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

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<thead>
<tr>
<th>Time Allotment</th>
<th>Activity</th>
<th>Supplies</th>
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<tbody>
<tr>
<td><strong>Day 1</strong></td>
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| 30 minutes     | Stacking words, pg 28, Helper’s Guide  
- 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), Bug Watcher, Separator (pg 31), What’s Bugging You  
OR  
Observation Chamber, pg 23 Dragons,...  
- These will be used in other activities throughout the sessions | see supply lists on these pages |
| **Day 2**      |          |          |
| 30 minutes     | A Meal from a Worm, pg 6, Dragons, Houses and other Flies | same supplies as Baby Buggy Bumpers |
| 30 minutes     | Baby Buggy Bumpers, pg 20 What’s Bugging You? | mealworms  
- container  
- oats  
- potato |
| **Day 3**      |          |          |
| 30 minutes     | How Sweet It Is, pg 18, What’ Bugging You? | soft drinks  
- small dishes |
| 30 minutes     | BEEhavior, pg 10, Dragons, Houses, and other Flies | five paper cups  
- white paper  
- red and black markers |
| **Day 4**      |          |          |
| 30 minutes     | Peek-A-Bug, pg 26, What’s Bugging You?  
Where is an insect’s home?  
- Insects may be collected for coming activities | pencils  
- collectors  
- place to find insects  
- collecting devices |
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<tr>
<td></td>
<td>• Youth should be thinking about a collection project that they will complete later.</td>
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<tr>
<td></td>
<td>• The insects collected for these activities may be used in the displays/ projects</td>
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<td>30 minutes</td>
<td>GrassHOPper To It, pg 24, <em>What’s Bugging You?</em> Faster than a Speeding Bullet, pg 32, <em>Helper’s Guide</em></td>
<td>collection containers insects to compare leg types</td>
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<td></td>
<td>• Comparing leg types.</td>
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<td>Day 5</td>
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<tr>
<td>30 minutes</td>
<td>Nothing in Vein, pg 26, <em>Dragons, House and other Flies</em>.</td>
<td>different kinds of insects</td>
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<tr>
<td></td>
<td>• Comparing wing types.</td>
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<tr>
<td>30 minutes</td>
<td>Chew, Slurp, and Burp, pg 20 <em>Dragons, Houses and Other Flies</em>.</td>
<td>different kinds of insects</td>
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<td></td>
<td>• Comparing mouth parts.</td>
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<td>Day 6</td>
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<td>30 minutes</td>
<td>The Nose Knows, pg 16, <em>Dragons, House and other Flies</em>.</td>
<td>Orange index cards perfume lemon lime grapefruit</td>
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<td></td>
<td>• Insect communication</td>
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<tr>
<td>30 minutes</td>
<td>Bring ‘Em Back Alive, pg 30, <em>What’s Bugging You?</em></td>
<td>collectors previously made insect guides paper pens</td>
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<td></td>
<td>• Insects previously collected can be used for this activity</td>
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<td>Day 7</td>
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<td>60 minutes</td>
<td>Are We There Yet? pg 16, <em>What’s Bugging You?</em></td>
<td>collecting and displaying equipment</td>
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<td>• Starting an insect display.</td>
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<td></td>
<td>• What other types of projects could be done with insects?</td>
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<td>Day 8</td>
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<tr>
<td>30 minutes</td>
<td>• Working on Insect Projects</td>
<td>project materials</td>
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<tr>
<td>30 minutes</td>
<td>Here Comes the Judge, pg24, <em>Helper’s Guide</em></td>
<td>insect projects</td>
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