

Unidentified Fidgeting Object

All of the materials used to make this are non-recyclable, so we are practising the 'reusable' principle.

You need:

- Chip packet
- Bottle lid and seal ring
- Skewer
- Rubber band
- Double sided sticky tape
- Scissors
- Craft knife
- Vivid
- Ruler
- Cutting mat

Tip: Making a hole in the lid

1. Place the lid top face up on a cutting mat.
2. Extend craft knife to the lowest setting and put safety lock on.
3. Apply pressure to the blade onto the centre of the lid (make a mark with a pen if needed) while twisting the lid around using the forefinger and thumb of your other hand.

Method:

1. Make a hole, big enough for a skewer to fit comfortable in, through the top of the lid, see *Tip: Making a hole in the lid*.
2. With the scissors cut off the pointy end of the skewer.
3. Using the rubber band, you will make a plug that will keep the lid in place on the skewer. Take the rubber band and wrap it (like you would a hair-tie) at the blunted end of the skewer. You will need some 'slack' so you can poke the band, using the skewer, through the hole you created in the lid and then finish wrapping the slack around the skewer. Thread the lid top face down. The lid should now be secure at the end of the skewer with the top of the lid facing down the length of the skewer.
4. With the scissors, cut off any excess skewer so it is below the inside of the lid.
5. Put the skewer/lid aside while you prepare the strands for your U.F.O.
6. Open the chip packet at either end, and cut down the seam so it's one large piece, and wipe clean the inside surface.
7. Using the ruler and the vivid measure and mark out five strips of 17cm x 1.5cm each, then cut them out.
8. Wrap double sided sticky tape around the outside of the seal ring and cover the top of the lid with double sided tape. Trim any excess tape.
9. Peel off the layer of double sided tape on the lid ready to stick the chip packet strips.
10. One by one stick an end of each strip evenly onto the lid, making a pentagon like shape around the skewer by overlapping the strips.
11. Take the seal ring and place it over the long end of the skewer. Peel off the layer of double sided tape and carefully stick the other end of each strip to the ring. Make sure the strips are in line with how they are stuck to the lid and not crossed over.
12. Take the long end of the skewer and spin it between your fingers, making the strips bulge and twist around the skewer.

What's happening?

Centripetal force is a force that keeps objects moving in a circular path. You will notice the strips bulging and twisting, as well as moving up and down depending on how fast you spin the skewer (a central point). The energy caused by spinning makes the strips accelerate away from the skewer, but because they are anchored to a central point, the centripetal force forces the strips back towards the skewer creating the bulges and a circular path.

SUSTAINABILITY - WASTE NOT

VALUE TOPIC: Sustainability - avoidance of the depletion of resources in order to maintain a balance

CATCH PHRASE: Everyone gains when we sustain -
Tiakina te taiao (look after the environment/world)

TOPIC SUMMARY

Problem: I keep missing out because others take more than what they need. When people miss out practice sustainability so that everyone has enough.

STEMHYPE Instructions - Unidentified Fidgeting Object

In STEMHYPE we combine Science, Technology, Engineering, and Mathematics with Hauora, You, Principles, and Ethics; to build cool things that remind us of valuable ways to solve problems and thrive in life.

Avoid, Reduce, Reuse and Recycle are the four principles that help us be sustainable. By taking materials that can't be recycled and reusing them to create something we are putting into practice the principle of Reuse.

Our U.F.O uses the science of physics, specifically centripetal force. Centripetal force is the force that keeps objects moving in a circular path. You will notice the strips bulging and twisting, as well as moving up and down depending on how fast you spin the skewer (a central point). The energy caused by spinning makes the strips accelerate away from the skewer, but because they are anchored to a central point the centripetal force forces the strips back towards the skewer creating the bulges and a circular path.

By using relatively easy to find materials and tools each student could make their own 'U.F.O', or you might select a group of students to make one and model to the rest of the class. However you decide to 'make it', the 'U.F.O' is an item which helps to remind students of the value in Sustainability and its part in helping avoid anybody missing out.

SPECIFIC LEARNING OUTCOME	RESOURCE	LESSON SUGGESTION
7. We are learning to make a fidget toy using material that isn't recyclable as a way to be sustainable.	- 'STEMHYPE Instructions' - 'Unidentified Fidgeting Object' activity	It will help if you have watched the 'STEMHYPE POP which shows how to make the 'Unidentified Fidgeting Object'. Provide students with the materials needed, or have them collect them and bring them from home. Either follow the POP and pause whenever needed, allowing time for the students to get up to the same point in the process of making their 'Unidentified Fidgeting Object'. Or follow the step by step instructions as outlined in the 'STEMHYPE Instructions' resource.