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ENGINEER AN OJIBWE STORYTELLING DEVICE

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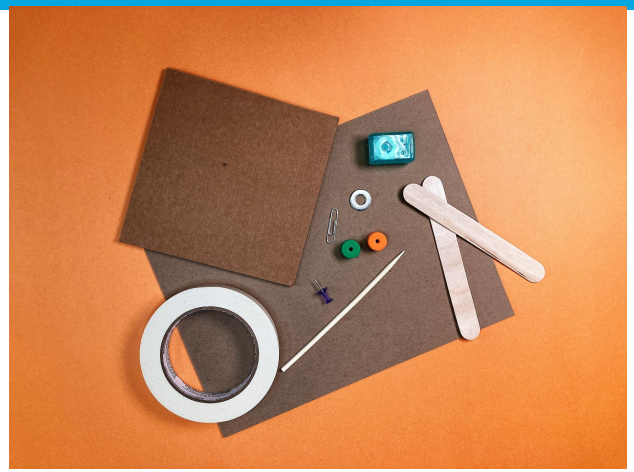
PENDULUM POWERED LEVER DEVICE, 1st Page

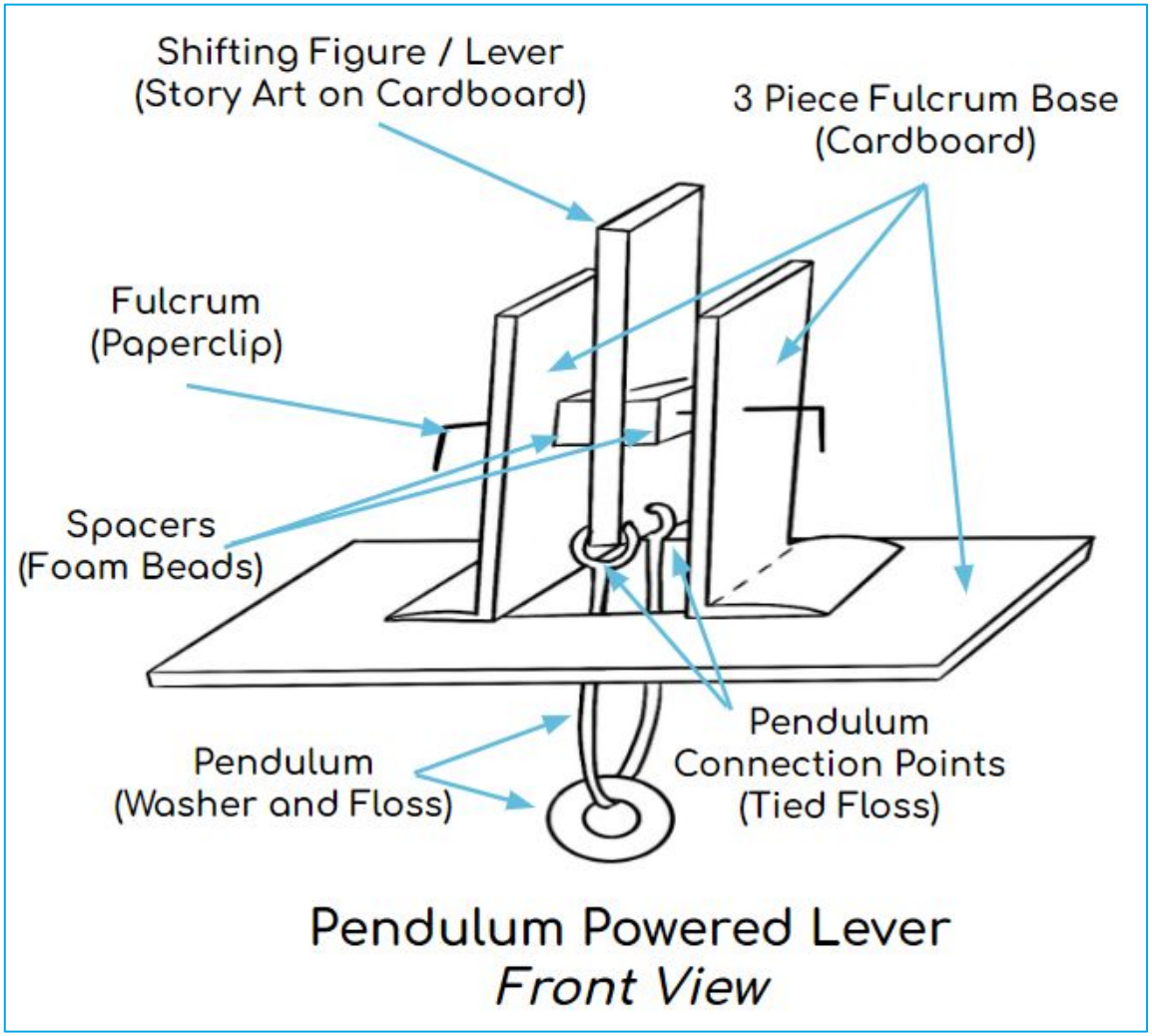
Device Physics

- The **shifting figure** / **lever** rotates around a paperclip **fulcrum**.
- The paperclip **fulcrum** is held in place by a **3-piece fulcrum base** with two sides standing up on a flat base.
- The **pendulum** is attached to the front and the back of the lever.
- The movement of the **pendulum** shifts the weight of the **lever**, causing it to rock back and forth.

