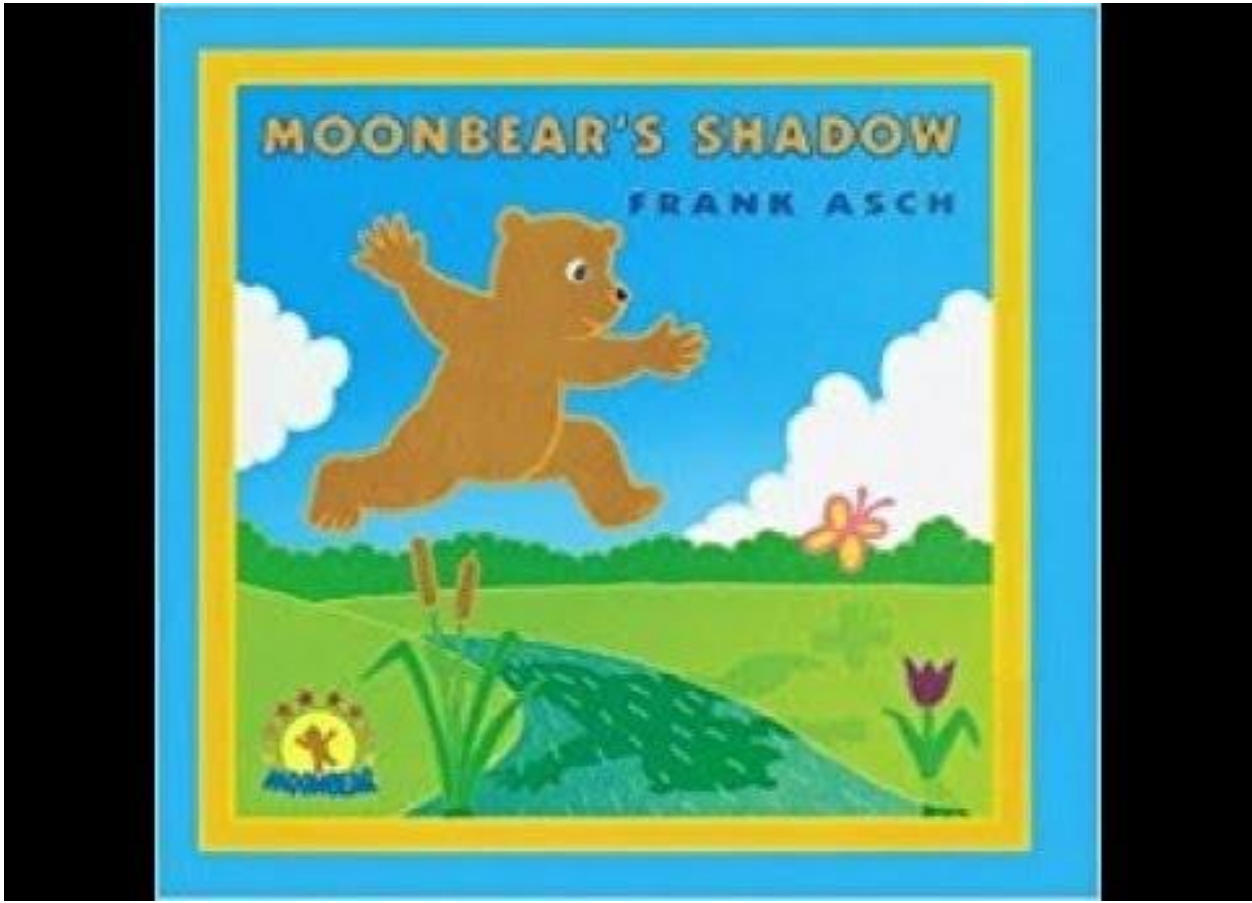
# Sundial Clock Curricula Teacher Deck

# Day 01: Investigating Shadows

# Moonbear's Shadow

By Frank Asch




Video Link: https://www.youtube.com/watch?v=DaBNagX1meY

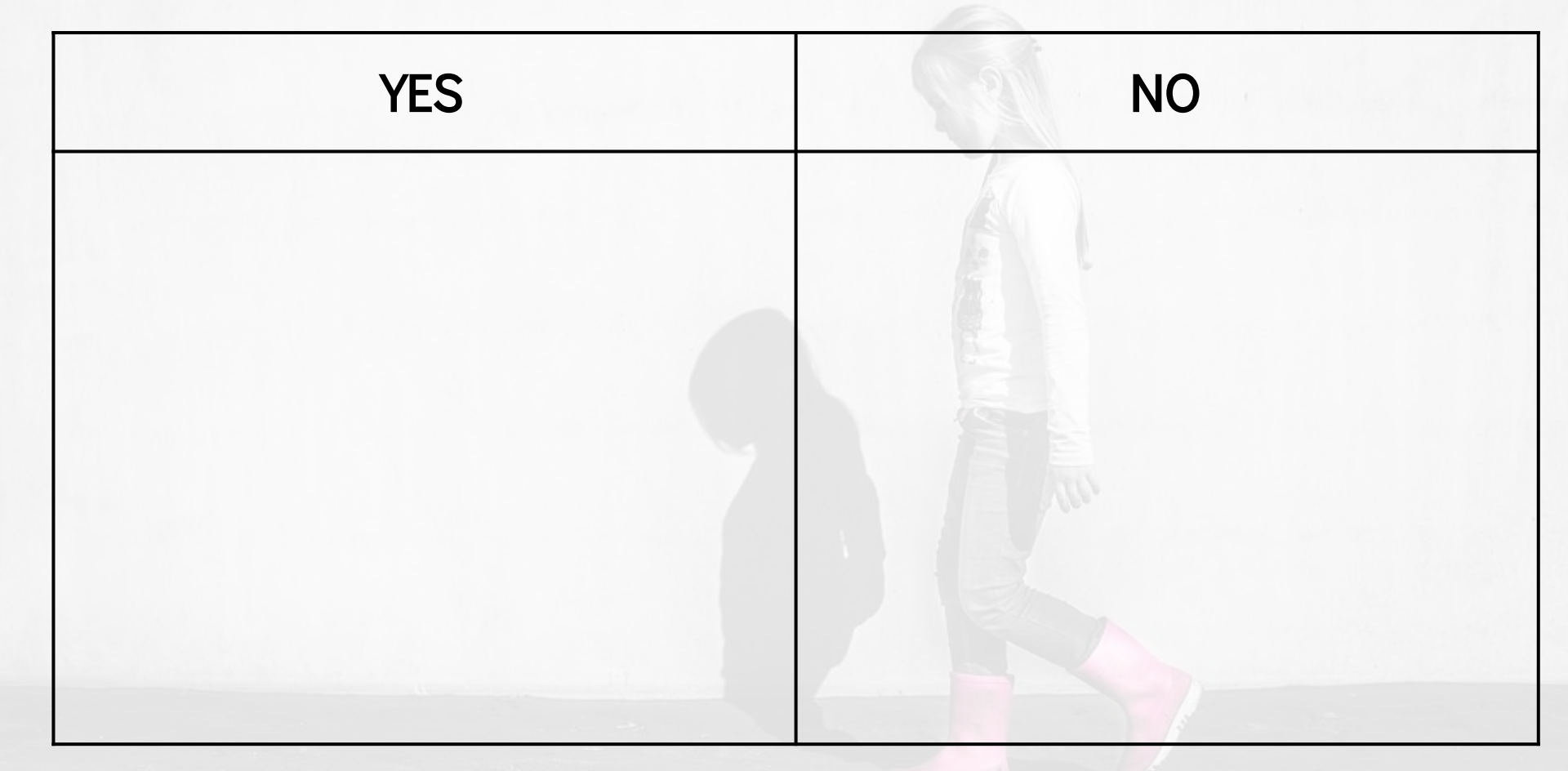
# What will your shadow look like?

This is me, _____ .

This is my shadow.

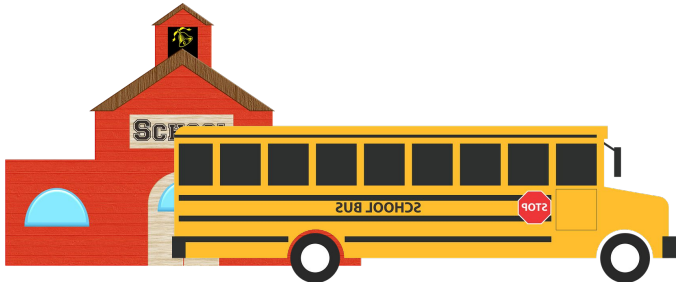
# Will our shadows change during the day?

| YES | NO |
| --- | --- |
| | |

