



LESSON PLAN

HOW DO WE USE FOOD GRADES 3-5

SUMMARY

Students will explore how their bodies use food as a source of energy, and discover that the energy stored in food comes from the sun. Prior to this lesson, students need to know that animals need food to grow and live.

DURATION

One to two 45-minute classroom periods.

PRE-ASSESSMENT QUESTIONS

Please see Discussion Questions on website. These can be discussed as a group or answered individually in student science notebooks.



ENGAGE

Show students a picture of a person swimming in a competition, or of a rabbit running through a field. Ask students to describe what they see in the image. Explain to students that energy is needed for the person to swim (or rabbit to run). This energy helps the person move his or her arms and feet to swim faster. It allows the rabbit to move its muscles, stretch its legs, and move fast through the field. Ask students where they think this energy comes from.

MATERIALS

- Science notebooks
- Pencils

Station 1

- Half-slice of bread
- Sandwich bag
- Water

Station 2

- 5 Styrofoam cups
- Images of sun, grass, grasshopper, frog, bird
- Glue
- Scissors

Station 3

- Science notebooks



EXPLORE

Explain to students that they will be observing and describing food as an energy source for living things, and learning how energy is transferred from the sun through a chemical process called photosynthesis. They will explore how energy from food originates from the sun and is transferred to living things. Set up the following stations around the room:

STATION 1: DIGESTION AND ENERGY

At this station place a sandwich bag with a half-slice of bread. Add enough water for the student to squish the bread in the bag and see it physically break down.

STATION 2: ENERGY TRANSFER AND FLOW

At this station place 5 styrofoam cups on the table. They can be placed in a random order on the table. Each cup should have an image: sun, grass, a grasshopper, frog, and bird. These images need to be glued to the front of the cup for students to clearly see. Have students stack the cups according to how energy is transferred through this food chain.

STATION 3: FOOD SOURCES

At this station have students draw pictures of what they eat at lunch. Sandwiches and pizza are excellent choices for this activity. Students will break down the food and trace its energy chain back to the sun.

STATION 1

FOCUS QUESTION: HOW DOES FOOD PROVIDE ENERGY FOR PEOPLE?

Squeeze the sandwich bag that contains the bread and water. Write down in your notebook what happens to the bread as you squeeze the bread.

STATION 2

FOCUS QUESTION: HOW DOES ENERGY TRANSFER FROM THE SUN TO PLANTS AND THEN TO ORGANISMS?

What happens to energy as each organism feeds another? Think about this as you stack the styrofoam cups in the correct order. This correct order should show what organisms feed on each other, starting with the sun.

STATION 3

FOCUS QUESTION: WHERE DOES FOOD ENERGY COME FROM?

Does all food energy come from the same place? Write your answer in the notebook before looking at each food. As you look at the different foods in your group think about what living thing each piece of food comes from.

Divide students into three groups. Allow the groups to rotate through each station and use their science notebooks to record their observations.



EXPLAIN

After students complete all stations begin a classroom discussion about the way that energy from the sun is transferred to food and converted back to energy in an organism's body.



Explain that Station 1 focused on the use of food for human energy. Station 2 illustrates how energy transfers through non-living and living things in different ways. Station 3 shows how we obtain food energy from different sources - trace the energy chain back to the sun, water, and soil which feed the plants.



WATCH THE HOW DO WE USE FOOD VIDEO AS A CLASS

Then facilitate a class discussion using the Discussion Questions.



ELABORATE

In the video, students saw many different ways living things use food for energy. They also discovered that food energy can be traced back to the sun. Now students will investigate this idea about photosynthesis further. Students can use the DIY Activity to make a windowsill garden like Zoe and Izzy from the video. They should describe the importance of capturing sunlight energy for plant growth, and how these plants can be used for food energy.



EVALUATE

Have students revisit the image of a person swimming or rabbit running they first saw in the Engage portion of the activity. Students have learned a lot about how food is used for energy. Encourage students to re-evaluate their original answers to the proposed question of where they think energy required to perform the activities in the image comes from. Have students discuss why their answer to this question changed or did not change. Ensure students use the content learned from watching the video and performing the activities to justify their reasoning.

Working in pairs, have students design a model that represents how energy is transferred from the sun to organisms across 4-6 steps, starting with the sun and ending with an apex predator. After providing enough time for this activity, have students share and describe their models with the class.