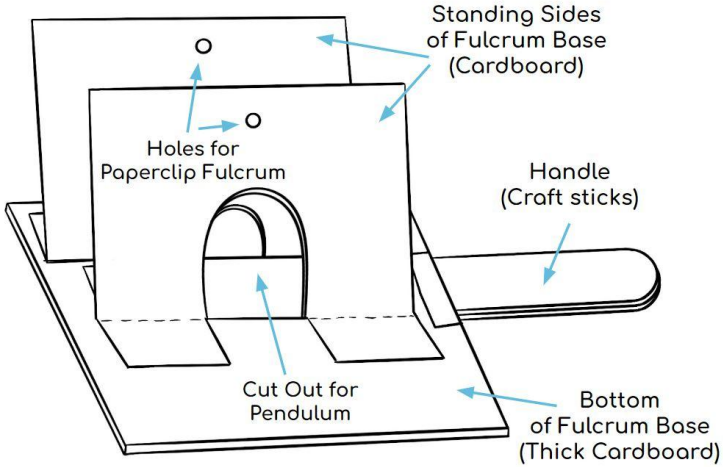
Possible Material & Tools



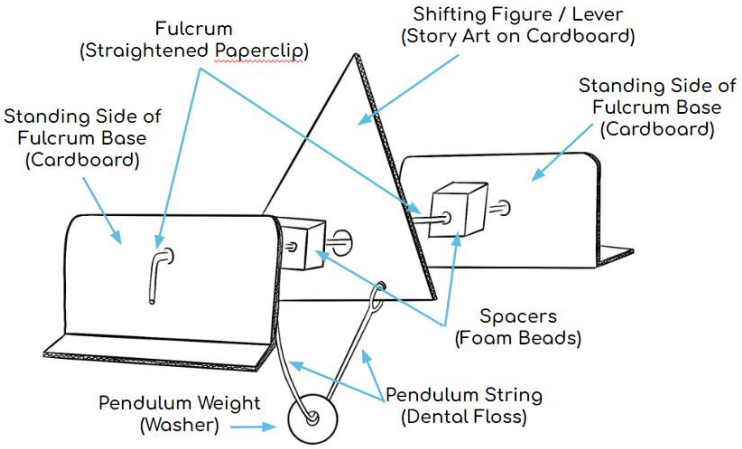
PENDULUM POWERED LEVER DEVICE, 2nd Page



