



Greek Lyre

Ready to make some music that brings you back to Ancient Greek times? Explore the science behind sound as you create a Greek Lyre to play beautiful songs!

TEKS:

SCI 4/5.6: Force, motion, and energy. The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems.

SCI 4/5.6 A: The student is expected to differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal.

Materials:

- Markers and stickers to decorate (optional)
- Pencil or wooden dowel (optional)
- 5-10 rubber bands (a variety of sizes works best – they will need to fit around your cardboard box)
- Small cardboard box

Experiment/How To:

1. Fold the top flaps of your cardboard box inside so that the sides are double-strong. See photo below for guidance. This box will act as the base of your lyre.



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2. Stretch a rubber band all the way around the cardboard box. Stretch a second rubber band parallel to the first one. Repeat with the remaining rubber bands, keeping them as evenly spaced as possible.
3. Pluck each rubber band to make sound. Try plucking multiple rubber bands together and see what beautiful music you can play!
4. Optional: place a pencil or wooden dowel under all of the rubber bands, about one inch from the side of the box. Observe how this affects the sound. Then, decorate your lyre with markers and stickers!



STEM Connection:

A lyre is a string instrument that was invented and played during ancient Greek civilization. Even though the lyre was developed over 3,000 years ago, its method of music creation is still used today in many popular instruments!

Isn't it cool that you made sound using just rubber bands and cardboard? Sound is a type of energy made by vibrations. You may have noticed that each rubber band vibrated when you plucked it. When a material vibrates, it creates wavelengths in the air that travel to our ears and produce sound! Sound moves in waves, and different sized waves produce different sounds. Longer sound waves produce lower pitches and shorter sound waves produce higher pitches. The thinner the rubber band, the higher-pitched sound you hear! What happens to the sound if you use longer or shorter rubber bands? How about if you add another pencil or dowel to your lyre?

Career:

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.

Resources:

http://www.ehow.co.uk/how_5001952_make-greek-musical-instruments.html

https://www.getty.edu/education/teachers/classroom_resources/tips_tools/downloads/aa_cardboard_lyre.pdf

https://www.ancient.eu/Greek_Music/

<https://www.scientificamerican.com/article/tune-up-your-rubber-band-guitar/>

https://www.iconfinder.com/icons/2701951/ancient_greek_harp_instrument_lyre_melody_music_icon

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