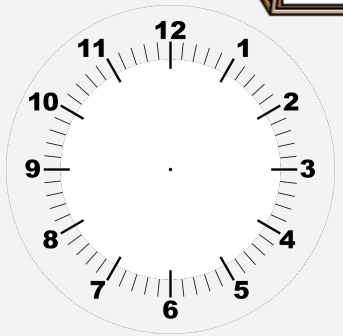
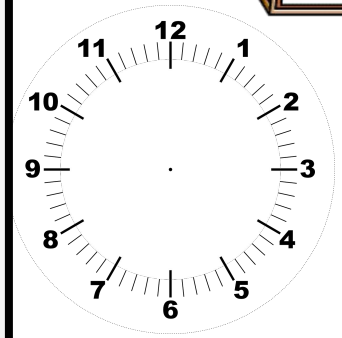
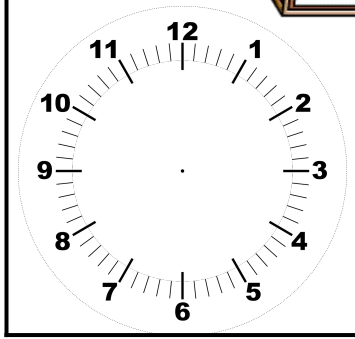
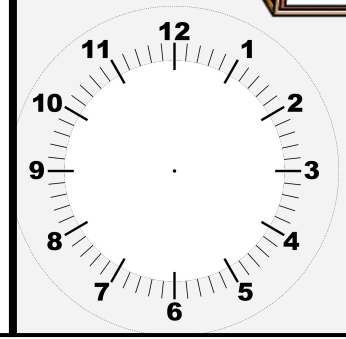


# Will our shadows change during the day?

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YES | | | | | | | | | | | | | | |
| NO | | | | | | | | | | | | | | |



# My Shadow: _____

| | |
|---|---|
| Trial 1   | My shadow: |
| Trial 2   | My shadow: |
| Trial 3   | My shadow: |
| Trial 4   | My shadow: |

