Arctic Seasons Model

Build a Sun-Earth model to explore changing seasons in the Arctic!

Materials Needed:

Arctic Seasons Model printable, scissors, metal brads, pencil, glue.

Instructions:

Step 1: Prepare your pieces. Cut out each piece along the dotted lines (make sure not to cut the solid lines!). Use a pencil tip to make small holes on the black dots. The letters and numbers will help you assemble the model.

Hint: You can glue the template to cardstock to make it sturdier.

Step 2: Place the Sun on top of hole **A** on the long strip. Match up the holes and fasten a metal brad through them.

Step 3: Apply glue to the gray rectangle marked **B2.** Glue **B1** face down onto **B2**, matching up the ends marked "June" and "December".

Step 4: Place the **B1/B2** circle on top of **B3** (on the long strip). Align the three holes and fasten a metal brad through them.

Step 4: Fold lines 1, 2, and 3 on the short strip to form a triangle. Apply glue to the gray rectangle marked **E** and glue down to close the triangle (see picture).

Step 5: Place the Earth on top of hole **C**. Match up the holes and fasten a metal brad through them.

Step 6: Fold the person piece in half. Glue the backs of the two sides together (make sure not to glue the two bottom tabs!). Fold the bottom tabs outward and glue your person on top of the Earth picture.

See the next page for how to use your model!

Seasons in the Arctic

The Earth spins around its axis (invisible line through the Earth from the North to South Pole) once every 24 hours. Each year (about 365 days), the Earth makes one full rotation around the Sun. Earth's axis is tilted about 23 degrees, and as the Earth orbits the Sun, its tilted axis always points in the same direction. Throughout the year, different parts of Earth get the sun's direct rays, causing different seasons.

How To Use Your Model:

Align each month on the small wheel with the same month on the Sun. Rotate slowly through the matching months to see how the angle of the Earth changes, compared to the Sun. How does the amount of sunlight change throughout the year?

Spin the Earth on its axis. One rotation is one day and night.

Remember the Earth is round. This model shows a top-down view of the Arctic region.

Explore a year of seasons in the Arctic:

Winter Solstice (December): The Arctic faces away from the Sun. It is the darkest time of year. In January and February, the Arctic gradually angles closer to the Sun.

Vernal Equinox (March): The Earth's axis tilts sideways compared to the Sun. The Arctic and other regions of Earth have about equal lengths of day and night. In April and May, the days become longer and warmer.

Summer Solstice (June): The Arctic summer brings long hours of daylight. In July and August, the Arctic region begins to angle slightly away from the Sun.

Autumnal Equinox (September): As in March, the sideways angle of Earth means we get roughly equal lengths of days and nights. In October and November, the days become shorter and winter is on the way again.