Pendulum Powered Lever
Front View

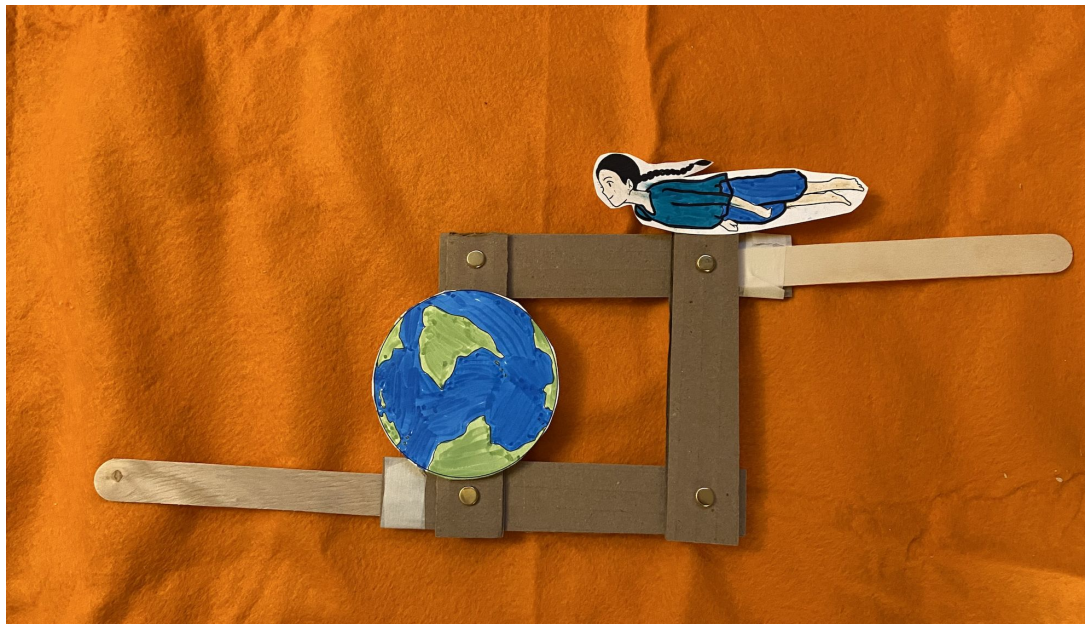


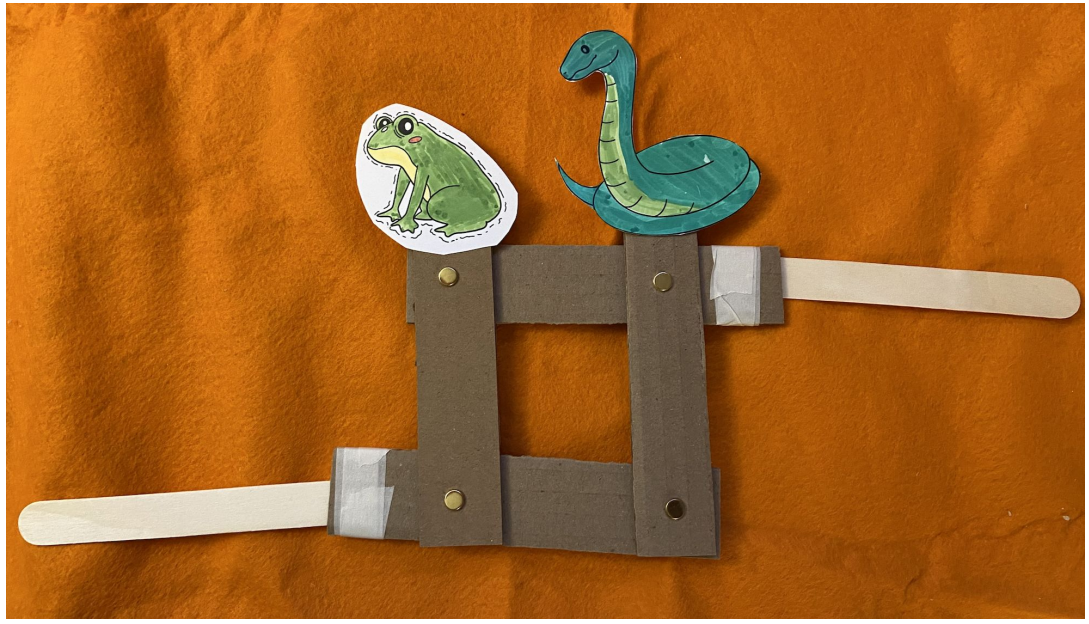
Pendulum Powered Lever
Side View of Fulcrum Base



