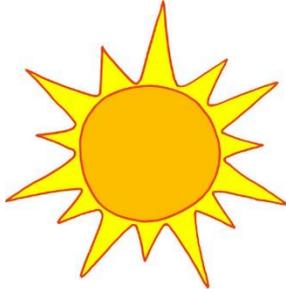


What are Sunbeams?



Objective: To understand the primary source of energy is the sun. To examine how energy from the sun changes and takes many forms; to understand how these forms come to us.

Background: Energy gives us the ability to perform actions such as

running, playing sports, and even thinking. This is because energy is stored in our body in our muscles and brain cells. Energy allows things, and people, to move and do work and it exists in many forms, like energy that is used to light a streetlamp, cool buildings during warmer months, and cook our favorite foods.

The sun is the source of all energy, but energy can be stored in many things such as natural gas, food, coal, water, and wind. Energy does not have a shape and therefore we cannot hold it in our hands; however, energy can be changed from one form to another. When gasoline is burned in a car, the energy in gasoline is converted to heat energy. When we stand outside in the sun, light energy is changed into heat as well.

Materials:

- **Paper** (yellow construction paper to cut out the sun and sunbeams; OR regular paper for students to draw their own sun)
- **Markers** or crayons to label sunbeams
- **Optional: Scissors, glue** (to attach sunbeams if you choose not to draw a sun)



Educational Farm & Nature Preserve

ODE Common Core Model Tie-In:

*NOTE: This is not an exhaustive list

Grade 3 Physical Science

Topic: Matter and forms of energy

Concept: Matter can be used by living things for materials and energy. There are many different forms of energy. Each living component of an ecosystem is composed of matter and uses energy.

Grade 4 Physical Science

Topic: Electricity, Heat and Matter

Concept: Heat and electrical energy are forms of energy that can be transferred from one location to another. Matter has properties that allow the transfer of heat and electrical energy. Heating and cooling affect the weathering of Earth's surface and Earth's past environments.

Further Learning Experiment:

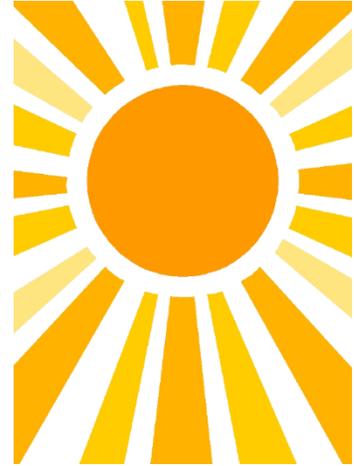
Grade 7 Physical Science

Topic: Conservation of mass and energy

Concept: Systems cycle matter and energy in observable and predictable patterns.

Procedure:

1. Draw or cut out a picture of the center of the sun (a circle); label the circle 'Energy' and think about what kinds of energy we get from the sun.
2. Make a list of all examples of energy you can come up with; the objective is to help students understand that the sun is the primary source for many different things (food, wood, oil, gas, coal, light, heat, plants, etc.) Provide a helpful explanation for less obvious examples.
3. Draw or cut out several sunbeams (rectangles/strips of paper) and write an energy word from the previous list on each beam. Attach sunbeams to circle if necessary.
4. Have students share their sun with each other; look for similarities or unique examples of energy. Ask students how their energy examples would be different if we had no sun, two suns, or a sun that was closer/further away.



Further Learning Experiment: Melting Ice

Objective: To provide additional understanding of how solar energy works.

Procedure:

1. Place ice cubes outside in your backyard on a sunny day. Place one cube directly in the sun and place another cube in full shade.
2. Ask children which ice cube they think will melt faster.
3. As the cube in the sun turns into a puddle first, explain that the heat energy from the sun made it melt faster (The light energy from the direct sunlight turns into heat energy, warming the ice cube and melting it more quickly).

