Insect Mania

Grade Level: 2nd Grade

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Length of Unit: 6 lessons lasting from 45 to 50 minutes each
Culminating activity 2 to 4 days (depending on the students writing ability) lasting 45 to 50 minutes each day
Total: 8 to 10 days, 45 to 50 minutes each day.

I. ABSTRACT

Students will utilize different processes to learn about insects. Literature, oral language, class discussions, hands on, and computer technology will be used to teach about insects. The unit will include language experiences and math experiences as well and will end with an art project in which the students will use their knowledge of the characteristics of insects to design their own insect.

II. OVERVIEW

A. Concept Objectives
   1. The student understands the characteristics of insects and how they can be both beneficial as well as harmful, their metamorphic life cycles, and how they interact in the natural world with each other. (TEKS-S 6.D, 9.B)

B. Content from the *Core Knowledge Sequence*
   1. 2nd Grade Science Insects: Insects (pg 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, and 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 (butterflies, ants).
      d. Social Insects
         i. Most insects live solitary lives, but some are social (such as ants, honeybees, termites, and wasps)
         ii. Ants: Colonies
         iii. Honeybees: workers, drones, queen
   2. 2nd Grade Language Arts: Reading Comprehension and Response (pg. 43)
      a. Gain answers to specific questions from reading nonfiction materials, and interpret information from simple diagrams, charts, and graphs.

3. 2nd Grade Language Arts: Poetry (pg. 44)
    a. Caterpillars (Aileen Fisher)
    b. Bee! I'm expecting you (Emily Dickinson)
    c. Hurt No Living Thing (Christina Rossetti)
4. 2nd Grade Mathematics: Time (pg. 58)
    a. Read a clock face and tell time to five minute intervals
    b. Use basic units of measurement

C. Skill Objectives

1. Students will discuss what they know and would like to know about insects through the use of a KWL chart. (TEKS S 2.A)
2. Students will be able to describe some characteristics of insects. (TEKS S 2.B)
3. Students will demonstrate knowledge of insect characteristics by labeling body parts on an ant diagram. (TEKS ELA 20.B; TEKS S 5.A)
4. Students will listen attentively and actively participate in question and answer sessions concerning fictional and non-fictional writing. (TEKS ELA 1.A, 1.C)
5. Students will gain an understanding of the three types of ants and the difference in social vs. solitary insects. (TEKS S 9.B)
6. Students will complete a Jot Chart about different types of beetles. (TEKS ELA 20.B; TEKS S 5.A)
7. Students will be able to identify different beetles. (TEKS S 5.A)
8. Students will listen attentively and participate in an oral language reading experience. (TEKS ELA 1.E; 6.C)
9. Students will make and use a Ladybug clock to practice telling time to hour, half hour, quarter hour and minute. (TEKS M 10.B)
10. Students will be able to distinguish between butterflies and moths using a Venn diagram. (TEKS ELA 20.B; TEKS S 5.A)
11. Students will use rulers to measure the wingspan of butterflies and moths using inches. (TEKS M 9.A)
12. Students will discuss the way of life of bees and how bees can make honey, but humans cannot. (TEKS S 9.B)
13. Students will create their own form of bee communication and share it with a partner. (TEKS S 9.A; TEKS T 2.C)
14. Students will participate in a computer generated Jeopardy Game to review concepts taught in the unit. (TEKS ELA 1.B; TEKS S 2.E)
15. Students will demonstrate mastery of the insect unit by completing a written assessment. (TEKS ELA 20.B)
16. Students will enjoy poetry. (TEKS ELA 7.B)
17. Students will participate in an art and writing activity to demonstrate knowledge of the characteristics of insects. (TEKS ELA 17.B; 17.D; 18.A, 18.B, 18.C; TEKS A 2.C)

III. BACKGROUND KNOWLEDGE

A. For Teachers

1. *What Your 2nd Grader Needs to Know* (book)

2. *Bugs and Other Insects* (book)
3. *The Fascinating World of Bees* (book)
4. *Insects (book)*

B. For Students
1. Kindergarten Science: Animals and Their Needs
2. 1st Grade Science: Living Things and their Environment

IV. RESOURCES

A. Illa Podendorf, *A New True Book: Insects* (Lesson 1)
B. David T. Greenburg, *Bugs* (Lesson 1)
C. Phillip and Hannah Hoose *Hey, Little Ant* (Lesson 2)
D. Walter Retan, *Armies of Ants* (Lesson 2)
E. Eric Carle, *The Very Grouchy Ladybug* (Lesson 3)
F. www.insectidenfictation.org (All Lessons)
G. www.bugwood.org (All Lessons)
H. http://en.wikipedia.org/wiki/Ladybug (Lesson 3)
I. http://en.wikipedia.org/wiki/Firefly (Lesson 3)
J. http://www.elainefitzgerald.com/jeopardy.htm (Lesson 6)
K. http://www.bccranberrygrowers.com/ipm/images/beetle.jpg (Lesson 3)