# Day 02: Constructing the Sundial

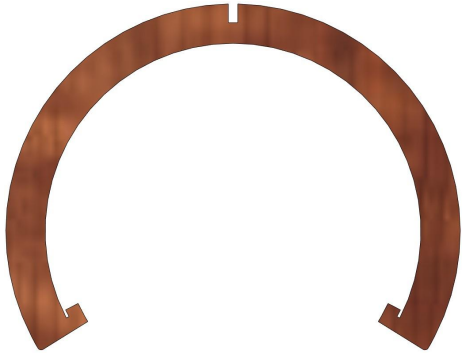
# History of Keeping Time with the Sun and Earth


# Back in time...

# Sundial Clock

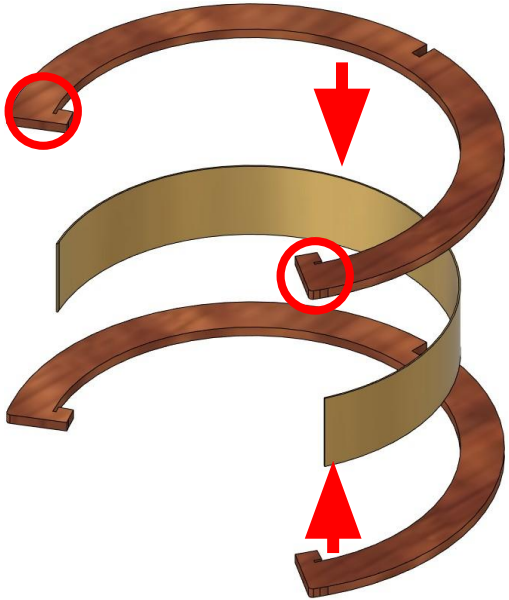
# Step 01:

## Part(s) Needed:



Sundial Horizontal Support [x2]

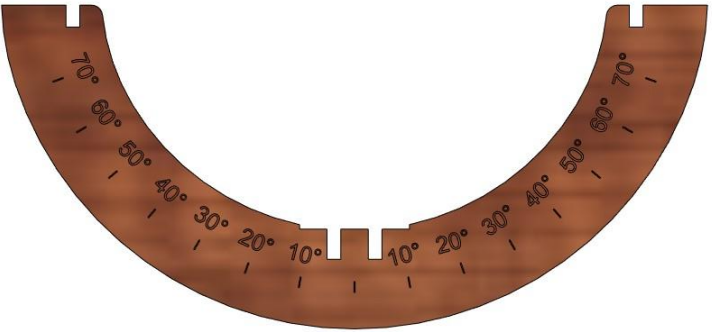

Dial



**01. With the dial facing you like the image shown in the middle, bend Dial inward so that it can slide through the notches in the horizontal supports**

# Step 02

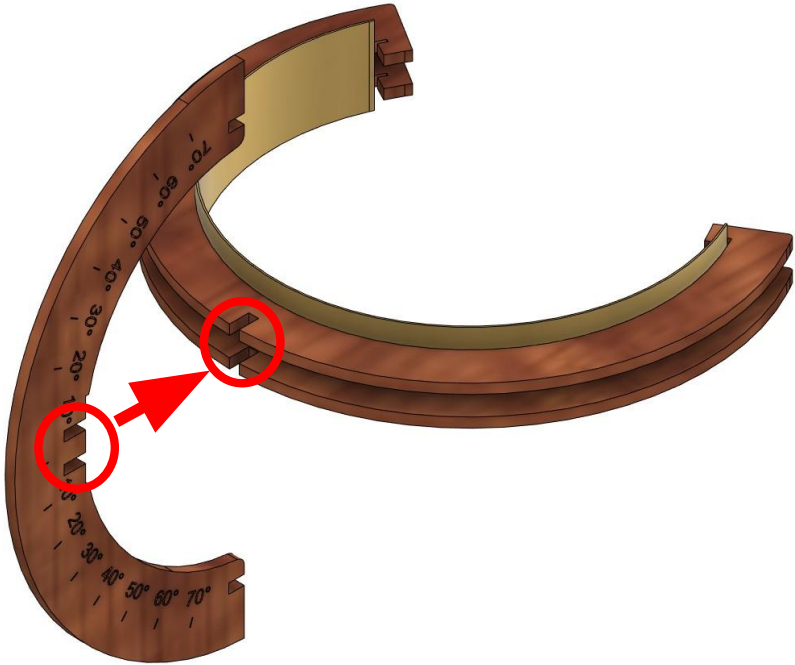
**Part(s) Needed:**




Sundial Vertical Support

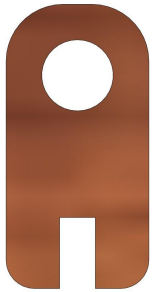
**02.1. Add glue to the notches in the horizontal supports and vertical support**

**02.2. Attach vertical support to horizontal supports [Some adjusting of the horizontal supports may be needed]**



# Step 03

## Part(s) Needed:



Gnomon Holder [x2]

