# LESSON PLAN:
# INTRODUCTION TO LAND SURVEYING & OBSERVATIONS
## *Making a Sundial*

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# Introduction to Land Surveying & Observations:
# *Making a Sundial*

## Objectives

1. Introduce the concept of land surveying for making observations of the world around us.
2. Students will learn about navigational techniques to make observations.
3. Students will work together in small groups to create a sundial, a device that uses the earth's rotation to tell time.

## Materials

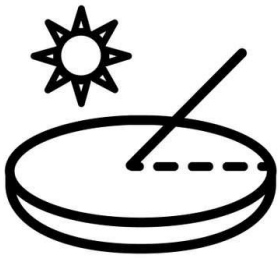
1. **Video: https://www.generationgenius.com/activities/earths-orbit-and-rotation-activity-for-kids/**
2. **Paper Plate**
3. **Glue Stick**
4. **Bendy Straw**
5. **Compass**
6. **Pair of Scissors**
7. **Roll of Tape**
8. **Sharpened Pencil**
9. **Sundial face printout (Link to download)**


## Procedure

1. Watch video to get an idea of how to make a DIY home sundial.
2. Break the class into groups of three students.
3. Have one student from each group come to the front of the class to get the required materials.
4. Talk the class through the steps:
    a. First, cut out the sundial and glue it to a paper plate.
    b. Poke a hole through the center of the plate using the pencil.
    c. Push the straw through the hole and tape the short end underneath to hold it in place.

5. Take the sundial outside on a sunny day at noon and place it in a flat, sunny area.
6. Point the sundial north using the compass and tilt the straw slightly north so it casts a longer shadow.

7. Observe the sundial over a few hours. Record the changes in time as the angle of shadow changes. The shadow of the straw tells you the time!



## Wrap up/Questions

1. What was the hardest part of the project?
2. What would life be like if you didn't know how to determine what time of day it was?
3. What do you think the importance of being able to use instruments to observe the world around you is?
4. What are 5 other basic tools that can be used to measure or observe things in the environment?