

# Make your own Sundial!

Watch: Make your own Sundial from SciShow Kids

<http://www.viewpure.com/SeSexM-wVzA?start=0&end=0>

## Materials:

- Long straight object (eg: pencil, stick, or a straw)
- Paper plate or paper
- Plate (optional)
- Scissors
- Compass (optional)
- Markers



## Instructions:

1. If you do not have a paper plate, trace a large circle onto your piece of paper. A plate would work great for this. Carefully cut out the circle.
2. Find the center of your circle and make a small hole for your gnomon to stick through.
3. Take your paper plate and place it on the ground where there is direct sun throughout the day. Push your gnomon into the ground in the center of your paper circle. Tilt your gnomon slightly to the north.
4. Every hour go outside to look at the shadow the gnomon is making on the ground. Where the shadow is hitting the paper write the time using a marker. You may need an adult to help you finish writing your numbers. You now have a sundial - at least until it rains.

# Shadow Art

By <http://make-it-your-own.com/shadows-time/>

This simple activity visually records the movement of the sun and the shadow it casts during various times in the day.

## Materials:

- An object
- Paper
- Drawing tools



## Instruction:

1. Choose a location that won't be disturbed and gets direct sun throughout the day.
2. Position your paper and set your object in the centre of the spot you picked.
3. Using your drawing tool, outline the shadow that is created.
4. Throughout the day return to your paper and trace the new shadow. Use a different colour for each time that you trace the object's shadow. At the end of the day you will have a beautiful and unique work of art.
5. Make a key to show which colour was used at what time.
6. What do you notice about the pattern you have created?

# Shadow Tower Stem Challenge

By: <https://www.notimeforflashcards.com/2017/09/after-school-stem-challenge-shadow-towers.html>

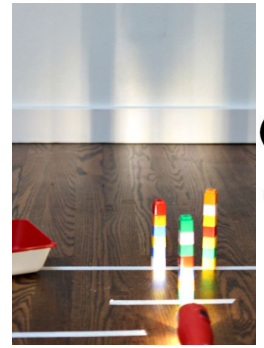
## Challenge

Can you build a tower tall enough to touch the tape on the wall? Wait! There's a catch, your blocks can't move from the tape on the floor!

Hint: Use a flashlight.

## Materials

- Blocks (or other stacking objects)
- Masking tape
- Flashlight
- Dark Room



## Instructions

- Put a piece of masking tape on the wall (you decide the height)
- Take a few steps back and put some tape on the floor, this is where you will build your tower.
- Start building your tower. Remember, your tower cannot move from the tape on the floor. How will you make your tower tall enough to touch the tape on the wall? Hint: use a flashlight to create a shadow and see what happens!
- What happens when you move your flashlight closer to your block tower? What happens when you move your flashlight further away?
- Now use some more tape to mark other spots on the floor, and explore with building towers of different heights and different distances away!

# Making Shadow Puppets

By <https://www.science-sparks.com/fun-with-shadows/>

Watch: Light and Shadows for Kids by Kids Academy

<http://www.viewpure.com/YuUJCNzfoBw?start=0&end=0>

## Materials:

- Paper or cardboard
- Straw or popsicle stick
- Pencil
- Tape
- Scissors
- Light source (flashlight lamp)



## Instructions:

1. Draw some shapes onto your piece of paper or cardboard. Animal shapes work great for shadow puppets.
2. Cut out your shapes.
3. Tape your shape to a straw or popsicle stick.
4. In a dark room hold your puppet facing a wall. Using a light source, such as a flashlight to create a light beam behind the puppet.
5. Move your puppet in front of the beam of light. You should see a shadow on the wall.
6. Move your puppet closer and further from the light source. What do you notice?

Adaptations: Use your hands or stuffed animals as a puppet.

Extension: Create a shadow puppet story and put on a show for your family.