

# Primarily Critters

Developed and Published  
by  
**AIMS Education Foundation**

This book contains materials developed by the AIMS Education Foundation. **AIMS** (Activities Integrating Mathematics and Science) began in 1981 with a grant from the National Science Foundation. The non-profit AIMS Education Foundation publishes hands-on instructional materials that build conceptual understanding. The foundation also sponsors a national program of professional development through which educators may gain expertise in teaching math and science.

Copyright © 2012 by the AIMS Education Foundation

All rights reserved. No part of this book or associated digital media may be reproduced or transmitted in any form or by any means—except as noted below.

- A person purchasing this AIMS publication is hereby granted permission to make unlimited copies of any portion of it (or the files on the accompanying disc), provided these copies will be used only in his or her own classroom. Sharing the materials or making copies for additional classrooms or schools or for other individuals is a violation of AIMS copyright.
- For a workshop or conference session, presenters may make one copy of any portion of a purchased activity for each participant, with a limit of five activities or up to one-third of a book, whichever is less.
- All copies must bear the AIMS Education Foundation copyright information.
- Modifications to AIMS pages (e.g., separating page elements for use on an interactive white board) are permitted only for use within the classroom for which the pages were purchased, or by presenters at conferences or workshops. Interactive white board files may not be uploaded to any third-party website or otherwise distributed. AIMS artwork and content may not be used on non-AIMS materials.

Digital distribution rights may be purchased for users who wish to place AIMS materials on secure servers for school- or district-wide use. Contact us or visit the AIMS website for complete details.

AIMS Education Foundation  
1595 S. Chestnut Ave., Fresno, CA 93702-4706 • 888.733.2467 • [aimsedu.org](http://aimsedu.org)

ISBN 978-1-60519-076-1

Printed in the United States of America



# Primarily Critters

## Table of Contents

Materials List.....	4	Compare and Share.....	171
Chinese Proverb .....	6	Move It, Move It, Move It .....	173
<b>Critter Needs</b>		Banding Together .....	185
Attending to Needs .....	7	Arrive in Five.....	197
Shrinking Supplies .....	15	Make a Model .....	201
We've Got Guppies* .....	17	<b>Critter Adaptations</b>	
Where Can Animals Live? .....	23	Under Cover.....	203
Creature Homes .....	33	Animals All Year.....	209
A Walk in the Park .....	35	Teeth That Cut, Tear, and Grind.....	219
What Do You Eat? .....	49	Telltale Teeth .....	223
Food Chains: Who Eats What? .....	57	A Bat Face.....	225
Reader's Theater: We Need Each Other .....	67	<b>Critter Life Cycles</b>	
<b>Observing Characteristics and Behaviors</b>		Chick Flicks.....	229
Lenses & Ladybugs* .....	75	A Frog's Life .....	237
Making Sense of Crickets* .....	81	The Life and Times of the Ladybug .....	241
Spider Spoofs and Proofs* .....	89	* Denotes activities that use live critters.	
Spying on Spiders* .....	97		
Cool-ants* .....	103		
Isn't It Interesting: Defend-ANTS .....	109		
Cup of Worms* .....	111		
Humpback Habits .....	117		
Gulping Goldfish* .....	121		
<b>Critter Parts and Movement</b>			
Body Shop.....	127		
Pictures and Parts.....	139		
Creature Creations .....	145		
Fish and Their Fins .....	155		
Wingspan Wonderings.....	163		
Finding Features .....	167		





### Topic

Environmental changes

### Key Question

How do worms change our environment?

### Learning Goals

Students will:

- build worm homes, and
- observe the changes worms make in their environment.

### Guiding Documents

*Project 2061 Benchmarks*

- *Change is something that happens to many things.*
- *Animals and plants sometimes cause changes in their surroundings.*
- *Tools such as thermometers, magnifiers, rulers, or balances often give more information about things that can be obtained by just observing things without their help.*
- *A lot can be learned about plants and animals by observing them closely, but care must be taken to know the needs of living things and how to provide for them in the classroom.*

*NRC Standards*

- *All organisms cause changes in the environment where they live. Some of these changes are detrimental to the organism or other organisms, whereas others are beneficial.*
- *Changes in environments can be natural or influenced by humans. Some changes are good, some are bad, and some are neither good nor bad. Pollution is a change in the environment that can influence the health, survival, or activities of organisms, including humans.*

