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# Energy Matters

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## Overview

This lesson and related activities are designed to give students hands-on experience in understanding that complex interactions occur between matter and energy.

## Grade: 6

## TEKS

Scientific Processes

6.1 A

6.2 B, E

6.3C

Science Concepts

6.8 A, B, C

## Vocabulary

Matter

Energy

Food chain

Food web

## Materials

5x7 Index cards

Yarn

Glue

Chart paper

Pencils

Tape

Tagboard

Ziploc bags

Markers

## Downloadable Sheets

\*Salt Marsh Activity Cards

\*Animal List

## Pre-Eastman Classroom Activities

### Before Class Begins:

1. This lesson assumes students understand the basic concepts of matter and energy.
2. Write and display the definitions for *matter*, *energy*, *food chain*, and *food web*.
3. Make one copy of Salt Marsh Activity Cards for each pair of students.
4. Gather the supplies needed: chart paper, markers, yarn, 5x7 index cards, and glue.

### Lesson:

1. Ask students to write down their five favorite foods.
2. In groups of four, students will share the lists, looking for some foods that are listed often.
3. Create a class list of most common foods, such as pizza, hamburgers, etc.
4. Guide students to determine that we eat food to get energy.
5. Refer to the list, picking one item that contains beef and create a food chain. (Ex: human, cow, grass, sun)
6. In groups, students will create a food chain using yarn and index cards. Each chain must have humans at the top and end with a plant.
7. Each group can present their chain to the class. Reinforce the concept that plants produce energy from sunlight.
8. Introduce food webs as networks of food chains. Create a web using the students' food chains. Be sure to place the plants at the bottom of the web. Above this, place the animals that eat the plants and continue to add organisms, ending with humans at the top. Draw arrows indicating the flow of energy upward through the web.

### Independent Practice:

1. Students will create a salt water marsh food web using the Activity Cards. They will glue the cards onto chart paper beginning with plants across the bottom and follow the procedure modeled in Step 8.

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## In The Field

1. Prior to leaving the school, make sure you have:
  - 5x7 Index Cards
  - Pencils
  - Tape
  - Animal List
  - Tagboard
  - First Aid Kit
  - Water and snacks if needed
2. Set behavior expectations and go over safety issues with the students. Repeat that they are not to touch or put anything into their mouths without permission.
3. Give each pair of students an index card. Instruct them to draw a line down the center, dividing it into two sections. Label one section "Energy" and the other section "Matter".
4. In pairs, students will record on their card the types of matter and forms of energy they observe in the forest.
5. Meet together as a group and discuss their findings. Have students make connections between the matter and energy. They may draw lines connecting items on each list. (Ex: connect "sun" to "trees")
6. Emphasize that the energy flowing through the ecosystem is contained in the matter.
7. Have students circle on their list the matter that is food or needs food. Discuss the organisms they were not able to observe, such as squirrels or deer, and add them to their list.
8. In pairs, students will find at least five food items in the forest, placing them in a Ziploc bag.
9. Upon returning, students will create a food chain using the items collected and the animals on the Animal List provided. Give students blank tagboard, tape, and markers for this activity. They should follow the same guidelines practiced in the classroom.

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## Post-Eastman Classroom Activities

**Supplies needed:**

- Glue
- Chart paper
- Markers

1. Display the food chains created in the field.
2. Using these chains, each pair of students will create a forest food web on chart paper.