

**Maricopa County Small Schools Consortium
Project Venture**

Curriculum Unit

Unit Title: Insect Discoveries

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Subject: Science, and also incorporates Technology, Reading/Language Arts, and Art

Grade Level: Primary (K-2), adaptable to all levels

Unit Summary:

Students learn about various insects and use what they learn to “discover” (create) a new insect. Students name the new bug and describe its body, movement, diet, and protective structures, then create and display a presentation about their original insects using MS Word and Paint.

Standards:

Science:

- ◆ 4SC-F1. Describe and explain cause-and-effect relationships in living systems. (Insect structures’ relation to what they eat, how they move and protect themselves, how they effect humans and our responses)
- ◆ 4SC-F3. Identify the basic structures and functions of [plants and] animals.
- ◆ 4SC-F4. Identify characteristics of [plants and] animals that allow them to live in specific environments.

Technology:

- ◆ 1T-F2. Demonstrate functional operation of technology components – use multimedia resources, access information sources.
- ◆ 1T-F3. Uses developmentally appropriate technology resources to access information and communicate electronically – operate keyboard and other common input and output devices; retrieve and save information; print document, text, or image.
- ◆ 3T-F1. Use prescribed technology writing or drawing tools for communicating and illustrating – use word processing to create a document, insert a graphic into a word processing document.
- ◆ 4T-F2. Use technology tools for individual and collaborative communication activities to share products with audiences inside and outside the classroom – plan, design, and present product to classroom or community (drawings, illustrations).
- ◆ 5T-F1. Recognize electronic information sources – locate information in a resource selected by the teacher (web page, CD-ROM).

Writing:

- ◆ W-F1. Use the writing process, including generating topics, drafting, revising and editing, to complete effectively a writing task.
- ◆ W-F2. Use correct spelling, punctuation, capitalization, grammar and word usage.

Reading:

- ◆ R-F3. Use reading comprehension strategies . . . draw conclusions, identify cause-and-effect, and use prior knowledge to comprehend a selection.
- ◆ R-F7. Follow a set of written directions.

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Art:

- ◆ 1AV-F1. Select and use subjects, themes and symbols in works of art
- ◆ 1AV-F2. Use additional arts media (including crayon, computer graphics, construction paper), techniques, and processes to communicate a variety of ideas, experiences and responses
- ◆ 1 AV-F3. Demonstrate knowledge and use of a variety of techniques, processes and media to create two-and three-dimensional artworks (electronic media, graphics software, colored paper display)
- ◆ 1AV-F7. Expand knowledge and use of different arts media (computer graphics)
- ◆ 1AV-F8. Demonstrate responsible use of tools and materials
- ◆ 3AV-F2. Understand and explain there are various purposes for creating works of art (function)

Questions:

Science:

- ◆ How can I tell insects from other bugs or creatures?
- ◆ What do insects have in common?
- ◆ How do insects move?
- ◆ How do insects eat?
- ◆ How do insects protect themselves?
- ◆ If I discovered a never-before-seen insect, what would it be like?

Technology:

- ◆ How do I put a picture in a Word document?

Writing:

- ◆ What is important to tell about my new insect?

Art:

- ◆ How can a picture help me share my ideas?
- ◆ How do I use original computer graphics in a document?
- ◆ How can I display my work attractively?

Situations:

Instructional Locations:

- ◆ Regular classroom
- ◆ Computer lab

Unit Timeframe:

- ◆ Two days to two weeks, depending on student level and abilities, as well as instructional time available for thematic projects

Tasks:

Prerequisite skills – Students need previous experience with basic computer use, lab use, word processing using Word, Word art, editing, drawing illustrations using Paint, saving and retrieving files, and printing a document or picture.

Unit Introduction – Students participate in reading and discussing Bugs All Around, Science Big Book from Newbridge. Stress descriptions and explanations of insect body parts and their functions.

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Vocabulary and Concept Development – Students learn to identify head, thorax, abdomen, legs, antennae, wings, habitat, protection, camouflage, mimicking, sting, bite, pinch, hide, movement, jump, fly, walk, eat, mouth, etc. Use flashcards, pictures and illustrations, dictionary, electronic dictionary, encyclopedia, multimedia encyclopedia, Big Book and other informational books for reference and reinforcement.

Insect/Body Part Identification – Students complete Insect Body Part Worksheets to demonstrate understanding of vocabulary/parts of an insect.

Internet Research – Students explore internet resources either on-line or through teacher presentations compiled from websites

Discussion & Brainstorming – Students use past experience and recent instruction to discuss and identify habitats, diets, movement, specialized body parts of various insects. Teacher guides discussion using additional pictures of familiar and unusual insects.

Create Original Insect – Students brainstorm and discuss unique variations and combinations of bug parts to create a new imaginary insect, decide where created bugs might live, what they might eat, how they would move, and how they might protect themselves. Students discuss how insects use specialized body parts for specific functions. Students use pencil, paper, crayons or markers to create a new and unique insect with specialized body parts for its diet and modes of locomotion and protection.