### Science

Environmental science

changes

Life science

animals

### Integrated Processes

Observing

Comparing and contrasting

Inferring

### Materials

9-oz plastic cups

Soil

Cornmeal

Measuring spoon, tablespoon

Measuring cup, three-fourths cup

Earthworms

Spray bottle with water

Hand lenses

Black construction paper

### Background Information

The earthworm is one of the most simple and lowly of animals, but it is also one of the most important. In fact, earthworms could be considered the most important of all animals in their role as nature's gardeners. We humans have worked hard to develop better ways to plow, cultivate, and fertilize the land in order to grow the crops we need. Earthworms do these tasks naturally, effectively, and efficiently, tunneling their way through the soil, mixing up the different layers as they go, and excreting material rich in nutrients. In the process of manufacturing the world's best plant food, they clean up dead organic material. By breaking up and aerating the soil, they enable air and water to get to the roots of the plants, as well as allowing those roots to spread more easily. Their work is essential to the growth of plants, and thus is tremendously significant for our health and well-being.

### Management

1. Nightcrawlers are large and easy to see and handle. They can be purchased at a bait shop or pet shop, and they are usually sold in containers of a dozen. In many locations, two different sizes are available. Either size works fine for this activity, but the larger ones are preferable. If you are in a location that has native nightcrawlers, you and your students can collect your own.

2. If students are going to handle the worms, they should have clean hands with no residue of soap on them. If they are going to handle them for some length of time, students should moisten their hands.
3. Nightcrawlers are deep-burrowing creatures. The worm cups in this activity are not suitable for keeping them for more than two weeks. Return the worms to their natural environment or offer them as bait for someone's next fishing adventure. Do not put nightcrawlers into compost piles.
4. Use any rich, moist soil for the worm cups. Do not use potting soil as it is often treated with chemicals that will burn the worms.
5. Keep the soil in the worm cups moist by misting it with a spray bottle. Warn children not to saturate the soil.
6. Emphasize that the nightcrawlers are living creatures and must be treated with respect.
7. If students have not used hand lenses, demonstrate the proper method of use. Show them how to put the hand lens up to their eye and then to move toward the object until the object is in focus. They may need some free exploration time with the tool.
8. Cut the black construction paper into 3-inch by 12-inch strips.
9. Hand lenses (item number 1977) are available from AIMS.

### Procedure

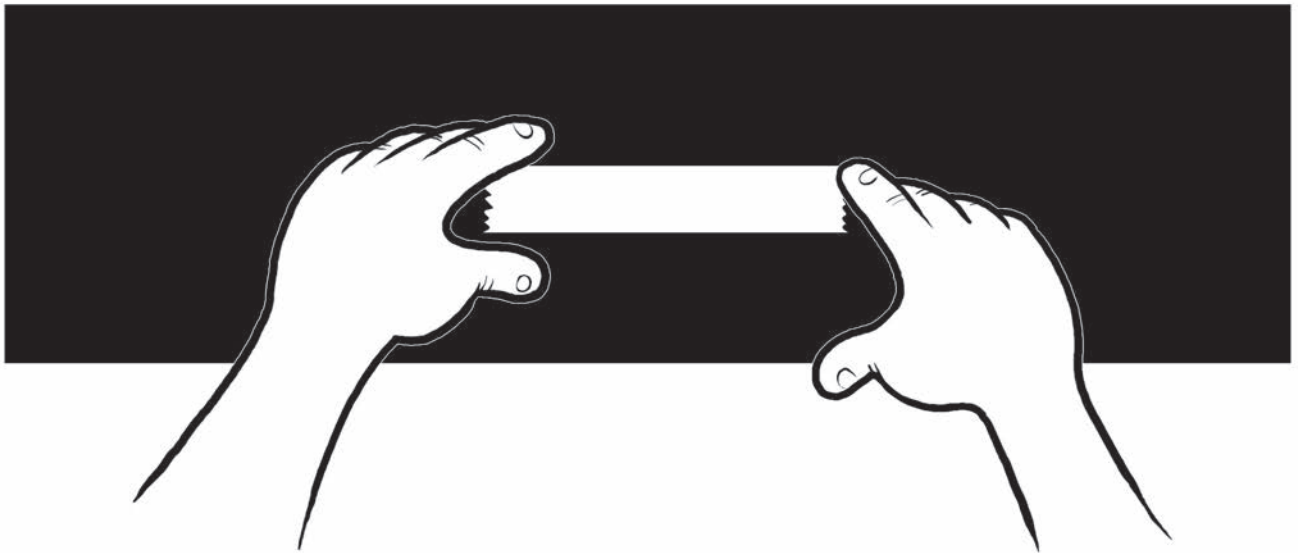
1. Ask the *Key Question* and state the *Learning Goals*.
2. Tell the students that they will be following some directions in order to make their worm cups.
3. Distribute the materials and instructions and assist students in building their worm cups.
4. Once the worm cups are made, distribute two nightcrawlers to each student. Discuss with them proper care for their worms. Emphasize the need to not overwater their worm cups.
5. Have students observe their worms in the cups. Distribute the hand lenses and invite students to share their observations.
6. Have students put their worm cups in a safe place. Tell them to put the black paper sleeves over the cups to give the worms a dark home.
7. Have students observe the worms and worm cups over a two-week period of time.

