



Iowa 4-H After School Program
Bugs, Lesson Plan
Eight, 60 Minute Sessions

Grades: 7-8

Optimum Group Size: 25

Supplies Needed: See lesson plans

Reference Resources:

- Birds, Beasts, Bugs and Us Activities for environmental education, 4H-818b
- Bug Watcher, Iowa Youth and 4-H Entomology, 4-H 423A
- Entomology, Group Helper's Guide,
4-H cooperative Curriculum System Publication, 4HCCS 6856
- What's Bugging You?
4-H cooperative Curriculum System Publication, 4HCCS 6854
- Dragons, Houses and Other Flies
4-H cooperative Curriculum System Publication, 4HCCS 6855

Physical Setting: classroom, outdoor setting

Life Skills Addressed:

- Communicating with others
- Learning to observe
- Learning by comparing
- Care of natural resources
- Planning and organizing
- Planning an experiment
- Making decisions
- Learning to learn

Indicator:

- D1: Communication (5008) to clearly state my thoughts, feelings, and ideas to others
- D2: Decision making (2009): to evaluate the decisions I made to see if they worked
- D3: Wise use of resources (3030): to act in a responsible manner when using natural resources
- D4: Learning to learn (1008) to use new information I have learned
- D5: Learning to learn (1001) to be more interested in learning
- D6: Learning to learn (1008) to use new information that I have learned
- D7: Communication (5003) to plan, organize, and make a presentation
- D8: Accepting others (6003) to value the contributions of others

Content Objective:

- D1: What do I know about insects?
- D2: Observing stages and changes in insects.
- D3: Experimenting with insects, to determine differences in behaviors
- D4: Where can I find insects and how do they move

- D5: What parts of an insect help me identify types?
- D6: How do I categorize insects?
- D7: What are projects that can be done with insects?
- D8: How are insect display/ projects judged?

Related School Standards and Benchmarks:

Life Skills

- **Working with Others**
 1. Understands various meanings of social group, general implications of group membership, and different ways that groups function
 - a. Understands that the "rules" for group behaviors and expectations sometimes are written down and strictly enforced or are just understood from example
 2. Demonstrates leadership skills
 - a. Occasionally serves as a leader in groups
 - b. Occasionally serves as a follower in groups
- **Life Work**
 1. Makes effective use of basic tools
 - a. Makes something out of paper, cardboard, wood, plastic, metal, or existing objects that can be used to perform a task
- **Thinking and Reasoning**
 1. Applies basic trouble-shooting and problem-solving techniques
 - a. Selects the most appropriate strategy or alternative for solving a problem
 - b. Effectively uses mental processes that are based on identifying similarities and differences
 - c. Makes decisions based on the data obtained and the criteria identified
 - d. Uses a comparison table to compare multiple items on multiple abstract characteristics

Science

- **Nature of Science**
 1. Understands the nature of scientific inquiry
 - a. Plans and conducts simple investigations (e.g., formulates a testable question, makes systematic observations, develops logical conclusions)
 - b. Knows that there is no fixed procedure called "the scientific method," but that investigations involve systematic observations, carefully collected, relevant evidence, logical reasoning, and some imagination in developing hypotheses and explanations
 - c. Designs and conducts a scientific investigation (e.g., formulates hypotheses, designs and executes investigations, interprets data, synthesizes evidence into explanations, proposes alternative explanations for observations, critiques explanations and procedures)
- **Life Sciences**
 1. Understands relationships among organisms and their physical environment
 - a. Knows that an organism's patterns of behavior are related to the nature of that organism's environment (e.g., kinds and numbers of other organisms present, availability of food and resources, physical characteristics of the environment)
 2. Understands biological evolution and the diversity of life
 - a. Knows basic ideas related to biological evolution (e.g., diversity of species is developed through gradual processes over many generations; biological

adaptations, such as changes in structure, behavior, or physiology, allow some species to enhance their reproductive success and survival in a particular environment)

- b. Knows how variation of organisms within a species increases the chance of survival of the species, and how the great diversity of species on Earth increases the chance of survival of life in the event of major global changes
- c. Knows ways in which living things can be classified (e.g., taxonomic groups of plants, animals, and fungi; groups based on the details of organisms' internal and external features; groups based on functions served within an ecosystem such as producers, consumers, and decomposers)

Evaluation: Attached

Time Allotment	Activity	Supplies
Day 1		
30 minutes	Stacking words, pg 28, <i>Helper's Guide</i> <ul style="list-style-type: none"> • This can be used as an acquaintance activity, and background knowledge exploration 	pens pencils index cards labeled with categories and words about entomology
30 minutes	Make an insect net (pg 27), Viewing Cage (pg 28), <i>Bug Watcher</i> , Separator (pg 31), <i>What's Bugging You</i> OR Observation Chamber, pg 23 <i>Dragons,...</i> <ul style="list-style-type: none"> • These will be used in other activities throughout the sessions 	see supply lists on these pages
Day 2		
30 minutes Observations will continue for several weeks	A Meal from a Worm, pg 6, <i>Dragons, Houses and other Flies</i>	same supplies as Baby Buggy Bumpers
30 minutes Observations will continue for several weeks	Baby Buggy Bumpers, pg 20 <i>What's Bugging You?</i>	mealworms container oats potato
Day 3		
30 minutes	How Sweet It Is, pg 18, <i>What' Bugging You?</i>	soft drinks small dishes
30 minutes	BEEhavior, pg 10, <i>Dragons, Houses, and other Flies</i>	five paper cups white paper red and black markers
Day 4		
30 minutes	Peek-A-Bug, pg 26, <i>What's Bugging You?</i> Where is an insect's home? <ul style="list-style-type: none"> • Insects may be collected for coming activities 	pencils collectors place to find insects collecting devices

Time Allotment	Activity	Supplies
	<ul style="list-style-type: none"> Youth should be thinking about a collection project that they will complete later. The insects collected for these activities may be used in the displays/ projects 	
30 minutes	GrassHOPper To It, pg 24, <i>What's Bugging You?</i> Faster than a Speeding Bullet, pg 32, <i>Helper's Guide</i> <ul style="list-style-type: none"> Comparing leg types. 	collection containers insects to compare leg types
Day 5		
30 minutes	Nothing in Vein, pg 26, <i>Dragons, House and other Flies.</i> <ul style="list-style-type: none"> Comparing wing types 	different kinds of insects
30 minutes	Chew, Slurp, and Burp, pg 20 <i>Dragons, Houses and Other Flies.</i> <ul style="list-style-type: none"> Comparing mouth parts. 	different kinds of insects
Day 6		
30 minutes	The Nose Knows, pg 16, <i>Dragons, House and other Flies.</i> <ul style="list-style-type: none"> Insect communication 	Orange index cards perfume lemon lime grapefruit
30 minutes	Bring 'Em Back Alive, pg 30, <i>What's Bugging You?</i> <ul style="list-style-type: none"> Insects previously collected can be used for this activity 	collectors previously made insect guides paper pens
Day 7		
60 minutes	Are We There Yet? pg 16, <i>What's Bugging You?</i> <ul style="list-style-type: none"> Starting an insect display. What other types of projects could be done with insects? 	collecting and displaying equipment
Day 8		
30 minutes	<ul style="list-style-type: none"> Working on Insect Projects 	project materials
30 minutes	Here Comes the Judge, pg24, <i>Helper's Guide</i>	insect projects