V. LESSONS

Lesson One: Amazing Insects (45-50 minutes)

A. *Daily Objectives*
1. Concept Objective(s*)*
   a. The student understands the characteristics of insects and how they can be both beneficial as well as harmful, their metamorphic life cycles, and how they interact in the natural world with each other. (TEKS S 6 D, 9.B)
2. Lesson Content (pg. 59 from the *Core Knowledge Sequence*)
   a. Insects
      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, and 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
3. Skill Objective(s)
   a. Students will discuss what they know and would like to know about insects through the use of a KWL chart. (TEKS S 2.A)
   b. Students will be able to describe some characteristics of insects. (TEKS S 2.B)

B. *Materials*
   1. Appendix A, sample KWL chart
   2. Rubber insects in brown paper bag
   3. Student's insect folders with handouts inside
   4. Pencil
   5. A New True Book: Insects

C. *Key Vocabulary*
   1. Arthropod- Animals with three segmented body regions, a jointed exoskeleton, blood in body cavities, and a complex nervous system
   2. Abdomen-the lower part of the insect's body
   3. Thorax- middle section of an insect's body
   4. Exoskeleton- hard protective covering over an insect's body
   5. Compound Eyes- an eye that is composed of many light-sensitive elements each forming a portion of an image

D. *Procedure/Activities*
   1. This lesson is to discuss and evaluate the current knowledge of students. This is done with the use of a KWL chart. The K column is what the students already know about insects. The W column is for what the students want to learn about insects. The L column is used at the end of the unit to find out what the students learned.
   2. Appendix A is needed for discussion with the students. The KWL chart is on a large laminated poster board. Explain the use of the chart and begin asking the students what they already know about insects. Write everything the students dictate. These should be written in the know column.
   3. Ask students what they would like to learn. Write these answers in the learn column. Ask and discuss questions that might help them be interested in learning.
   4. Save Appendix A for the end of the unit and the culminating activities to discuss the last column. During this time students will be able to see if their questions were answered.
   5. Students are divided up at their table groups. You will need a brown paper bag with rubber insects inside.
   6. Students will reach into the bag and feel the objects inside. They are to make secret guesses as to what is inside the bag. Students are not allowed to discuss their guesses with other students.
   7. When every student has had a turn at the bag, pull the insects out and let the students see if they were correct or not. Pass out one insect per table group.
   8. Students will examine their insect and discuss its characteristics with the group. Each group will then have a chance to tell about their insect to the class.
   9. Teacher will read pgs. 5-13 from <u>A New True Book: Insects</u>

E. *Assessment/Evaluation*
   1. The teacher should observe the students while they are discussing their insect with their group and when they are in front of the class.
   2. Students have complete part of the KWL chart with information about what they know, and what they would like to know about insects.

Lesson Two: Ants – Fact vs. Fiction (45-50 minutes)

A. *Daily Objectives*

1. Concept Objective(s)
    a. The student understands the characteristics of insects and how they can be both beneficial as well as harmful, their metamorphic life cycles, and how they interact in the natural world with each other. (TEKS S 6.D; 9.B)
2. Lesson Content
    a. Review distinguishing characteristics of all insects (pg. 59 from *Core Knowledge Sequence)*
        i. Exoskeleton, chitin
        ii. Six legs and three body parts: head, thorax, abdomen
        iii. Most but not all insects have wings
    b. Introduce students to ants through the use of literature
        i. differences in fiction and non-fiction
        ii. recall incidents, characters, facts, and details of stories (pg. 43 from *Core Knowledge Sequence)*
    b. Demonstrate familiarity with a variety of fiction and nonfiction selections, including both read-aloud works and independent readings (pg. 43 from *Core Knowledge Sequence)*
    d. Interesting facts about ants
        i. Ants can lift 20 times their own body weight.
        ii. The average life expectancy of an ant is 45-60 days.
        iii. Adult ants cannot chew and swallow solid food. They swallow the juice, which they squeeze from the food and then throw away the dry part that is left over.
        iv. Ants have two stomachs. One to hold food for itself and one for food to be shared with other ants.
    e. Three types of ants: Worker, Soldier, Queen (pg. 60) *Core Knowledge Sequence*
        i. Worker ants look for food, look after the young, and defend the nest from unwanted visitors.
        ii. Soldier ants guard and protect the colony.
        iii. The job of the queen ant is to lay eggs
    f. Social Insects (pg. 60 from *Core Knowledge Sequence)*
        i. Most insects live solitary lives, but some are social
        ii.Ants: Colonies
3. Skill Objective(s)
    a. Students will demonstrate knowledge of insect characteristics by labeling body parts on an ant diagram. (TEKS ELA 20.B; TEKS S 5.A)
    b. Students will listen attentively and actively participate in question and answer sessions concerning fictional and non-fictional writing. (TEKS ELA 1.A, 1.C)
    c. Students will gain an understanding of the three types of ants and the difference in social vs. solitary insects (TEKS S 9.B)

