.	

\_\_\_\_\_ Points Earned  
 12 Points Possible  
 \_\_\_\_\_ Percentage  
 \_\_\_\_\_ Grade

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# Strong as an ant