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Earth Science Astronomy Unit  
8<sup>th</sup> grade

**Objectives:**

- ❖ To determine the effect of the earth's tilt on the amount of the incoming solar radiation throughout the year.
- ❖ To understand the reason for the changes in the seasons.

**MN State Science Standard:**

Earth and Space Science- The Universe:

The student will explain how the combination of the earth's tilted axis and revolution around the sun causes the progression of seasons.

**Time frame:** 3 days

**Materials:**

- ❖ 4-5 light sources (flashlights or lamps)
- ❖ Styrofoam balls or globes
- ❖ Poster board
- ❖ Magazines and pictures
- ❖ Scissors
- ❖ Glue
- ❖ Solar panel hooked up to a fan
- ❖ Pencil and paper

**Day 1:**

Introduction:

Opening questions:

Ask students to describe some of the ways people today acknowledge the changing of the seasons. (List their ideas on the board.)

What aspects of ancient peoples' lifestyles would have been closely influenced by the seasons? (List ideas on the board.)

How have people kept track of seasons in the past and how do they keep track of seasons today? (List ideas on the board.)

Lab Activity:

<http://k12.ocs.ou.edu/teachers/lessons/seasons.html>

Assessment:

Lab questions 2-6 on lab activity. Turn in at the end of the hour.

### **Day 2 and 3:**

Review how you get the seasons and demonstrate lab once more.

Teacher will demonstrate the following outside.

### **Solar panel demonstration:**

Take a solar panel attached to a small fan outside.

How can you position the panel to make the fan run faster?  
(Turn the panel upside down as you hold it up higher?)

Do everything wrong as a teacher to get them to discover that the angle of the sun makes a difference in the running of the fan.

### **Seasonal Collage Activity:**

In groups of 3-4, make a drawing on a poster board relative to the sun on each of the four seasons. Label the 2 equinox and 2 solstice dates.

Cut out pictures that have to do with each season and display them on each earth position.

Assessment: Turn in the seasonal collage poster.