B. *Materials*

1. Insect folders
2. Appendix B copy for every student in their insect folder
3. Hey, Little Ant
4. Armies of Ants
5. Raisins – enough for each student to have a dozen
6. large pretzel sticks – enough for each student to have 4
7. peanut butter (or frosting if peanut allergies are an issue)
8. plastic knives – one for each student
9. paper towels – one for each student

C. *Key Vocabulary*
1. Colony – underground lair where ants live. Colonies consist of a series of underground chambers, connected to each other by small tunnels.
2. Solitary – single; living by oneself not inclined to interact with others
3. Social – interact with others; behaviors which benefit others
4. Antennae – the sensory organ on several types of arthropods

D. *Procedures/Activities*
1. Teacher will review students about the distinguishing characteristics of insects by oral question and answer session.
2. Students will refer back to their KWL chart in their insect folder to review previously taught information on insects
3. Teacher will read Hey, Little Ant by Phillip and Hannah Hoose to the students.
4. Students and teacher will discuss the genre of Hey, Little Ant (fiction, poetry)
5. Teacher will read chapters 1 through 4 in Armies of Ants by Walter Retan.
6. Students and teacher will discuss the genre of Armies of Ants. (factual, informative)
7. Teacher will pass out a copy of Appendix B to each student.
8. Teacher will give the students time to label the insect body parts on Appendix B. (approx. 5 min.)
9. Students will then check their work as teacher labels the insect body parts on Appendix B transparency.
10. The students will make any corrections on their insect body parts diagram and add it to their insect folder.
11. Students will put away their Insect folder and the teacher will pass out the supplies to make edible "Ants on a Log"
12. Each student will need 12 raisins, 4 large pretzel sticks, peanut butter (or frosting), a plastic knife and a paper towel.
13. Spread the peanut butter or substitute on the pretzel sticks.
14. Stick 4 raisin "ants" on the pretzel "log"
15. Enjoy a fun snack.

Lesson Three: Beetles- (45-50 minutes)

A. *Daily Objectives*
1. Concept Objective(s)
   a. The student understands the characteristics of insects and how they can be both beneficial and harmful, their metamorphic life cycles, and how they interact in the natural world with each other. (TEKS S 6.D, 9.B)

2. Lesson Content (pg. 59 from the Core *Knowledge Sequence*)
    a. Beetles can be helpful and harmful to people
        i. Helpful: eat harmful insects, recycle waste material.
        ii. Harmful; destroy crops, trees,
    b. Review Distinguishing Characteristics of all insects
        i. Exoskeleton, chitin
        ii. Six legs and three body parts: head, thorax, abdomen
        iii. Most but not all insects have wings
    c. Interesting facts about beetles
        i. Ladybugs are also called Lady bird beetles.
        ii. A dozen lady bugs can save a fruit tree from ruin by harmful insect pests.
    d. Examples of Different kinds of beetles
        i. Dung beetles
        ii. Fireflies
        iii. Goliath beetles
        iv. Boll weevils
    e. Math concept: Telling Time
3. Skill Objective(s)
    a. Students will complete a Jot Chart about different types of beetles. (TEKS ELA 20.B; TEKS S 5.A)
    b. Students will be able to identify different beetles. (TEKS S 5.A)
    d. Students will listen attentively and participate in an oral language reading Experience. (TEKS ELA 1.E, 6.C)
    e. Students will make and use a Ladybug clock to practice telling time to hour, half hour, quarter hour and minute. (TEKS M 10.B)

B. *Materials*
1. Student insect folders
2. Appendix C, copy for every student in their insect folder
3. Appendix D, overhead transparency
4. Appendix E, Ladybug Clock patterns
5. Computer/Projector, power point slideshow
6. <u>The Very Grouchy Ladybug</u> by Eric Carle
7. Red paper plates – one for each student
8. Black construction paper – one 8 ½ X 11 sheet for each student
9. Patterns for the lady bug head, and the hands on the clock
10. Pipe cleaners – 4 for each student
12. Paper fasteners – one for each student
13. Black crayons or markers – one for each student

C. *Key Vocabulary*
1. Chitin- makes up the exoskeleton
2. Aphids- small insect/pests that are eaten by ladybugs

D *Procedure/Activities*
1. Begin the power point slideshow about beetles by discussing the difference between the beetles. Ask students what they think each beetle's characteristics are before

showing the pictures on the slideshow.

2. After the slideshow, start a discussion about how beetles can be helpful or harmful. Then the students will get their insect folder out and turn to the Jot Chart.
3. Using the overhead projector, you will start working on the chart as a class. Allow the students to finish the chart on their own.
4. The teacher will read The Very Grouchy Ladybug, by Eric Carle, to the students, allowing the students to choral read the repetitive parts of the story.
5. Students will make a lady bug clock using the patterns and materials provided by the teacher.
6. The teacher will re-read the story while the students use their clocks to track the time of the events in the story.

