



# Rattle Drums

Create a rattle drum out of paper plates as you learn about sound waves and explore the science of acoustics.  
Make some noise to ring in Chinese New Year!

## TEKS:

SCI 3.6 A: The student is expected to explore different forms of energy, including mechanical, light, sound, and thermal in everyday life.

SCI 5.6 A: The student is expected to explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy.

## Materials:

- 2 beads
- Construction paper, paint, or markers for decoration (optional)
- Dowel
- Hole puncher
- 2 paper plates
- Stapler
- Tape
- Yarn or ribbon (2 6-inch pieces)

## How To:

1. Use tape to attach the end of a dowel to the inside of one paper plate. This will act as your drum's handle.



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2. Place the second plate on top of the first plate to create a dome shape, and staple the plates together.
3. Use a hole puncher to punch two holes into the paper plates, using the photo below as a guide.



4. Tie a 6-inch piece of yarn through each hole.
5. Tie a bead at the end of each piece of yarn.
6. Hold the dowel between your palms and quickly spin it, causing the drum to rotate and the beads to hit the plates.
7. Optional: Decorate your drum using paint, construction paper, or markers.



### STEM Explanation:

The drum that you just made is called a rattle or pellet drum. Popular throughout East Asia, these drums are used as toys, noise-making devices, and for celebrations. Rattle drums make noise because of acoustics. When you rotated the drum back and forth, you caused the beads to hit the plates. A bead hitting a plate is a force, and this force results in vibrations on the plate. These plate vibrations cause the air surrounding the drum to vibrate. This vibrating air is also called sound waves! These sound waves travel to our ears, cause our eardrums to vibrate, and our brain interprets this vibration as sound.

Use the sound of your rattle drum to celebrate the Chinese New Year! The year of the Ox begins on Friday, February 12, 2021, and celebrations will last until the Lantern Festival on Friday, February 26th.

### Career Connection:

*Acoustical engineers* study the science of sounds and vibrations. They look for ways to limit unwanted sound and maximize desired sound. They design, analyze, and control sound in different environments, and are an important part of the music industry, auto manufacturing, architecture, environmental engineering, and urban design.

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## Resources:

<https://artsymomma.com/diy-chinese-rattle-drums.html>

<https://www.chinahighlights.com/travelguide/special-report/chinese-new-year/>

<http://english.visitbeijing.com.cn/a1/a-XBONO03B00A3309EA635DC>

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