



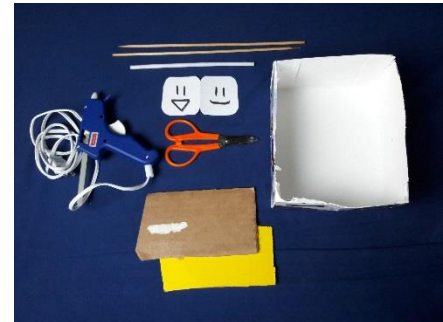
Try This at Home Science: Cam Automata

Activity Overview:

Create your own basic automaton driven by a cam mechanism.

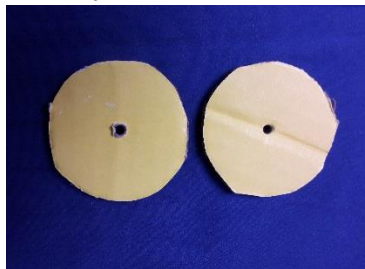
Materials:

- Skewers
- Glue gun
- Small box
- Thick cardboard
- A straw
- Scissors
- Print-out or drawing of a character you like or invention you came up with

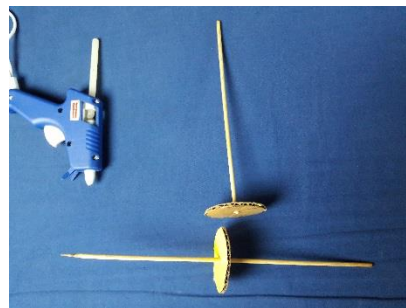


Try this!

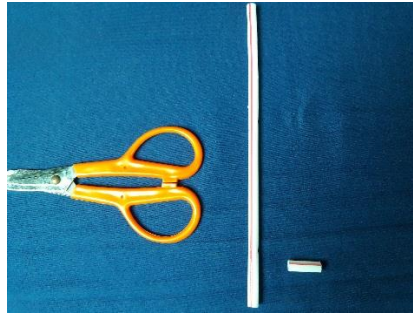
1. Using your cardboard, cut 2 circles of the same size (about 3 inches is fine). Punch a hole in the center of both. These are your cams.



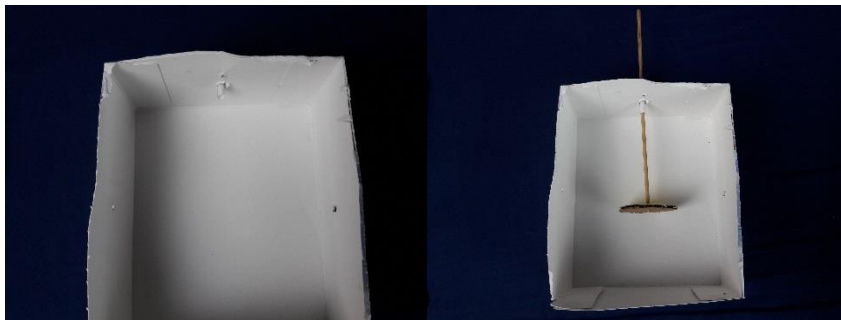
2. Glue one of the cams to the top of one of the skewers. Glue the other to the middle of the second skewer.



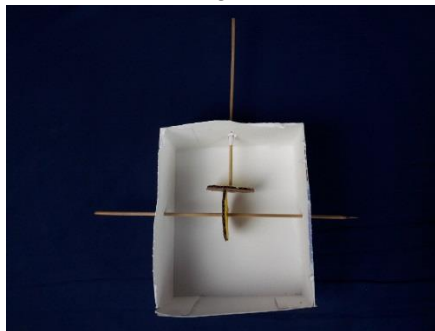
- Cut out a half inch piece of straw.



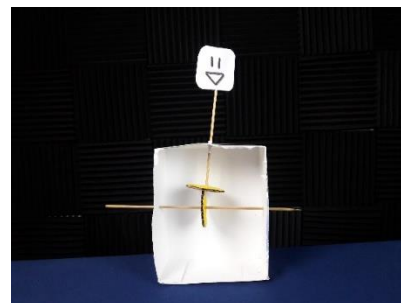
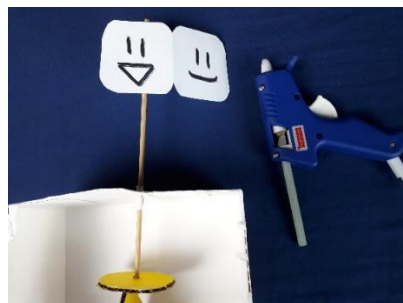
- Punch out a hole on the top of the box big enough to where the piece of straw fits snugly, glue it on the outside. Insert the skewer with the cam glued to the top here.
 - The cam should be inside the box and half of the skewer should be sticking out on top- this is where you will glue your character/invention.)



- Punch 2 holes on the sides of the box so that the second skewer can fit through them. This is where you will insert the cam that is glued to the middle of the skewer.



- When installed, both cams should be touching. Give the horizontal skewer a spin. This should make the other cam spin as well.
- Finally, glue your character/invention to the top.

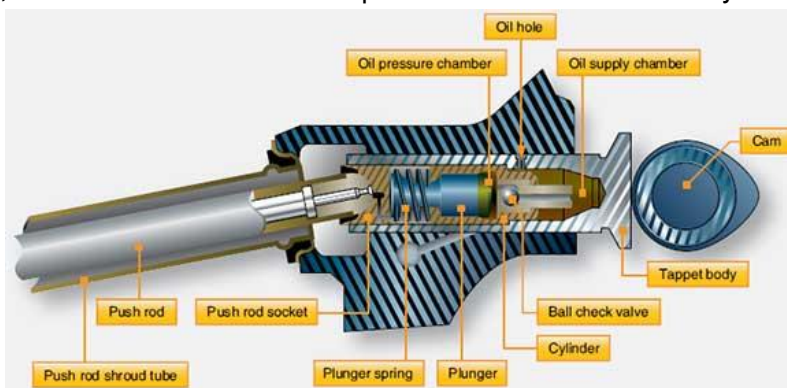


What's happening?

When you spin the horizontal skewer, the bottom cam you are driving forces the horizontal cam to move - your character/invention should be spinning!

How does this relate to real life?

Many modern-day engines, pumps, and valves use cam mechanisms to function. You can also find similar mechanisms in ancient automatons made to replicate movement exhibited by humans, animals, and nature - these are the predecessors to modern-day robots!



Now try this

By changing cam shapes and positions, the movement of the mechanism can be drastically changed. Try punching other holes in your cams, cutting out different shaped cams, or adding more cams and observe how your changes affected your automaton.

Additional Information

To learn more about the history of automata and invention, check out the [NISE Network Frankenstein200](#) kit.

Check out [MiSci ECHO Live!](#) "Episode 41: Tinkering with Toys" for a how-to instructional video for this activity!