Pendulum Powered Lever
Exploded View

PARALLEL MOTION DEVICE WITH 4-BAR LINKAGE, 1st Page

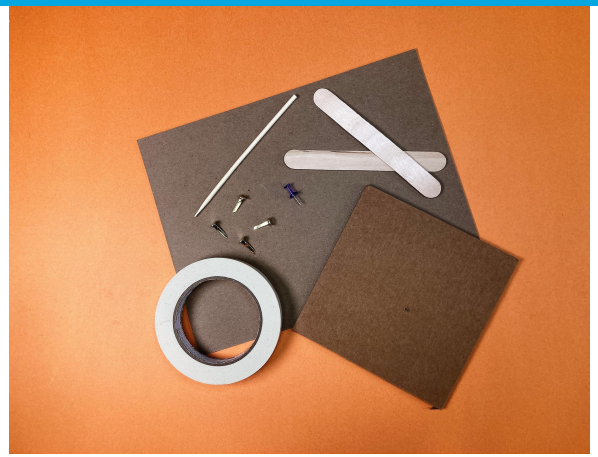




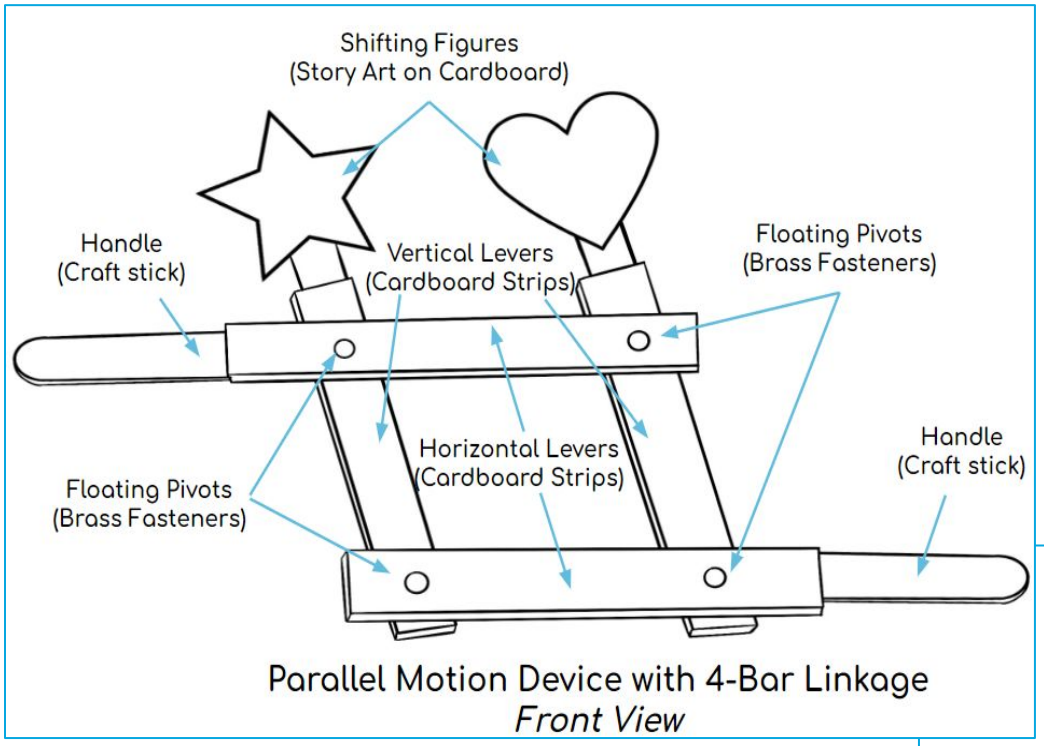
Device Physics

- Cardboard strips placed in a rectangle shape act as **levers**. Two of these cardboard strips will be placed horizontally. The other two will be placed vertically.
- The brass fasteners connect the cardboard strips and act as **floating pivots** that these **levers** rotate around.
- Push and pull forces on the **horizontal levers** transfer force to the **vertical levers** to move the **shifting figures**.

