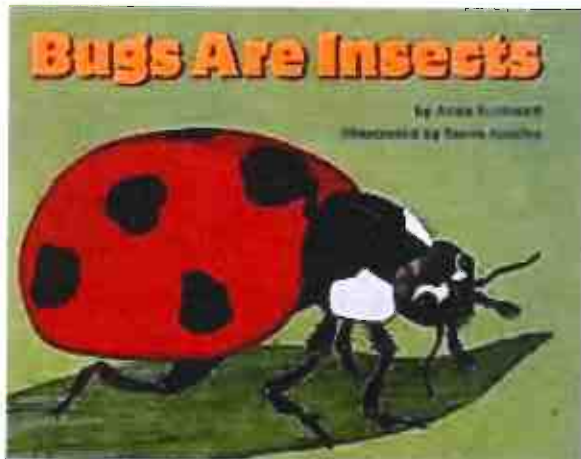


# Insect Investigators

## PSS Kit Number 2

### Kit Contains

3 White Flat Sheets  
3 Plastic Insect Box  
15 See-Through Bug Canisters  
3 "Bugs Are Insects"  
31 Fly Eye Prisms  
19 Magnifying Glasses  
1 Mini Magnifying Glass  
16 Real Bugs in Acrylic (4 sets)  
Lesson Plans



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## SCIENCE STANDARDS

### IELS 9.1

*Curiosity & Initiative*

### IELS 12.1

*Comparison & Number*

### IELS 12.3

*Shapes & Spatial Reasoning*

### IELS 12.4

*Scientific Reasoning*

### IELS 12.5

*Scientific Investigations & Problem Solving*

## VOCABULARY

**Investigation** – to observe or study closely

**Classify** – to put a group of things together that are alike in some way

**Living** – something that needs food, water, shelter and air to live and grow

**Life Cycle** – the set of stages and changes in the development of an animal or plant

**Metamorphosis** – a process in which an animal physically transforms (changes)

*\*Appendix A contains further vocabulary extensions and support.*

## BOOK

### Bugs Are Insects

By Anne Rockwell (Non-Fiction)

*\*Appendix B contains other suggested books to enhance this module.*

## PINT SIZE SCIENCE

# INSECT INVESTIGATORS

## CLASSIFYING INSECTS

## KIT MATERIALS

- Magnifying Glasses (10)
- Plastic Insect Box
- White Flat Sheet
- Fly Eye Prisms (10 pieces)
- See-Through Bug Cannisters (5)
- Real Bugs in Acrylic (2 sets)

## INTRODUCTION

The world of insects allows children a wonderful opportunity to investigate some of the living organisms in their environment. This interactive classroom experience introduces students to classification of living things, investigation of nature and insect anatomy. This is a great topic for fall that can be revisited in the spring. Encourage students to make observations using sight, sound, touch and even smell.

## GUIDING QUESTIONS

- What do you know about insects and bugs?
- What do you think is the difference between an insect and a bug?
- How can you learn more about insects?

## INVESTIGATIONS

*Experiments marked with (\*) take extra preparation. Use trays to minimize clean-up.*

### Magnifying Glasses

*How can we see things that are really small?* Magnifying glasses, microscopes and telescopes are all scientific tools that have lenses. *What things can we look at using these tools?* Each child can use a magnifying glass to make observations at the table or in the classroom. Encourage the students to use descriptive language to discuss what they observe. The patterns on your fingertips are a good example. Compare and contrast what you observe with and without the magnifiers. Have students describe what they see. *How do things look different when you hold the magnifying glass close to your eye than when you hold it far away from your eye? How could you use magnifying glasses to learn more about insects and other small things?*

### Head, Thorax and Abdomen

Just like people, all insects are different! But they also have shared characteristics. All insects have three body segments (head, thorax and abdomen) and three pairs of legs. Many insects have antennae and wings. Look at the Real Bugs in Acrylic. Decide if each bug is an insect or not. *Can you observe three body parts and three pairs of legs?* Put the blocks into groups based on similarities and differences. Ask students why they chose to put a certain bug in a specific group. Use the magnifying glasses to make microscopic observations. *What can you see with the magnifying glasses that you can't see without them?*

### Insect Investigation

Head outdoors to look for insects. *Where do you think we will find insects? Explain.* Compare your results to your predictions. Insects are everywhere outside; take a close look around you! They can be found on flowers, grass, under logs, rocks and even on the sidewalk. Observe the insects in their habitat. *Are there similarities between the insects or bugs that are found under logs?* Have students use their magnifying glasses. *What are the insects doing? How are they moving? Where are they going? How are they interacting with each other? What kind of sounds do they make?* Record your findings. Take pictures of the insects. Draw pictures of the insects in a journal. Look for insects on different days. Notice weather conditions. *Do you find the same kind/number of bugs on sunny days versus cloudy days?*



## Online Resources

Log in to find resources and extensions designed specifically for Insect Investigators!

<http://www.sciowa.org/pss/>

How to Care for Praying Mantises, Butterflies, Stick Insects & Beetles  
<http://www.keepinginsects.com>

Video – LIVE CAM! This live camera is situated at one of the hive entrances where a constant stream of honey bees flies by.  
<http://explore.org/live-cams/player/honey-bee-landing-zone-cam#sthash.YF1JW5Ph.dpuf>

## Appendices

- A – Vocabulary
- B – Books, Games, Songs and Videos
- C – Assessment Checklist
- D – Anecdotal Note Pages
- E – Science Standards
- F – Bloom's taxonomy

### Tree Investigation

Grab the white sheet, and explore the outdoors! *What kind of insects do you think you will find? Explain.* Place the white sheet beneath a tree or bush, and shake it so that leaves, bugs and other specimens fall onto the sheet. Then, take your magnifying glasses and explore what you found. *How many insects can you find? What do they look like? How are these bugs similar? How are they different?* Some of these specimens can be collected in the plastic insect boxes. Bugs are animals and need to breathe air, so they shouldn't be kept in the boxes too long. Look for insects on different days. Notice weather conditions. *Do you find the same kind/number of bugs on sunny days versus cloudy days?*

### Plastic Insect Box

Take the tree investigation a step further and place insects in your plastic insect box to keep in your classroom! Use your magnifying glasses to observe and record information about the insect. Classify insects by identifying common structures among them. *Is the specimen a bug or an insect? How do you know? In what kind of environment does it live? What parts of the insect help it to live in that habitat?* Bugs are animals and need to breathe air, so they shouldn't be kept in the boxes too long. Put the insects/bugs into groups based on similarities and differences.

### Fly Eye Prisms

Get a bug's eye view with these Fly Eye Prisms! Flies have two compound eyes made of more than 4,000 smaller 'eyes.' These eyes allow the fly to see shapes, motion, color and light differently than we do. Give students prisms, and allow them to look at a variety of objects using the prism. *How do things look differently through the prism?* Have all the students focus on one object. *How will it look if you view with the Fly Eye Prism? How do you think it would look if you looked at it through two prisms?* Give students another prism or have them share with neighbors. They can look through two of them like they are binoculars. *How do things look through two tubes? How does this compare to what you predicted?*

## Assessment

Appendix C, D and F contain assessment tools to be used with this module. Appendix C provides a checklist for students containing Iowa Early Learning Standards and GOLD objectives. In Appendix D, you will find anecdotal note pages for individual students. Finally, Appendix F contains each lesson placed into a Bloom's taxonomy table. Refer to online resources.



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