Gnomon

**03. Slide Gnomon through both Gnomon holders**

**[Do NOT Glue Yet!]**

# Step 04

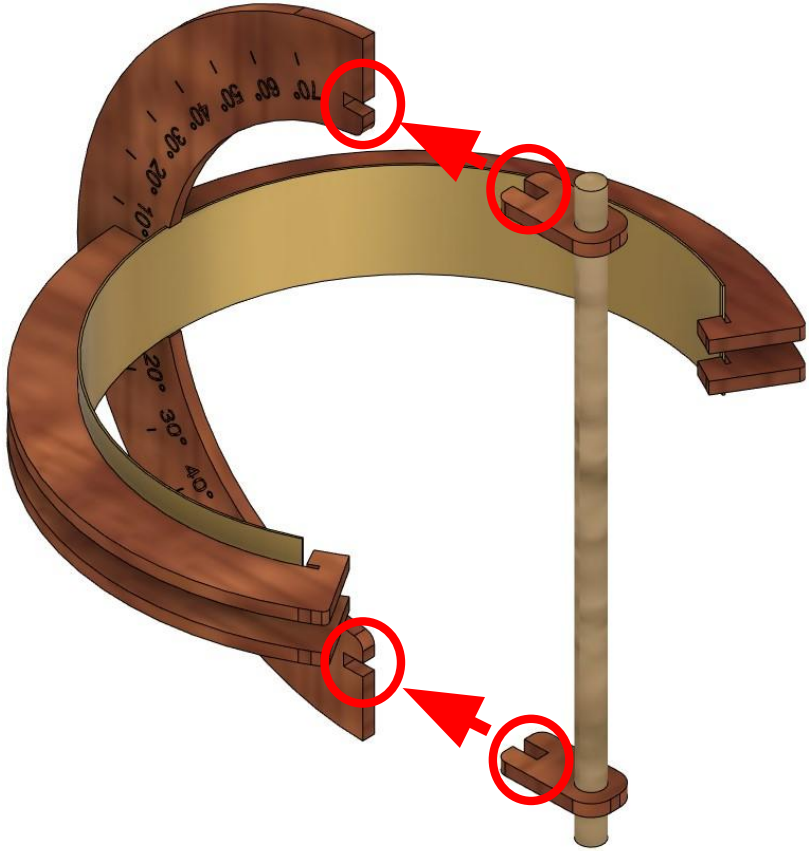
**Part(s) Needed:**

**Assembly from Step 02 AND Step 03**

**04.1. Add glue to notches in vertical support and Gnomon holders**

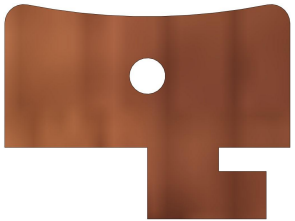
**04.2. Attach Gnomon holders to notches in vertical support**