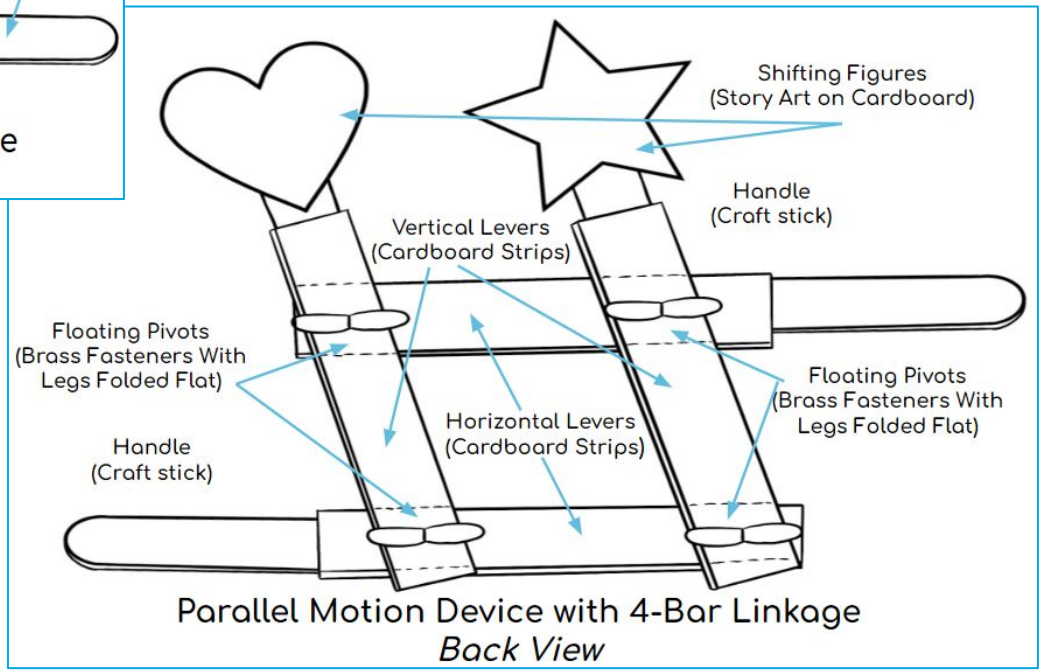
Possible Material & Tools



PARALLEL MOTION DEVICE WITH 4-BAR LINKAGE, 2nd Page

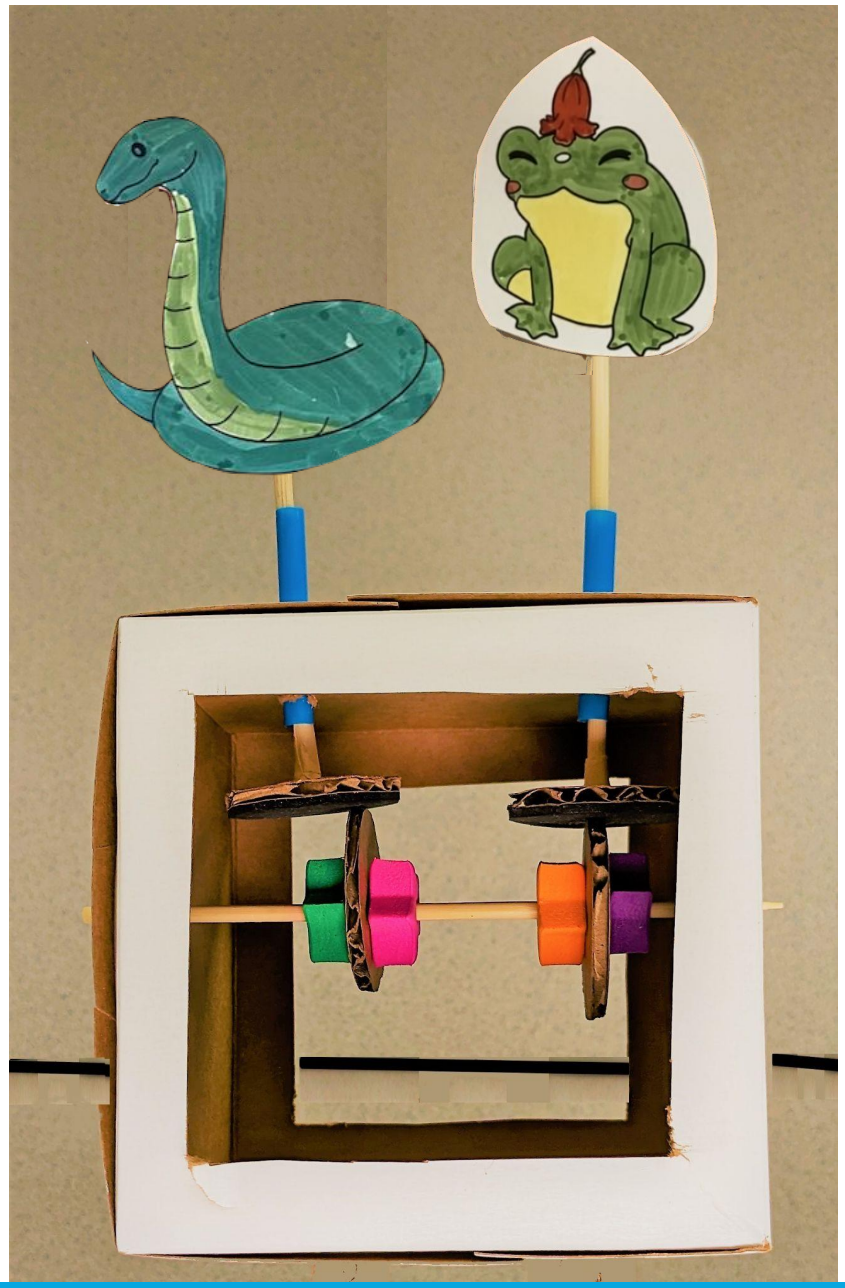


Parallel Motion Device with 4-Bar Linkage
Front View



Parallel Motion Device with 4-Bar Linkage
Back View

CAM AND CAM FOLLOWER DEVICE, 1st page