E. *Assessment/Evaluation*

1. Students discussed how certain beetles could be helpful or harmful.
2. Students completed the Jot Chart on the different types of beetles
3. Students actively participate in the telling time activity.

Lesson Four: Butterflies and Moths (45-60 minutes)

A. *Daily Objectives*

1. Concept Objective(s)
   a. The student understands the characteristics of insects and how they can be both beneficial as well as harmful, their metamorphic life cycles, and how they interact in the natural world with each other. (TEKS S 6.D, 9.B)
2. Lesson Content (pg. 59 from the *Core Knowledge Sequence*)
   a. Insects can be helpful or harmful to people
      i. Helpful: pollination; products like honey, beeswax, and silk; eat harmful insects.
      ii. Harmful: destroy crops, trees, wooden buildings, and clothes; carry disease; bite or sting.
   b. 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 (butterflies, ants).
   c. Math concept: Measurement - wingspan of butterflies and moths
3. Skill Objective(s)
   a. Students will be able to distinguish between butterflies and moths using a Venn diagram. (TEKS ELA 20.B; TEKS S 5.A)
   b. Students will use rulers to measure the wingspan of butterflies and moths using inches. (TEKS M 9.A)

B. *Materials*

1. Appendix F, Venn Diagram (one for every students and a transparency
2. Appendix G , Butterfly Magic Squares (one for every student)
3. Appendix H, Butterfly Wingspans (one for every student)

3. Computer/Projector for slideshow
4. Ruler
5. Pencil

C. *Key Vocabulary*
   1. Metamorphosis- the process insects go through to make a complete change from egg to adult
   2. Molt - shedding, the process used by some animals to cast off old body parts
   3. Larva - the juvenile or "child" phase of any animal that goes through metamorphosis
   4. Pupa – the life stage of some insects that form a cocoon in order to change from one form to another

D. *Procedure/Activities*
   1. Show online video on the life cycle of a butterfly. (There are many free websites where this can be found. ie. Discovery School)
   2. Using the power point, show the slide show pictures of butterflies and moths.
   3. Conduct a class discussion about the differences between butterflies and moths
   4. Help the students get started working on the Venn diagram about moths and butterflies. They will finish this on their own.
   5. The teacher will show the students how to do the Magic Square page; after doing a few of the magic squares together, the students will finish this on their own.
   6. As the students finish the Magic Square page, they will get out their ruler and get the Butterfly Wingspan work page.
   7. The students will measure the butterfly wingspans using the inch side of their rulers. They will then circle the largest butterfly wingspan and the smallest butterfly wingspan and use the measurements to work the math problem and find the answer to the question at the bottom of the page.

E. *Assessment/Evaluation*
   1. The teacher should observe the students and their ability to differentiate between moths and butterflies.
   2. The teacher will check the students completed Venn diagram about the differences and similarities of butterflies and moths.

Lesson Five: Honeybees (45-50 minutes)

A. *Daily Objectives*
   1. Concept Objectives
      a. The student understands the characteristics of insects and how they can be both beneficial and harmful, their metamorphic life cycles, and how they interact in the natural world with each other. (TEKS S 6.D, 9. B)
   2. Lesson Content (p. 59 from the *Core Knowledge Sequence*)
      a. Insects can be helpful or harmful to people.
         i. Helpful: pollination; products like honey, beeswax, and silk; eat harmful insects.
         ii. Harmful: destroy crops, trees, wooden buildings, and 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 go through distinct stages of egg, larva, pupa and adult (examples: butterflies, ants).

d. Review of 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 discuss the way of life of bees and how bees can make honey, but humans cannot. (TEKS S 9.B)
   b. Students will create their own form of bee communication and share it with a Partner. (TEKS S 9.A; TEKS T 2.C)

B. *Materials*
   1. Computer/Projector for slide show
   2. Honey
   3. Popsicle sticks
   4. Wet wipes
   5. Small bouquet of flowers in a vase

C. *Key Vocabulary*
   1. Drone- male bee that doesn't sting or make honey, it only mates with the queen bee.
   2. Queen- mother of all bees in the colony, only one to lay eggs

D. *Procedure/Activities*
   1. The teacher will pass out a flower to each group and ask them to make honey with it. When kids say they are unable to, ask them why they cannot make honey.
   2. Give each child a Popsicle stick.
   3. The teacher will go around the room and let each child dip their Popsicle stick in the honey so they can have a taste.
   4. After each child has tasted the honey, have them clean any drips or sticky fingers with a wet wipe and throw both the wipe and Popsicle stick in the trash.
   5. Using the power point slide show, show pictures of the different bees in the hive, their life cycle, how they communicate and how honey is made. Show the online video from Discovery School about how honey is made at a bee farm and how bees communicate with each other.
   6. After watching the video, discuss again why bees can make honey and people cannot then discuss how bees communicate with one another.
   7. The students will then pretend to be bees and will create their own way of "bee communication."
   8. After they have been given a few minutes to create their communication signals, ask them to share their communication and what it means with the class.