**<u>Optional</u>: Add glue to Gnomon/Gnomon holder connection**

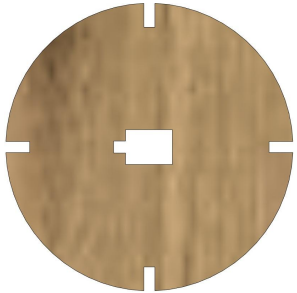


# Step 05

**Part(s) Needed:**

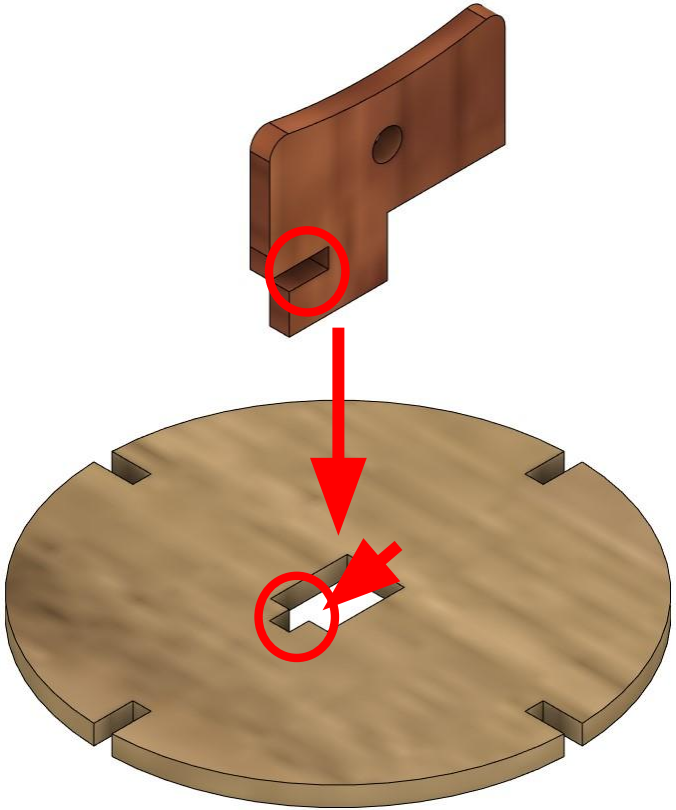


Sundial Central Base Insert



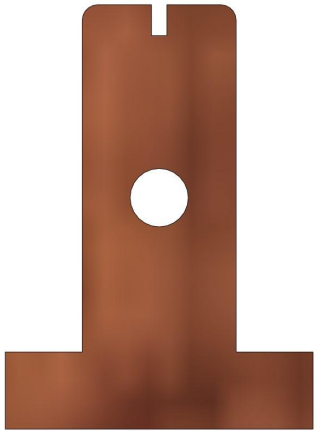
Sundial Base

**05. Insert central base down through hole in the sundial base and then slide over to lock in place**



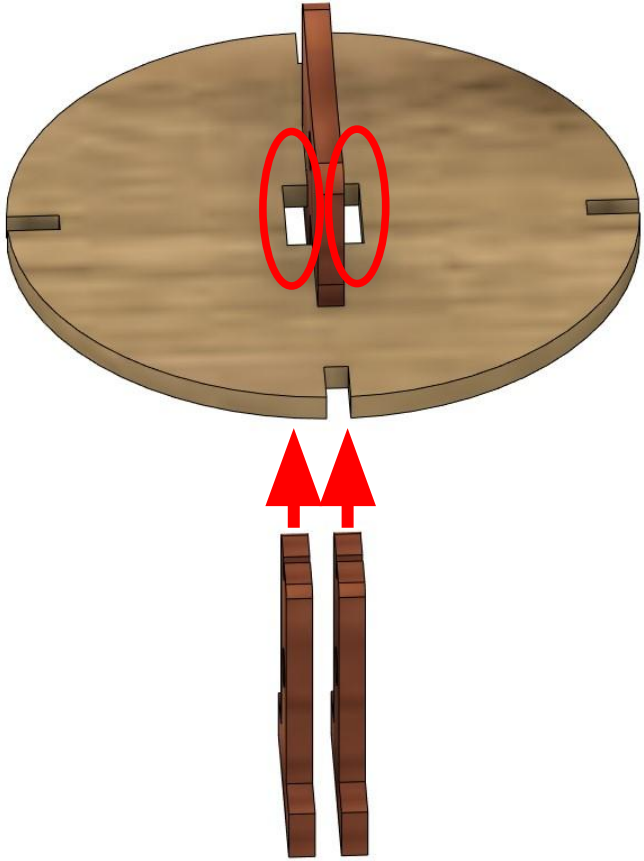
# Step 06

**Part(s) Needed:**



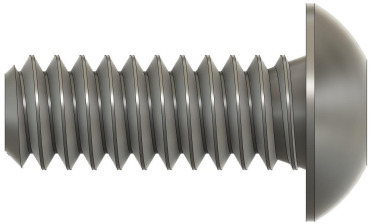
Sundial Side Support [x2]

