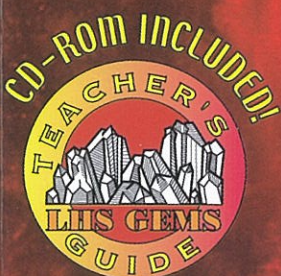


# THE REAL REASONS FOR SEASONS



SUN-EARTH  
CONNECTIONS

Grades 6-8



Lawrence Hall of Science



University of California at Berkeley

## Activity 1

### What You Need

#### For each student:

- 1 sheet of writing paper
- 1 Seasons Lab Book (or just the "Seasons Game" sheet, page 3 of Seasons Lab Book)
- 1 pencil

#### For the class:

- a chalkboard or overhead projector
- Optional*—some sort of prize for the winner of the Seasons Game, e.g., decorative pen or pencil, a computer diskette, paperback book.

## Activity 2

### What You Need—Part A

#### For the class:

- a light bulb, any size or wattage
- a lamp with no shade
- an extension cord
- 1 Earth globe

#### For each group of four to six students:

a piece of scratch paper and pencil

#### For each student:

- 1 "Seasons Survey" (p. 4 of Seasons Lab Book)
- 2 extra copies of the survey
- 1 pencil
- 1 pen
- (*Optional*) graph paper

### What You Need

#### For the class:

- (*Optional*) 3 calculators

#### For each student:

- Seasons Lab Book with their own completed survey
- the completed surveys of their friends and family
- pencil
- graph paper
- colored markers

#### For each group of 4–6 students:

- a piece of scratch paper

## Activity 3

### What You Need

#### For the class:

- 1 overhead projector or CD-ROM disk used with the whole class at once (see note at right, "Get Out your CD-ROM")
- 7 pages of overhead transparencies for "Trip to the Sun" (masters on pages 31–43)  
**OR**
- CD-ROM disk
- 1 scale model (a car or any toy made to scale is fine)
- 1 Model Sun (28 cm diameter) drawn on manila file folder; to make this the first time, you need:
  - \_\_\_ 1 manila file folder
  - \_\_\_ 1 marking pen, wide tipped
  - \_\_\_ 1 strip of card stock, about 1 cm x 16 cm
  - \_\_\_ 1 pushpin
  - \_\_\_ 1 small piece of corrugated cardboard, at least 5 cm square
- one Earth globe or large ball \* (see note below)
- 1 ruler, any type

#### For each student:

- 1 "Trip to the Sun" worksheets (pp. 5–8 of Seasons Lab Book)
- 1 pencil
- (*Optional*) 1 calculator

\* Inflatable globes don't work well for the demonstration at the end of this activity. You will need a hard-surfaced Earth globe. A soccer ball, basketball, or other rigid, large ball will also work.

## Activity 4

### What You Need

#### For every pair of students:

- a 25 cm piece string or twine—not stretchy
- 1 pencil
- 3 sheets of blank paper (or 2 sheets and page 9 of Seasons Lab Books)
- 2 push pins or thumb tacks
- a stack of newspaper, at least the thickness of the pins or tacks students will use
- 1 ruler (centimeters)

#### For the class:

- 1 40 cm piece string or twine—not stretchy
- a bulletin board or chart paper pad
- one piece of paper at least 14 x 14 inches
- two push pins or thumbtacks
- 1 overhead transparency of 3 ellipses and comet
- 1 blank overhead transparency
- 2 different colored transparency pens
- 1 hula hoop *or* large round embroidery hoop
- scratch paper to draw extra ellipses

## Activity 5

### What You Need

#### For each student:

- 1 List of locations with latitudes and longitudes (page 10 of Seasons Lab Book)
- 1 World Map (page 11 of Seasons Lab Book)
- 1 "Temperatures Around the World" data sheet (page 12 of Seasons Lab Book)
- 1 "Temperatures Around the World" graphing sheet (page 13 of Seasons Lab Book)
- 1 pencil

#### For each group of 4-6 students:

- 3-4 colored pens—assorted colors

#### For the class:

- 1 world globe
- 1 overhead transparency of World Map or a large World wall map (master in Seasons Lab Book, page 11)
- 1 overhead transparency of Temperature Data Sample (master in Getting Ready, next page)
- 1 overhead transparency of Temperatures Around the World Graph (blank; master in Seasons Lab Book, page 13)
- 1 overhead transparency of Temperature Around the World Graph (complete; master on page 59)
- 1 overhead projector
- 1 assortment of colored transparency pens

## Activity 6

### What You Need

#### For each student:

- 1 "Seasonal Changes in Day Length" data sheet (page 14 of Seasons Lab Book)
- 1 "Day Length" graphing sheet (page 15 of Seasons Lab Book)
- 1 pencil

#### For each group of 4-6 students:

- 3-4 colored pens—assorted colors

#### For the class:

- 1 transparency of Day Length Data Sample (master in Getting Ready; on bottom half of next page, page 66)
- 1 transparency of World Map or a large World wall map (master in Season Lab Book, page 11)
- 1 transparency of Day Length Graph (blank; master in Seasons Lab Book, page 15)
- 1 transparency of Day Length Graph (complete; master on page 67 in teacher's guide)
- Optional: photograph of a sunset

## What You Need

### For the class:

- 32 polystyrene balls
- 32 pencils
- 100 watt bulb with clip-on socket and extension cord
- Optional: 8 Earth globes

## Activity 8

### What You Need

#### For each pair of students:

- 1 piece of scrap paper or the back of the Seasons Lab Book
- 1 Sun Angle Analyzer (master for photocopying on page 82)
- one paper fastener (or brad) with flat head
- pencil
- (*Optional*) a short piece of tape, any kind

#### For the class:

- 100 watt bulb with clip-on socket and extension cord
- 1 Earth globe—at least 20 cm (8") diameter
- (*Optional*) 1 small paper doll cutout or model action figure—not more than a few centimeters tall
- small piece of tape—almost any kind