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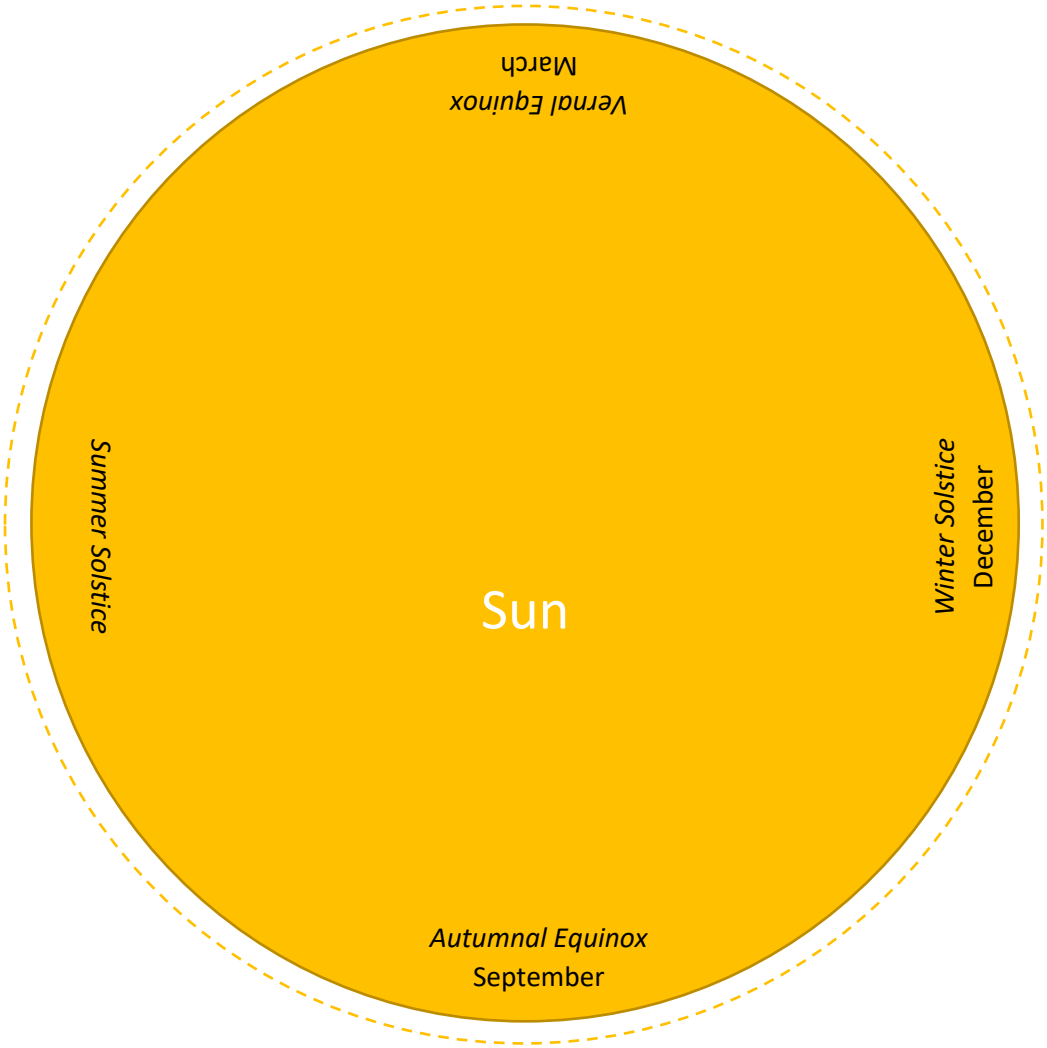
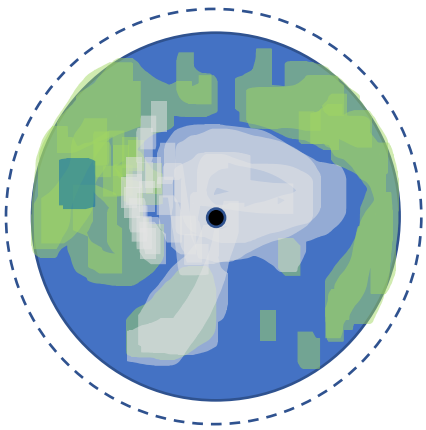
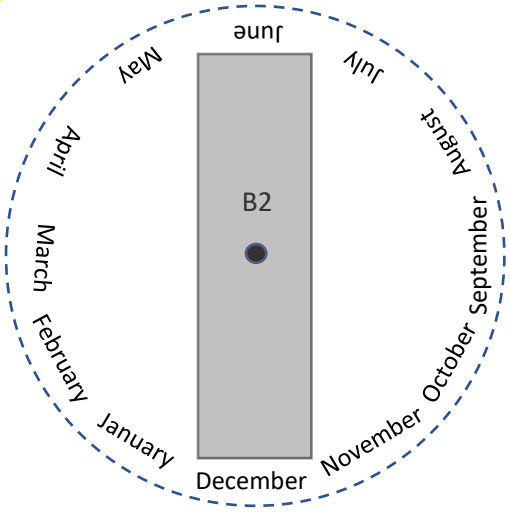
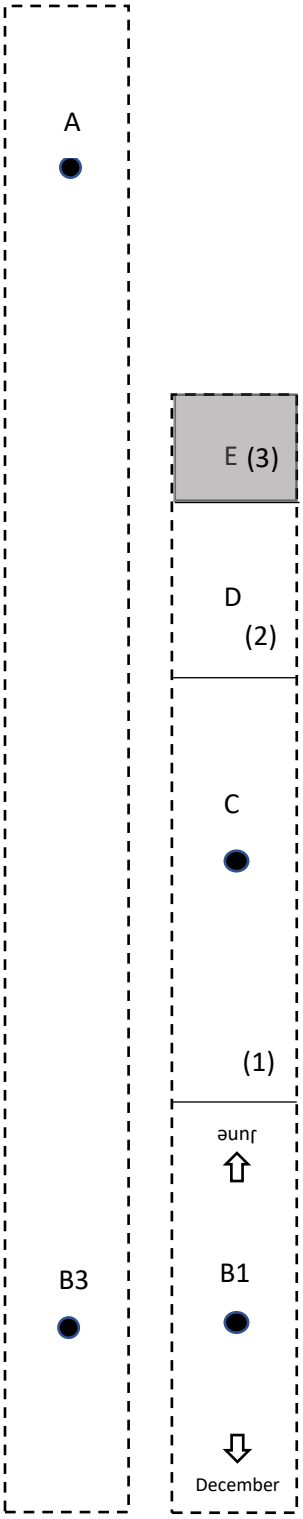
Arctic Seasons Model Template

