



# Adventures in STEAM

Explore science, technology, engineering, arts, and math in a 30 minute program! Each session focuses on a specific aspect of STEAM.

2nd and 4th Tuesday of the month  
4:00-4:30 pm

Registered





# Adventures in STEAM

## Science: Moon Phases

Have you noticed how the moon seems to change shape over the month? As the moon circles the earth, different parts are lit up by the sun. This makes the moon appear to change shape. These shape changes are called phases.

Activity: make a moon-phase spinner

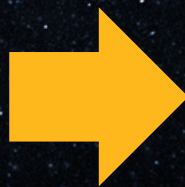
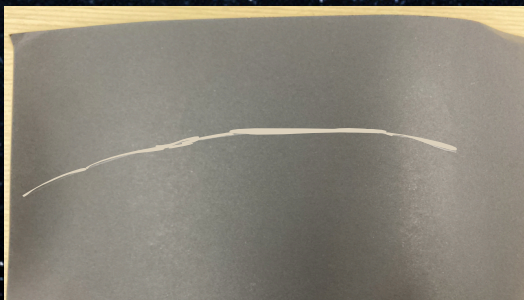
Supplies:

- Two clear plastic cups
- Black construction paper
- White or yellow construction paper
- Sharpie
- Scissors, tape, and glue



Steps:

- Cut black construction paper to size so it can fit inside one of the cups (tip: place rolled up paper inside cup and use pencil to mark the cut-off point as it won't be a straight line due to the shape of the cup)













- Mark out 8 evenly spaced spots on the bottom of the second cup, then write the names for the different phases (new moon, waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, last quarter, waning crescent)
- Cut a circle out of white or yellow construction paper for the moon (you want it to be small enough that it can rotate towards all 8 points marked on the outer cup)
- Glue the moon onto the black construction paper and put it into the inner unmarked cup
- Make an arrow out of the light construction paper and glue on the outer cup (when looking at the moon, the arrow should point to the right)
- Place the inner cup inside of the outer cup and use a sharpie to black out the portions of the moon that should be dark during each phase



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-  New moon: the moon is at its halfway point around the earth and is lit from behind, so we can't see the moon
-  Waxing crescent: light on the right forms a little curve (crescent)
-  First quarter: the moon is a quarter of the way through its rotation around the earth (and looks like a half moon)
-  Waxing gibbous: the moon is getting lighter but is not round yet
-  Full moon: the sun reflects the whole face of the moon
-  Waning gibbous: the moon is getting darker and less round
-  Last quarter: the moon is three quarters of the way around its rotation
-  Waning crescent: light on the left forms a small crescent

**Waxing: light to the right**

**Waning: light left**

Books read in Preschool STEAM:

- When Moon Became the Moon by Rob Hodgson
- If You Were the Moon by Laura Purdie Salas

Further learning: Want to see how the moon's path makes it appear to change shape? You'll need a small white ball (the moon), a larger darker ball (earth), and a light source (sun). Move the small white ball around the larger ball and see how it changes what parts of the white ball are lit up.





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What is it about the moon that makes us think of poems and paintings, stories and songs, fairytales and films?

- While people would not walk on the moon until 1969, famous film-maker Georges Méliès imagined what it would be like in 1902 in his short film, *Le voyage dans la lune* (A Trip to the Moon)
  - Using light, splicing, pulleys, and sculpting, Méliès created a short film that became iconic in cinematography
- The moon's cycle became an important part of planning farms, appearing in farmers' almanacs and oral tradition around the world. Seeds would be planted during waxing periods.
- The man in the moon or the rabbit? It depends where you are! China, Japan, and Korea saw a rabbit in the moon's dark patches. Cree folklore tells of a rabbit that rides the moon. Europe saw a man's face in the dark patches.