E. *Assessment/Evaluation*
   1. Teacher observation of student participation in the class discussion as well as the "bee communication" activity

Lesson Six: Review, Unit Assessment, Poetry Day (50-60 minutes)

A. *Daily Objectives*

1. Concept Objective(s)
    a. The student understands the characteristics of insects and how they can be both beneficial as well as harmful, their metamorphic life cycles, and how they interact in the natural world with each other. (TEKS S 6. D, 9.B)
2. Lesson Content (p. 59 from the *Core Knowledge Sequence*)
    a. Insect Review
        a. Distinguishing characteristics
        b. Insects can be helpful or harmful
        c. Life cycles: Metamorphosis
        d. Social insects
    b. Poetry (pg. 44 from *Core Knowledge Sequence)*
        i. Bee! I'm expecting you (Emily Dickinson)
        ii. Caterpillars (Aileen Fisher)
        iii. Hurt No Living Thing (Christina Rossetti)
    c. Unit Assessment
3. Skill Objective(s)
    a. Students will participate and work cooperatively in a Jeopardy insect review game. (TEKS ELA 1.B; TEKS S 2.E)
    b. Students will demonstrate mastery of the insect unit by completing a written assessment. (TEKS ELA 20.B)
    c. Students will enjoy poetry. (TEKS ELA 7.B)

B. *Materials*

1. Computer/Projector for review game
2. Egg timer or stop watch
3. Jeopardy game – made ahead of time by the teacher
4. Appendix I, Unit Assessment – copy for each student
5. copy of the three poems from the Core Knowledge Text resource book – one for each student
6. blank white paper
7. pencils
8. crayons

C. *Key Vocabulary*

1. No new vocabulary – review of previously learned vocabulary

D. *Procedure/Activities*

1. Prior to the lesson, set up the projector and connect it to the computer.
1. Prior to the lesson, open the Jeopardy game file on the computer.
2. Explain the rules to the students.
    a. The teacher will act as the Game Show Host
    b. The class will be divided into two teams and a coin will be flipped to see who gets to go first.
    c. Each team will be given 30 seconds to answer their question. If they answer incorrectly, the other team gets a chance to answer to steal the points.
    d. The two teams will take turns answering the questions regardless of whether

or not the other team gets their answer right.

e. At the end of the game the points are added up to see which team is the winner.

3. After playing Jeopardy, the teacher will hand out the Unit Assessment and ask the students to set up their office spaces.
4. Allow an appropriate amount of time for each student to complete the assessment – approx. 15 min.
5. Take up the assessments and pass out the copies of the poems to each student.
6. Read through each poem together and discuss as a whole group.
7. The teacher will divide the students into pairs and have them take turns reading the poems again to their partners. Tell them to focus on using expression in their voices.
8. Walk around and listen as the groups read the poems to each other.
9. After the students have partner read the poems, they will go back to their desks as the teacher passes out plain white paper to each student.
10. The students will then pick their favorite poem and draw an illustration for it.

E. *Assessment/Evaluation*

1. Teacher observation of the students' participation in the Jeopardy game
2. Teacher observation of the students' oral reading of the poetry
3. Unit Assessment (Appendix I)

CULMINATING ACTIVITY

This activity will take two to 4 days depending on the students writing ability.

The students will participate in a "Build-A-Bug" workshop. The teacher will provide a variety of materials such as: clay, construction paper, pipe cleaners, feathers, pom-poms, jewels, sequins, paint, glue, paper towel and toilet paper tubes, cotton balls, etc.

The teacher will tell the students that the only requirements they have in building their bugs are to make sure they have the correct number of body parts, and the correct number of legs and eyes. They may choose whether or not their bug has wings or antennae.

On the first day the students will create their insect and set them in a safe place to dry, or for the clay to harden, etc. Over the course of the next two or three days, the students will work on writing a paragraph about their insect creation. Their writing will include a planning paper, rough draft, corrections, and final copy. Some helpful questions to generate writing ideas include: Where did they find it? Did they name it? Is it harmful or helpful? What special characteristics does it have? Etc. The insects and the final draft of the writing will then be put on display for others to see and enjoy.

HANDOUTS/WORKSHEETS

A. **A**ppendix A: KWL Chart
B. Appendix B: Ant diagram
C. Appendix C: Beetle Jot Chart
D. Appendix D: Beetle Jot Chart, teacher copy
E. Appendix E: Ladybug Clock Pattern Page

F. Appendix F: Venn Diagram
G. Appendix G: Butterfly Wingspan
H. Appendix H: Butterfly Magic Squares
I. Appendix I: Unit Assessment