Cut out each piece along the dotted lines. Solid lines are for folding. Use a pencil tip to make small holes on the black dots. Apply glue to gray areas. Follow the assembly directions on the activity sheet to create your model.









Notes: *The Earth, Sun, and distance between are not to scale. The actual orbit of Earth around the Sun is an ellipse, rather than a circle.*

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Sunlight and Seasonal Activities

The Earth's axis (invisible line from the North to South Pole) is tilted about 23 degrees. Because of this tilted axis, throughout the year different parts of Earth get the Sun's direct rays, causing different seasons. Arctic regions experience extreme changes in daylight throughout the year, from almost 24 hours of daylight on the summer solstice to almost 24 hours of darkness on the winter solstice.

For many Indigenous cultures living in Arctic environments, dramatic changes in sunlight determine the availability of resources such as plants, animals, and ice-free rivers. These resources guide the seasonal calendar of activities.

Left: Western Alaska sunrise. *Image: Wikimedia Commons.*

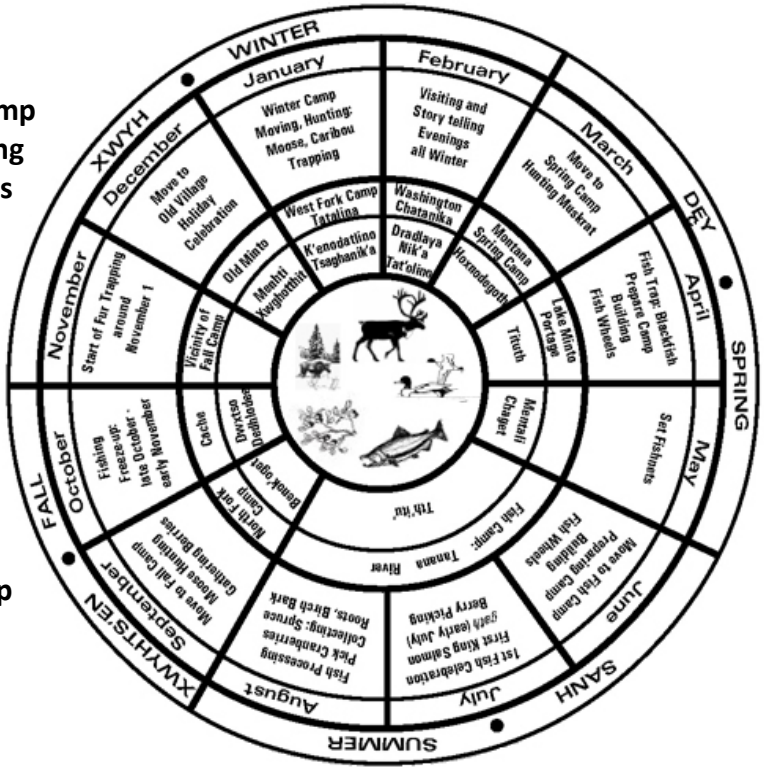
For the Dené (Athabascan) peoples, the traditional lifestyle was mobile and depended on moving with seasonal changes and hunting opportunities. Below is an example of seasonal activities from the village of Minto.

Winter

Moving to winter camp
Visiting & storytelling
Winter celebrations
Trapping

Spring

Moving to spring camp
Fishing for blackfish
Repairing fish wheels
Hunting muskrat



Fall

Moving to fall camp
Moose hunting
Fishing
Fur trapping

Summer

Moving to fish camp
Fish processing
Collecting birch bark
Picking berries

Image: Alaska Native Knowledge Network.

Discover more about seasonal activities in Minto:

ankn.uaf.edu/curriculum/Athabascan/ObservingSnow/fourcorners.html

Note: Seasonal activities vary according to cultures, communities, and individuals. The information collected here is just one example.

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