CHALLENGE 2

BUILD A MUSICAL INSTRUMENT - A Mechanical Engineering Challenge

What is sound? Sound and music are always around us. The best part is you don't need a lot to make sound or music. Just by snapping your fingers (if you can) you can create a sound or a beat to a music. Understanding of vibrations is very important to engineers. The challenge for you (if you dare) is to CREATE a musical instrument using THINGS you can find at home and play a tune (a melody or a song). This is going to be so fun!

Objective :

To create a musical instrument using everyday materials. Everyone's a winner. Successfully complete the challenge and your entry will be entered into a draw where at random you stand to win either RM25, RM50 or RM100 in credit.

Challenge Rules :

1. You must make your musical instrument with materials you can find at your home
2. You must be able to play a melody or a song with your musical instrument.
3. Upload a video of you playing a melody or a song with your musical instrument on Facebook
4. Tag Engineering for Kids Malaysia

Quick facts & tips on sound :

1. Sound is created when something vibrates and sends sound waves into our ears
2. The stronger the vibrations the louder the sound
3. The speed of the vibrations will determine the pitch (high or low).

Questions Parents can ask their Child :

1. What is sound?
   Vibrations that travel through the air or another medium and can be heard when they reach a person's or animal's ear.
2. What is music?
   Vocal or instrumental sounds (or both) combined in such a way as to produce beauty of form, harmony, and expression of emotion.
3. How did my instrument create sound?
4. What type of instrument is it? (brass, percussions, woodwind or string)
   https://www.factmonster.com/cool-stuff/music/families-musical-instruments
5. How does sound come out from my mouth when I speak?
   https://www.youtube.com/watch?v=GDzcLZDdxqs

Learning outcomes :

1. Apply the Engineering Design Process in creating a musical instrument. The engineering Design process helps children plan what needs to be done and how to further improve their creation
2. With limited resources, children Learn to use the resources that are available. In the event a resource is not available, children are encouraged to improvise using something else.
3. Understand the basics of sound and vibrations. Sound is produced when something vibrates. The vibrating body causes the medium (water, air, etc.) around it to vibrate. Vibrations in air are called traveling longitudinal waves, also known as sound waves. And because waves can only travel a certain distance depending on the amplitude (volume)
4. Develop problem solving skills as they face multiple problems in completing this challenge
5. Improve fine motor skills - Children will be exposed to different types of hand-eye coordination tasks, from cutting something with a pair of scissors to attaching pieces together. Younger children especially will benefit from this.
6. Cultivate creativity and innovation - Children add in their own twist to their creation as they try to come up with something new and exciting