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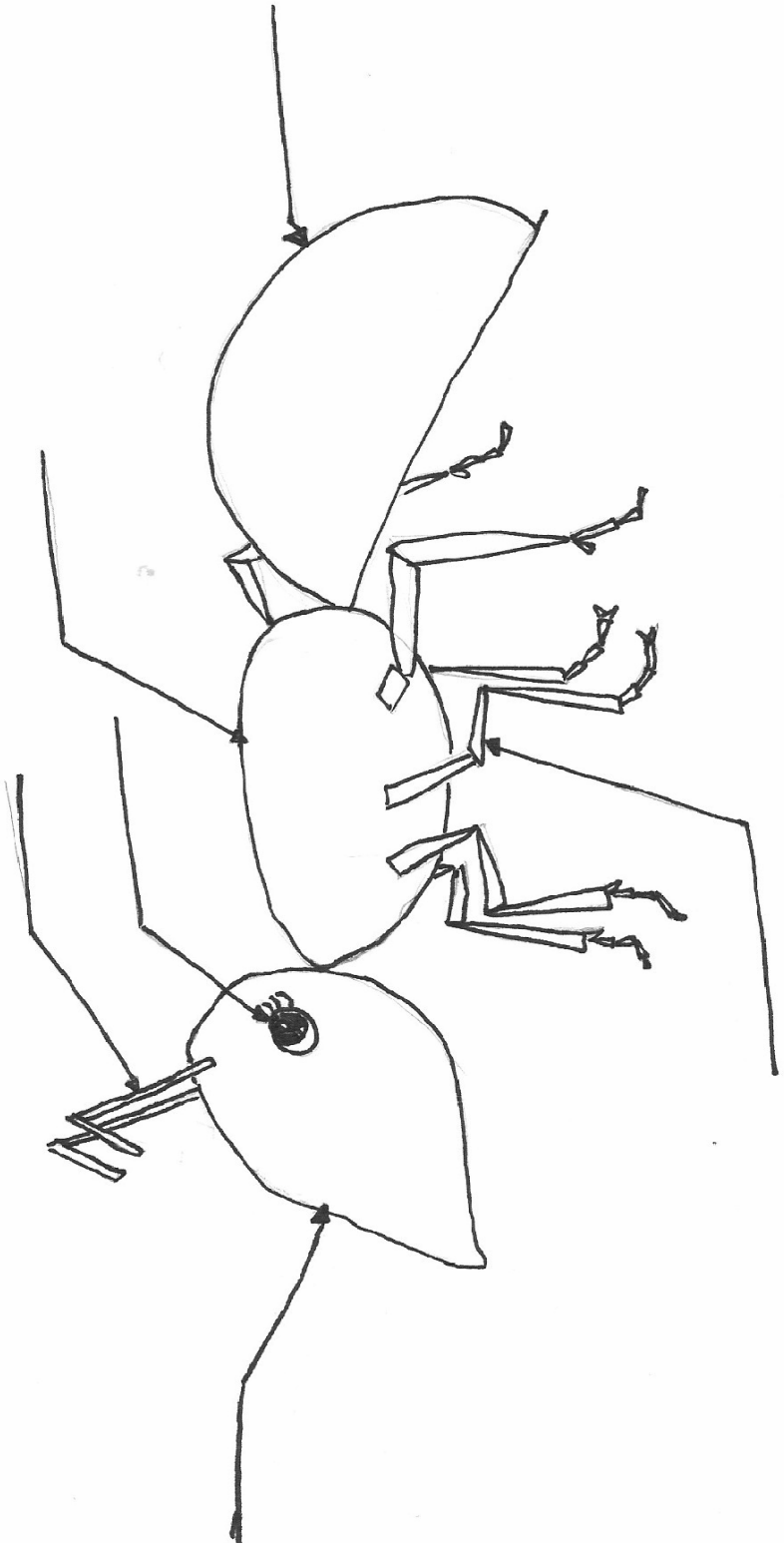
L. No author, http://en.wikipedia.org/wiki/Firefly
M. No author, http://www.elainefitzgerald.com/jeopardy.htm
N. No author, http://www.bccranberrygrowers.com/ipm/images/beetle.jpg