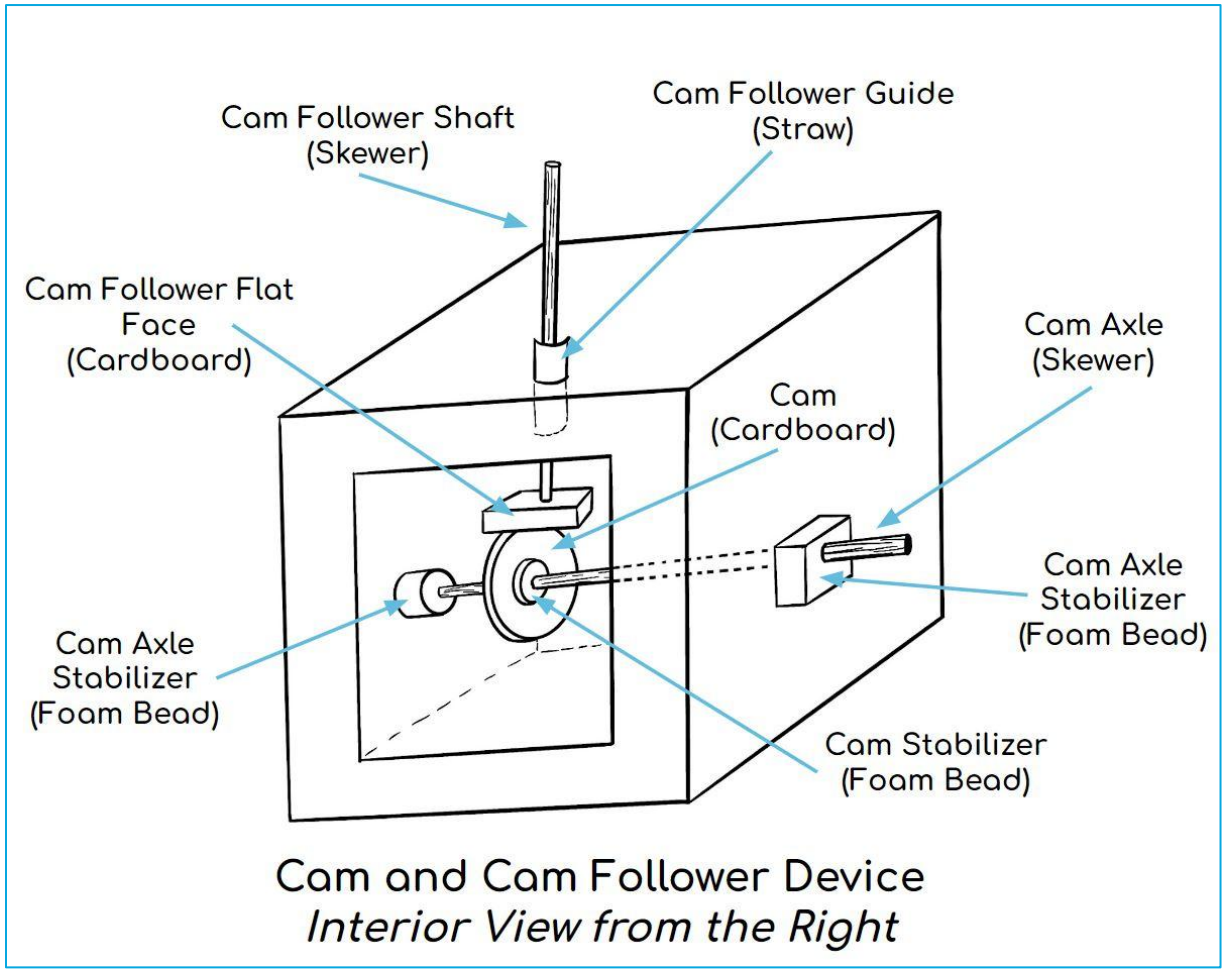


Device Physics

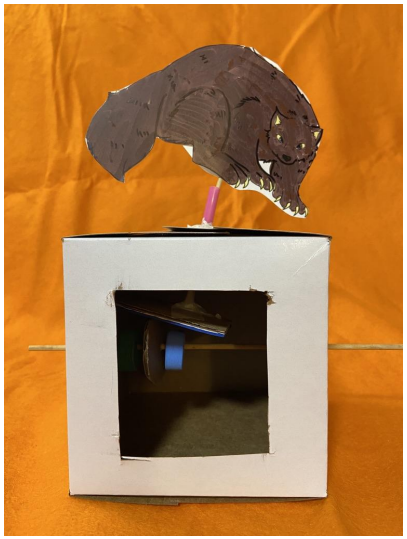
- The **cam follower** sits on the **cam**. When you turn the crank, the **cam** spins and moves the **cam follower**.
- The **cam follower** can spin, go up and down, or do both at the same time. The way