**06. Slide side supports along both sides of the central base insert**

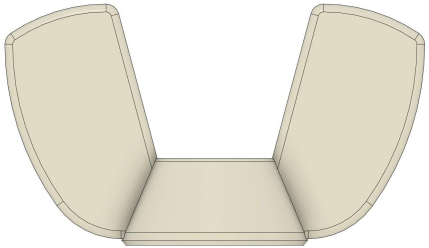


# Step 07

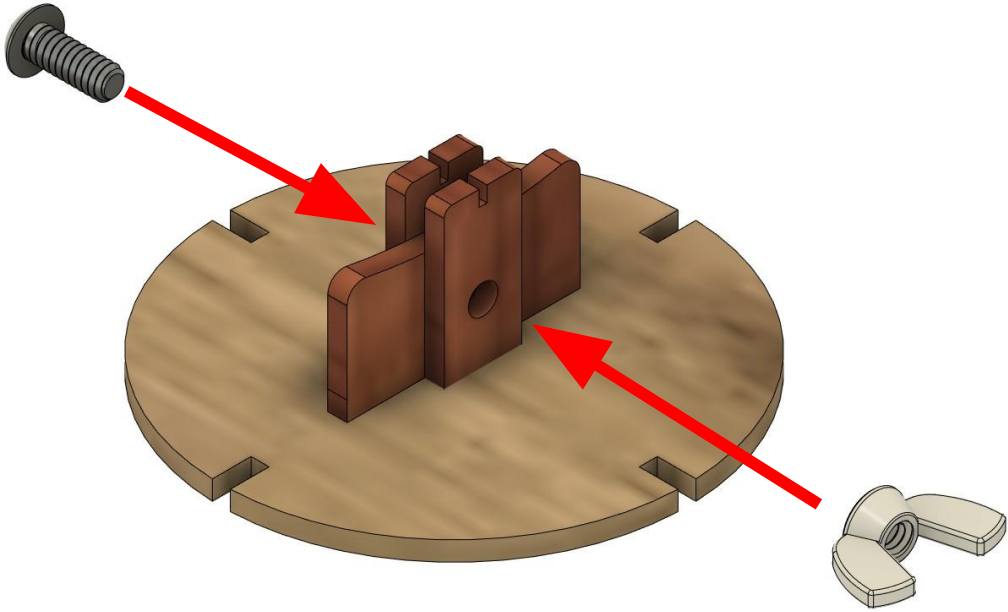
**Part(s) Needed:**



Sundial Bolt



Sundial Nut

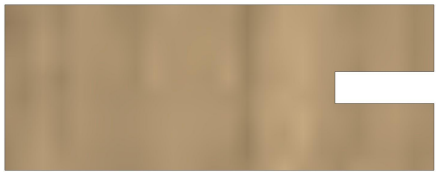


**07.1. Slide nut through holes in side supports and central base insert**

**07.2. Twist nut around bolt and tighten**

# Step 08

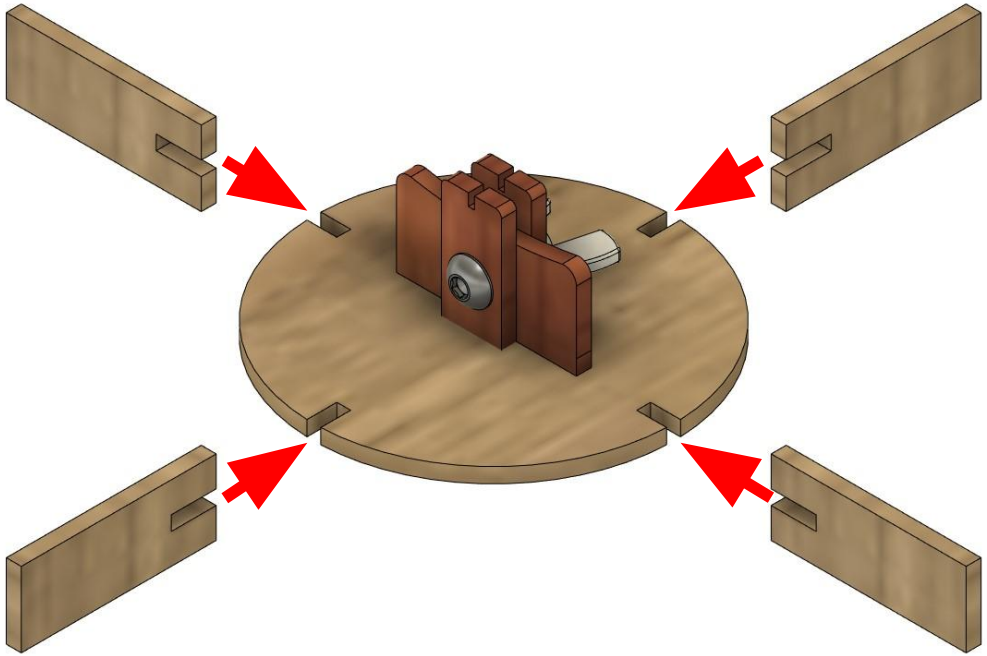
**Part(s) Needed:**



Sundial Legs [x4]

**08.1. Add glue to notches in base and legs**

**08.2. Attach legs to base**

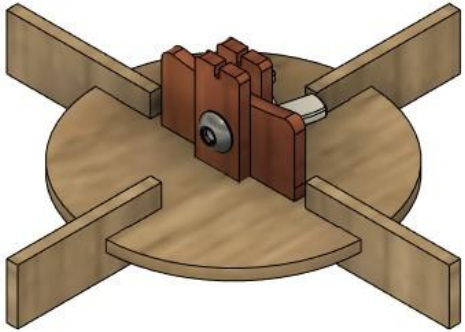


# Step 09 (Final Step)

**Part(s) Needed:**

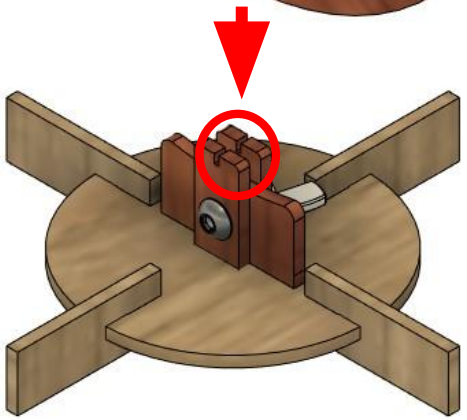

Assembly Step 04

Assembly Step 08



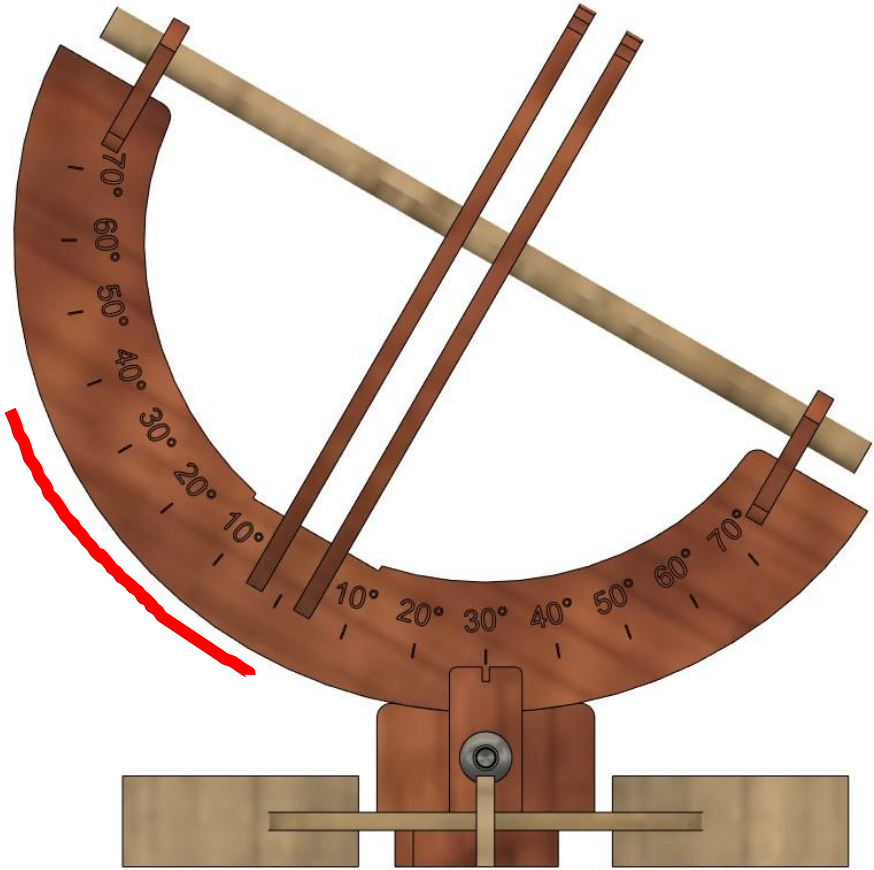
**09. Slide edge of vertical support in between the side supports and on top of the central base insert**