Appendix A

What I Know	What I Want to know	What I Learned

Appendix B



1

Appendix C

Beetle Jot Chart

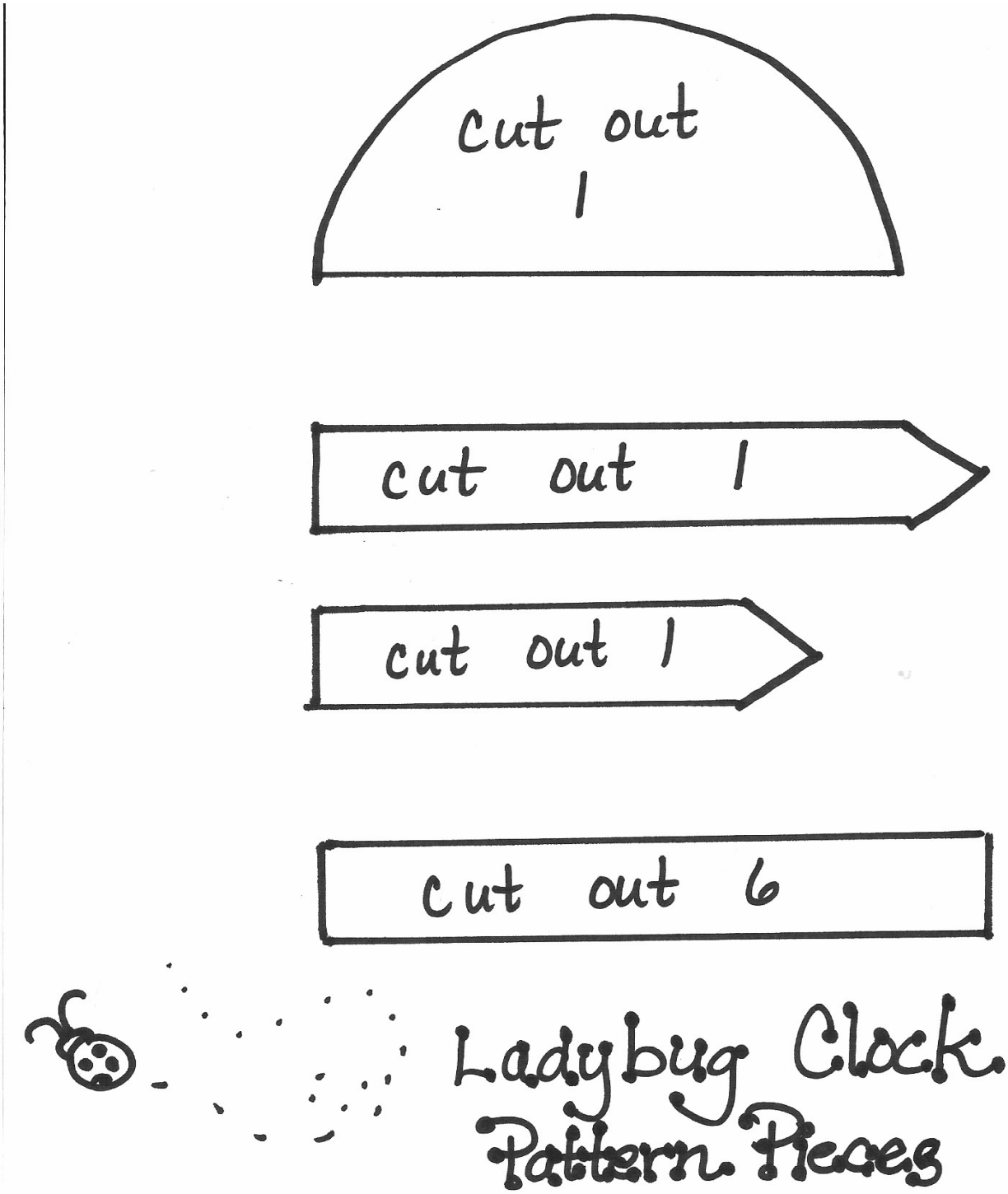
	Ladybug	Firefly	Boll Weevil
Is it helpful or harmful?			
Does it fly? If so how?			
What is special about it?			
What does it eat?			

