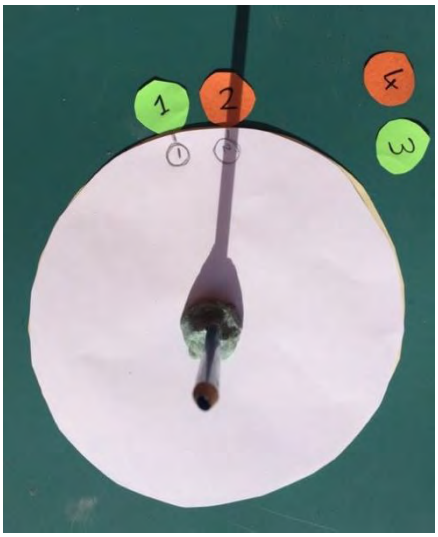
Create a Sundial

Explore how to tell time with the help of the Sun!

Materials:

Sundial Template printable (or draw your own), scissors, pencil, playdough or clay, glue. You will also need a sunny day and access to outside.



Instructions:

Step 1: Cut out the sundial template and number markers. If you are making your own, draw a circle 8 inches (20 cm) in diameter, and write the numbers 1 through 12 on smaller pieces of paper.

Step 2: Place your circle in an outside location that will remain sunny as long as possible.

Alternatively, you can make a larger circle on the ground and mark the edges with rocks, snow, or sticks.

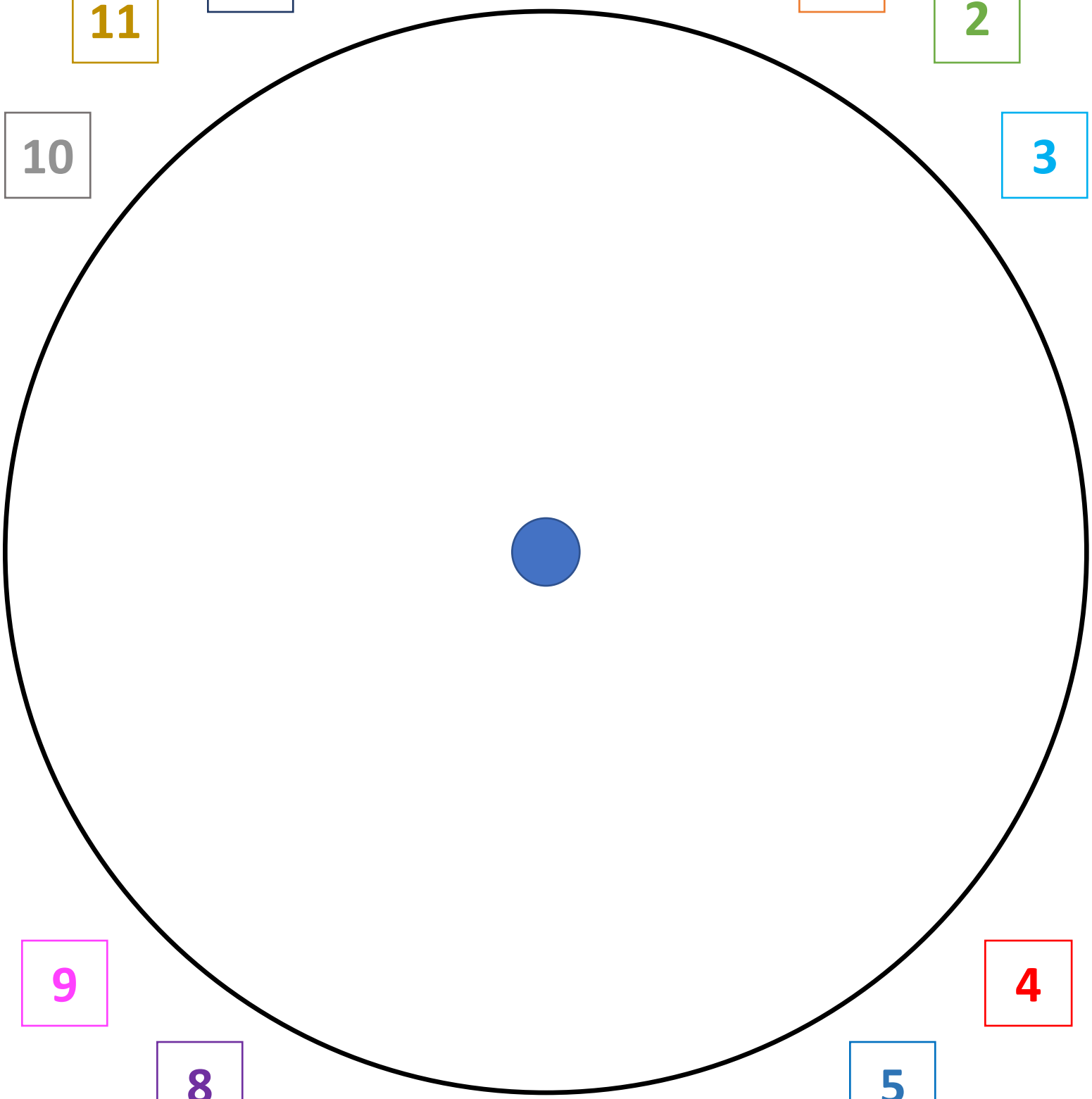
Step 3: Make a ball from playdough or clay, about 1 inch (2.5 cm) thick. Place it the center of the circle. Stick one end of the pencil in the ball so it stands straight up. The pencil should cast a thin shadow on the paper, similar to the hand on a clock. As the Sun moves in the sky, this shadow will help you tell time!

Step 4: Wait for your own clock to mark the hour, and mark that time on your sundial. Write or glue the number for the hour (such as 10 for 10 am) on the outside edge of the circle where the shadow of your pencil falls.

Step 5: Predict where the shadow will move. Come back each hour and add another time marker. How is your sundial similar or different from a clock?

As the seasons change, try this activity again. What do you notice?

Sundial Template



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Telling Time with the Sun

The Earth orbits, or moves in a circle, around the Sun once every year. At the same time, the Earth spins around once every 24 hours. Because of this, we see the Sun in a different position in the sky as time passes. From our position on Earth, it takes one day for the Sun to come back to the same place in the sky. The position of the Sun in the sky is how we tell time!

For thousands of years, people have watched the Sun to tell time. Cultures all over the world divided the day into sections, observed changes in the amount of sunlight, and tracked the movement of the Sun.

Right: *An Arctic sunset.* *Tom Bech, via Wikimedia Commons.*

The Earth spins on a tilt, so the position of the Sun also changes throughout the seasons. For many Indigenous cultures living in Arctic environments, extreme changes in sunlight throughout the year determined the availability of resources, which then guided the seasonal calendar of activities.

See an example of an Athabascan seasonal calendar from the village of Minto:

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

Sundial at the Georgeson Botanical Gardens.
Photo by Elisabeth Padilla.

In Fairbanks, you can see sundials outside the Noel Wien Library and at the Georgeson Botanical Gardens!

Download a sundial template designed for Interior Alaska *(courtesy of the UAF Geophysical Institute)*: **www.gi.alaska.edu/alaska-science-forum/sundial-fairbanks**

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