Make Glasses Sing

Sections

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Scouts VICTORIA

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Challenge Areas

COMMUNITY | CREATIVE | OUTDOOR | PERSONAL GROWTH

Scout Method Elements

COMMUNITY INVOLVEMENT | LEARNING BY DOING | NATURE AND THE OUTDOORS | PROMISE AND LAW | PERSONAL PROGRESSION | PATROL SYSTEM

SYMBOLIC FRAMEWORK | YOUTH LEADING, ADULTS SUPPORTING

SPICES Growth Areas

CHARACTER | EMOTIONAL | INTELLECTUAL | PHYSICAL | SOCIAL | SPIRITUAL

The Adventure

Music can be found all around us if you know where to look. Did you know that you can make glasses sing? This Challenge Card is similar to Make Glass Bottles Sing but is more appropriate for older sections.

Plan

1. Investigate friction and vibrations and how sound waves interact with different materials such as air and water. You might also want to investigate how moisture affects friction.
2. Investigate the concept of resonance and hypothesise why this might be important in music. You may also like to look at how an opera singer can break a glass with just their voice!
3. Examine how sound waves are measured and at what frequencies humans can hear. You might also want to look at factors that affect the frequencies that we can hear and why, and what frequencies different animals can hear.
4. Read the safety section of this challenge card and make sure that everyone is aware of the safety risks and requirements.
5. Collect all the necessary materials for your experiment. You will require the following materials: a glass, and some water.

Do

1. Place an empty glass cup on a flat surface and half fill with water.
2. Gently run your dry finger around the rim of the glass while pressing down and observe how it feels. Does your finger run smoothly over the rim? Does it make any sound?
3. Wet your finger and now run your finger around the rim of the glass again. Does it feel different to the dry finger? Does it make any sound?
4. Experiment with different pressures and speeds until you can make the glass sing.
5. Once the glass is singing, take your finger away from the glass. What happens? Does the glass keep singing?
6. Make the glass sing again and this time stop moving your finger but keep it on the glass. What happens now?
7. Using a metal spoon, gently tap the side of the glass above water level. Does this make the same or a different noise to running your finger over the rim? What happens if you tap the spoon below water level?
8. Remove about half of the water from the glass so that it is now only a quarter full.
9. Make the glass sing again. Does it make a different noise?
10. Experiment with different volumes of water or sizes of cups to see what notes you can make.
11. Set up multiple glasses in your patrol to create a scale (think ‘do re mi fa sol la ti’) and see what you can play.

Review

1. Did you manage to get your glass to sing? If you didn’t, what do you think you could change to make it sing? If you did, did you find it challenging? Did it get easier with practice?
2. What did you enjoy the most from making glasses sing? What did you learn?
3. If you were to do this activity again, what would you do the same? What would you do differently? How could you improve your singing glasses? Do you think you could tune your glasses? If so, how?
4. Do you think the type of liquid in the glass might make a difference to the note produced?

Safety

- Sharps/glass warning: This challenge card uses glass and therefore there is the risk of breakage and cuts. Supervise younger sections around glass and if glass is broken make sure it is cleaned up immediately. Shoes should be worn while doing this challenge card and in any area where there has been broken glass.
- Slips and Spills: This challenge card uses water. As such, it should be performed in an area that can tolerate spills, but care should be taken if spills occur so that slipping does not occur.

Variations

- Make your singing glasses colourful by adding some food colouring to each glass.
- Try making xylophones with different numbers of notes.
- This challenge card pairs nicely with other challenge cards from the Magic of Music such as Make a Guitar and Make an Idiophone, or other sound wave related Challenge Cards. In your Patrol, you could make a range of instruments and play them together. Think about what other instruments that you may be able to make. To add an extra sciencey challenge to your glass xylophone, try playing the Periodic Table Song or another science-based song.