Appendix D

Beetle Jot Chart

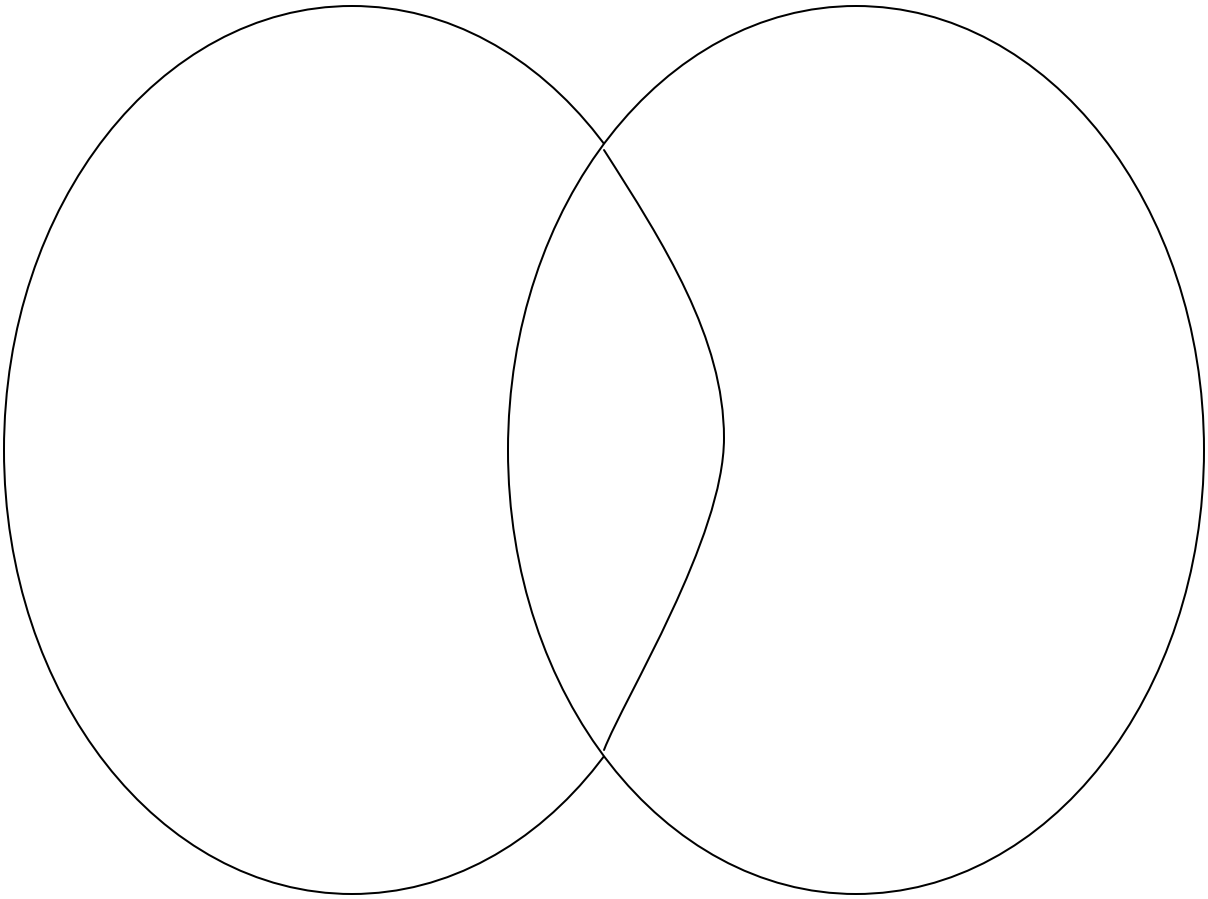
	Ladybug	Firefly	Boll Weevil
Is it helpful or harmful?	Helpful	Helpful	Harmful
Does it fly? If so how?	Hidden wings	Wings	Hidden wings
What is special about it?	Also called a Ladybird	Starts glowing as a larvae	Hides its larvae in cotton
What does it eat?	Aphids	Plants	Crops (cotton)

Appendix E


Cut out 1
cut out 1
cut out 1
Cut out 6
Ladybug Clock
Pattern Pieces

Appendix F

Butterflies VS Moths



Appendix G

Butterfly Wingspans

Using the inches side of your ruler, measure the butterfly wingspans below and write their measurement on the line beside their name. Then answer the two questions at the bottom of the page.

_____ _____

Monarch _____”

Elf ____”

_____

Giant Swallowtail _____”

_____

Dogface _____” _____

Pixie _____”

_____

Zebra Longwing _____”

_____

Birdwing _____”

1. Which butterfly has the shortest wingspan? _____
2. Which two butterflies both have a 5” wingspan? _____ and

   _____
3. Which butterfly is shorter, the Pixie or the Elf? _____
4. Which butterfly is longer, the Monarch or the Zebra Longwing?

   _____

Appendix H

Butterfly Magic Squares

C. _____	D. _____	F. _____
I. _____	B. _____	G. _____
H. _____	E. _____	A. _____

A. Metamorphosis
B. Migrate
C. Pollen
D. Pollinate
E. Monarch Butterfly
F. Pupa
G. Larvae
H. Chrysalis
I. Nectar

1. Get pollen from one flower to another
2. What the caterpillar changes in
3. A very small, young insect
4. To change from one thing to another
5. Move when seasons change
6. Yellow powder inside flowers
7. Sweet juice inside flowers
8. The form before the butterfly
9. A butterfly that migrates

Name_____

Appendix I

Insect Test

1. How many legs do insects have?
   a. 2
   b. 6
   c. 8

2. How many parts does an insect's body have?
   a. 3
   b. 1
   c. 2

3. Which two animals are insects?
   a. housefly
   b. spider
   c. ladybug

4. What do we call a group of ants living together?
   a. family
   b. group
   c. colony

5. Which one of these things do insects eat?
   a. plants
   b. paper
   c. metal

6. Which of these eats insects?
   a. dogs
   b. alligator
   c. bird

7. Which insect protects its self by stinging?
   a. ants
   b. beetle
   c. cricket

8. What do we call the larvae of a butterfly?
   a. caterpillar
   b. baby
   c. moth

9. What sort of skeleton does an insect have?
   a. No skeleton
   b. An Intoskeleton
   c. An Exoskeleton

10. A person who studies insects is an:
   a. Scientist
   b. Student
   c. Entomologist

11. Antennae are found on what part of an insect?
   a. head
   b. abdomen
   c. thorax

12. What is an insect's skeleton made of?
   a. bones
   b. chitin
   c. slime

13. Explain 2 ways insects annoy us.

_____

_____

14. Explain 2 ways insects help us.

_____

_____

15. Why isn't a spider an insect?

_____

16. Honeybees collect:
   a. honey
   b. pollen
   c. nectar

17. Butterflies are metamorphic insects?
   True or False

18.The legs are on the
   a. head
   b. thorax
   c. abdomen