

# THROWING SHADE BALLS



TEACHER GUIDE

ACCELERATE



# PLANNING

Here's a suggested schedule for this kit! The activities should be completed in order, but you can choose when the lessons take place over time. Time required for each lesson may vary.

ACTIVITY INFORMATION	SECTION	TIME REQUIRED	DAY/ LESSON
<b>ACTIVITY 1: FLOATING BALLS</b> Find out what a shade ball is. <b>Time required: 1 h</b>	<input type="checkbox"/> Shade Balls	60 minutes	Day 1
	<input type="checkbox"/> Planting Prep		
<b>ACTIVITY 2: PLANTS AND ALGAE</b> Test the impact of shade balls on plants. <b>Time required: 2 h</b>	<input type="checkbox"/> Shade Ball Experiment (Set-Up)	30 minutes	Day 2
	<input type="checkbox"/> Energy From the Sun (Photosynthetic Organisms)	30 minutes	Day 3
	<input type="checkbox"/> Energy From the Sun (Photosynthesis)	30 minutes	Day 4
	<input type="checkbox"/> Shade Ball Experiment (Results)	30 minutes	Day 5
<b>ACTIVITY 3: BUILDING UP AND BREAKING DOWN</b> Watch as microscopic organisms break down food. <b>Time required: 2 h 30 min</b>	<input type="checkbox"/> Baggie Breakdown (Set-Up & Initial Observations)	30 minutes	Day 6
	<input type="checkbox"/> What's for Lunch? (Diets)	30 minutes	Day 7
	<input type="checkbox"/> Baggie Breakdown (Ch...		

*Full schedule available with purchase*

## BUILDING UP AND BREAKING DOWN

The Sun is an energy source that is absorbed by plants and algae. In this next activity, your student will uncover microorganisms involved in energy flow through ecosystems.

### LEARNING GOALS:

- ✓ I can describe how matter moved between plants, animals, decomposers, and the environment.
- ✓ I can show how energy is transferred from the sun to plants to animals.

## BAGGIE BREAKDOWN

### Set-Up

- Students will be setting up four bags of soil and various food items.
  - Two bags will be placed in a warm, sunny location and two will be placed in a cool, dark location.
  - Two bags will have the food items in direct contact with the soil, whereas the other two will not have direct contact.
- Crackers and lettuce leaves are provided for your student to test in this kit. If the lettuce leaves don't grow large enough for use, your student will still see acceptable results with just crackers.
- They may include any additional food items of their choosing that are available to them.
- The crackers come two in a pack and your student was given four packs. This is so that students can put a single, whole cracker in each bag. If there are not four whole crackers between all four packs, have your student use the crackers that are most whole.
- Students will leave their bags in the locations they chose for five days. They should return to them on Day 3 and Day 5 to make their check-in observations.
- While you can let the experiment run longer, but you shouldn't have it be less than five days for best results.
- As the experiment runs, your student should find that the foods in the "Light, Direct Light" bag decompose fastest, while those in the "Dark, indirect" decompose the slowest. They will learn why in the next section.

### MULTIPLE AGES AND ABILITIES:

There are four bags that are to be set up according to the instructions provided in the Student Workbook. If you are working with multiple students, you can have each set up a single bag so that each student can be hands-on with the experiment.

Alternatively, you can have students make up their own bags with foods they provide while you set up those instructed in the Student Workbook. Then, you can compare how the ones in the Student Workbook differ from those the students set up. Differences could include the food items, water content, quantity of soil, etc.

# FOOD WEBS

## CONTENT

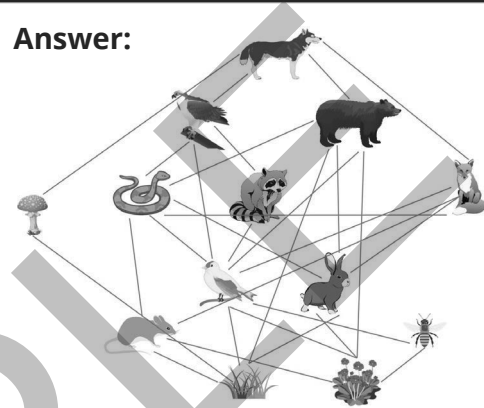
- In this section, students will learn about how food chains are pieces of food webs and that each ecosystem has a food web, which might overlap with other ecosystems.
- Students will learn the vocabulary term food web.
- As part of the student assessment for this section, students will use the organisms from the assessment at the end of Activity 4 to build a food web.

## REFLECT

### ? Question:



### Answer:



### How to Help:

- When your student was working with the organisms for their food chains, there were three apex predators.
- All the same species are used for their food web, but only one is an apex predator.
- If your student gets stuck, explain that the wolf is the apex predator as it can eat both the fox and the hawk.

# NATURE WALK

## PREPARATION AND SUPERVISION

■ In this section, students will go on a nature walk to look for examples of matter and energy flowing through their local ecosystem. From the information they gather, they will develop a food web.

■ Ecosystem is defined in this section.

■ The four main ecosystems (sometimes referred to as biomes) that your student will likely live in are:

- Forest ecosystem: Can be tropical or temperate. Include several types of plants, animals, and microorganisms.
- Grassland ecosystem: Dominated by grasses and herbs. The most common animals to observe will be birds or insects.
- Tundra ecosystem: No trees, but small shrubs, lichen, and moss. Animals will have different coat colors based on season and many animals hibernate during winter.
- Desert ecosystem: Most animals are reptiles or small mammals that are most commonly seen at night. Plants will primarily be succulents.

■ It might help your student to first research what ecosystem they live in and possible organisms they will see in that ecosystem. This can guide your student during their nature walk.

■ Unless your student sees fungi, like mushrooms or large strips of mold, or lichen on trees during their nature walk, they will likely struggle to observe a decomposer.

■ Encourage your student instead to look for evidence of decomposers through decomposed or decomposing organic material, such as browning leaves or roadkill.





# SCIENCE UNLOCKED

© Home Science Tools. All rights reserved.  
*Reproduction for personal or classroom use only.*

Contact us at: [www.homesciencetools.com/customer-service/](http://www.homesciencetools.com/customer-service/)

A Product of [Homesciencetools.com](http://Homesciencetools.com)

Kit	SU-SHADEB
Instructions	IN-SHADEBT
Revision Date	4/2022