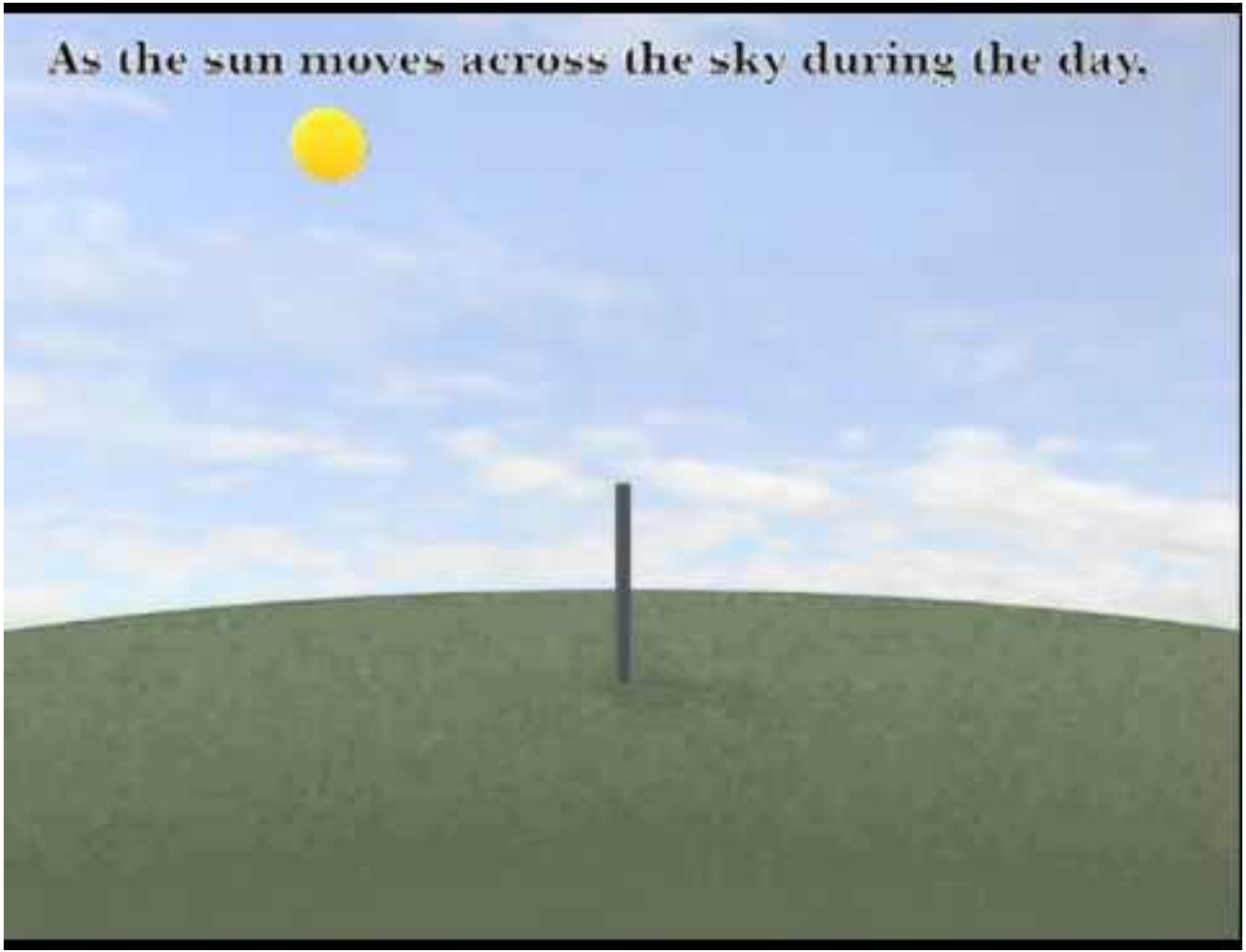
**[Adjust as needed]**

# Sundial Clock Assembly Complete!

**To read the approximate time of day, have sundial face true north, and rotate to local area latitude**




As the sun moves across the sky during the day.