### Connecting Learning

1. Explain how you made the worm cups.
2. Why did we put the cornmeal in the cup? [It was food for the worm.]
3. How did the worm cup change over time?
4. How is this like what worms do in the ground outside?
5. What things did you do to take care of your worms?
6. How did the hand lenses help you observe the worms?
7. What are you wondering now?



1. Put a piece of masking tape on the black construction paper.



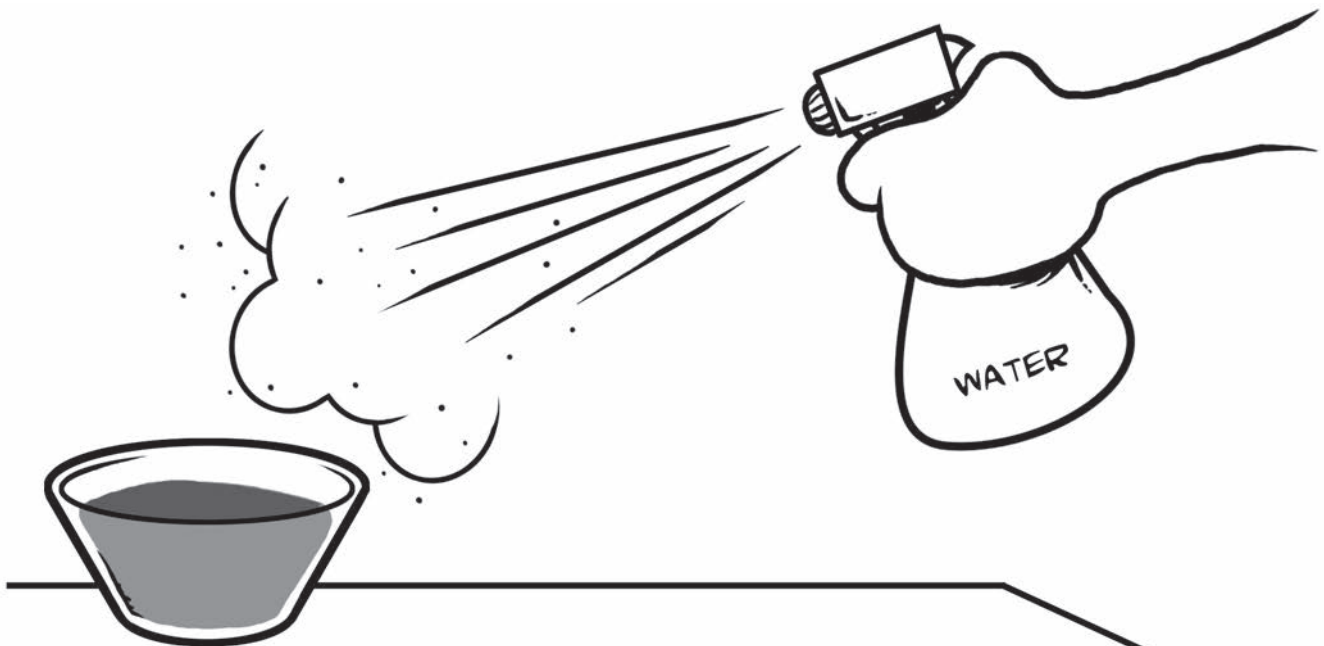
2. Put your name on the piece of masking tape.



3. Put three-fourths of a cup of dirt into the worm cup.



4. Use the spray bottle to mist the dirt in the cup. Spray it 10 times.





5. Sprinkle two tablespoons of cornmeal on top of the dirt.



6. Tape the piece of black paper as shown.