Describe Original Insect – Students use their drawings to write a rough draft description. Use pencil and paper for this step; or if computer lab time is plentiful, start drafts on the computer. Students describe: 1) what their insect eats, and therefore what unique mouth parts it has, 2) how it moves, and therefore what unique legs or wings it has, and 3) how it protects itself, and therefore what special protective features it has.

Create Project Presentation

- ◆ In the computer lab, students use the word processor to write and edit their descriptions of their original insects, and save their descriptions to the school's local area network or floppy disk.
- ◆ Presentation must include an attractive title (larger font, bold color, or word art) which includes the insect's new, unique name.
- ◆ Students use Paint to create a complete illustration of their insect, including habitat components as appropriate, and save illustration to the local network or floppy disk.
- ◆ Students observe demonstration then follow written instructions (with the help of parent volunteers) to insert their illustration file into their Word document, and save the presentation to the network or floppy disk.
- ◆ With the help of parent volunteers, students take turns during assigned times to retrieve, proofread, edit, and print their finished insect project presentations.

Display Projects – Students mount finished printed presentation on construction paper, trimming paper borders as appropriate, and using coordinating colors and shapes for attractive display. Students display completed projects for open house, science fair, etc.

Interactions:

Students participate in teacher-directed whole group instruction including:

- ◆ Oral reading
- ◆ Class discussions
- ◆ Brainstorming

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- ◆ Use of informational materials such as text books, library books, dictionaries and encyclopedias both traditional and electronic
- ◆ Procedures for inserting illustrations into Word documents

Students work together in pairs or small groups:

- ◆ Rereading and exploring Big Book and other informational books
- ◆ Using and exploring software resources: multimedia encyclopedia and dictionary
- ◆ Sharing ideas about original insects

Students work independently, with help from teacher, aide, or parent volunteers as needed:

- ◆ Completing Insect Body Part Worksheets
- ◆ Creating and drawing an original insect
- ◆ Writing a description of an original insect
- ◆ Producing an illustrated Word document

Tools:

Instructional Materials:

- ◆ Multimedia Computer
- ◆ Internet Resources:
 - <http://members.aol.com/YESedu/mainmenu.html> – Young Entomologist’s Society website has lesson plans, projects, events, and information
 - <http://www.discovery.com/cams/ant/antmain.html> – Discovery Channel live ant cam and information about ants and other insects
 - <http://www.ipm.ucdavis.edu/PMG/selectnewpest.home.html> – University of California Pest Management site has awesome photos and information about common household and backyard insect pests, including information about dangers to humans and the harm they can do to landscapes, structures, pets, and other environmental factors
- ◆ Pictures of various insects and their body parts – from posters, books, internet, or multimedia dictionaries & encyclopedias
- ◆ Illustrated or multimedia dictionary, such as Macmillan’s Dictionary for Children
- ◆ Multimedia encyclopedia, such as Compton’s Interactive Encyclopedia, which has a “show-maker” to create presentations helpful to instruction
- ◆ Newbridge Big Book: Bugs All Around, with teacher guide containing many additional project ideas
- ◆ Other illustrated informational books about insects, such as DK’s Eyewitness Book Insect
- ◆ Insect Videos, such as Magic School Bus Butterflies!
- ◆ Vocabulary flashcards, or vocabulary slide presentation, or blackboard for vocabulary development
- ◆ Insect Body Part Worksheets:
 - “Insect Parts,” from Frank Schaffer’s SCHOOLDAYS, Feb./Mar. 1989, p.56 – Students label and answer questions about insect parts.
 - “Insect Parts,” from Teacher Created Material, Inc. Thematic Unit – CREEPY CRAWLIES, 1990, p. 52 – Students complete partial insect drawings with the missing body parts.
- ◆ Written instructions (for students to follow, after demonstration) for inserting a graphics file into Word document, prepared by teacher according to network configuration for retrieving files saved to network or floppy disk.

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- ◆ Project rubric and a sample of a finished project – illustrated description of an original insect prepared by teacher to demonstrate project expectations

Student Materials:

- ◆ Illustrated informational books about insects
- ◆ Multimedia Computer
- ◆ Multimedia dictionary, encyclopedia, and teacher's encyclopedia presentation
- ◆ Vocabulary flashcards, or teacher-made vocabulary development materials
- ◆ Insect Body Part Worksheets
- ◆ Pencil & Paper, crayons or markers, construction paper, glue
- ◆ MS Word, or comparable word processor
- ◆ MS Paint, or comparable illustration program
- ◆ Color Printer

Assessment:

- ◆ Informal observation of student responses and progress on project
- ◆ Insect Body Part Worksheets
- ◆ Rubric for written & illustrated insect project