# Roman Numerals

Identifying, Writing, and Conceptualizing 1 - 12

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

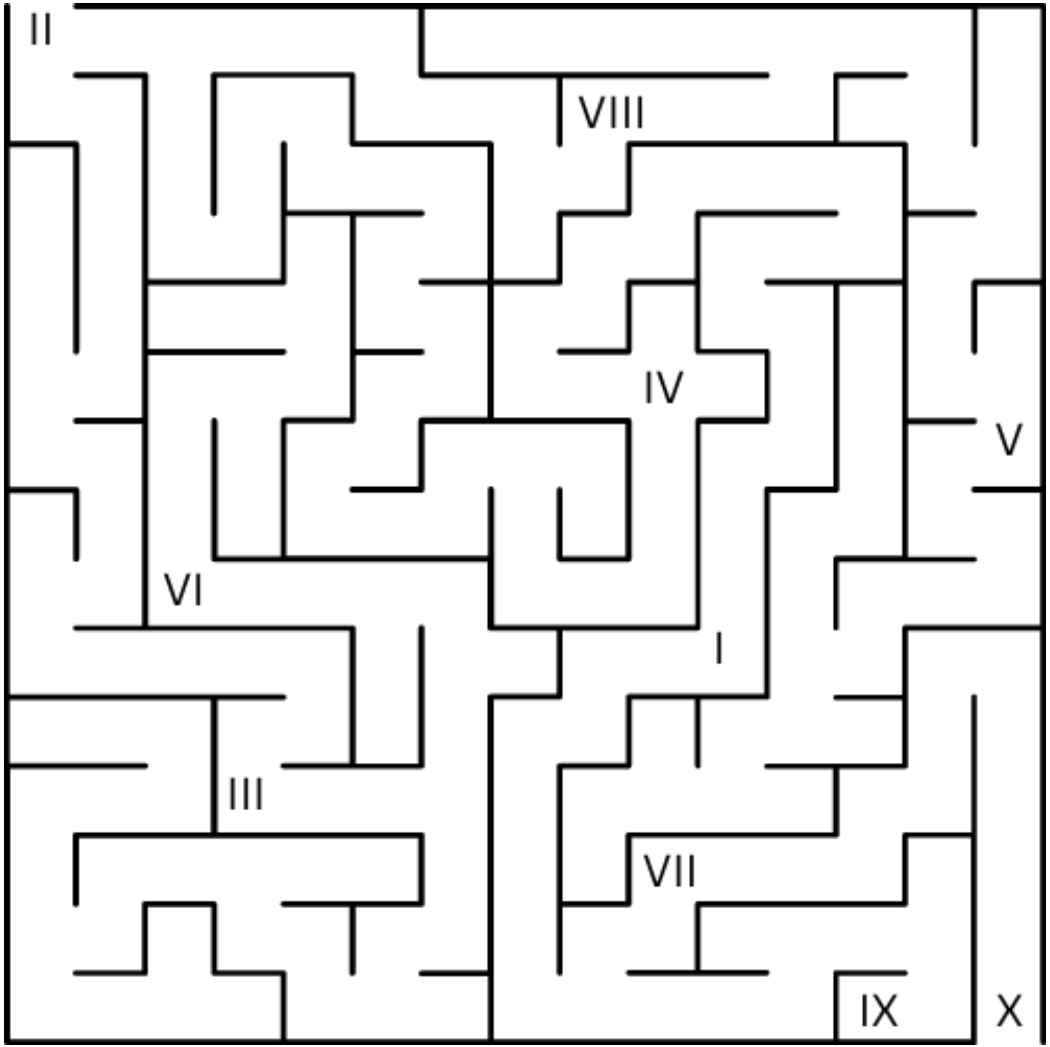
# Writing like the Romans

# Labyrinth Escape!

Write the numerals you find on the path to escape the labyrinth.

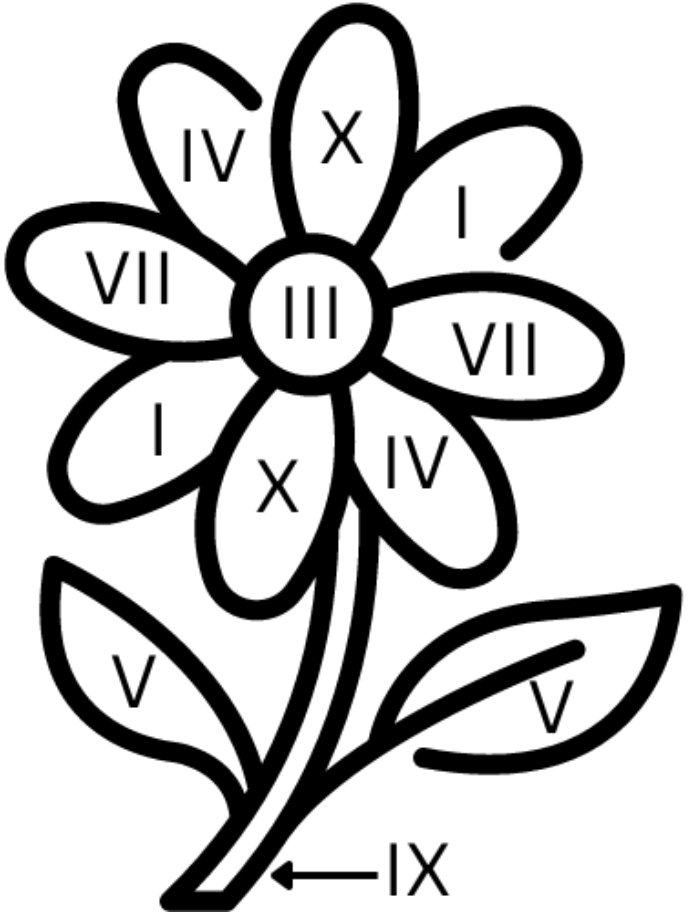
| Arabic Numerals | Roman Numerals |
|---|---|
| | |
| | |
| | |
| | |
| | |

**Name:** _____



Color by number, ROMAN NUMERALS! Name: _____

| Arabic Numerals | Roman Numerals | COLOR |
|---|---|---|
| 1 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 7 | | |
| 9 | | |
| 10 | | |



# Color by number, ROMAN NUMERALS!

Name: _____

Choose your color. Then label the chart to match.

| Arabic Numerals | Roman Numerals | COLOR |
| --- | --- | --- |