it moves depends on the shape of the **cam** and the position of the **axle**.
- When you attach story art to the top of the **cam follower**, your art will move and bring life to your story scene.

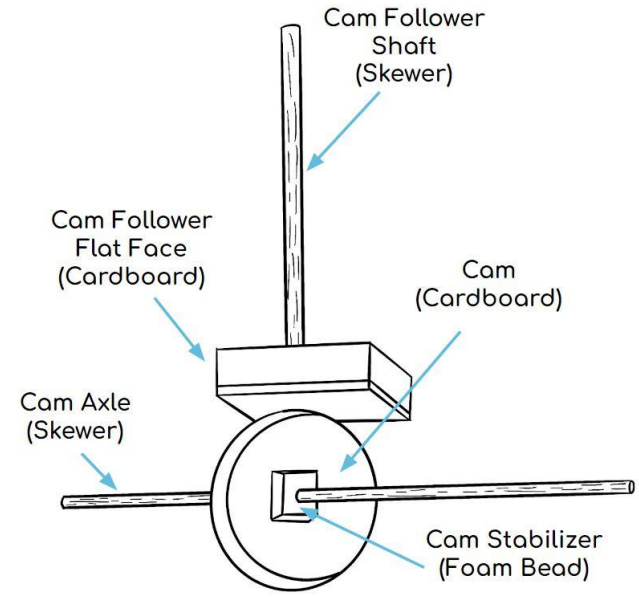
Possible Material & Tools

CAM AND CAM FOLLOWER DEVICE, 2nd page



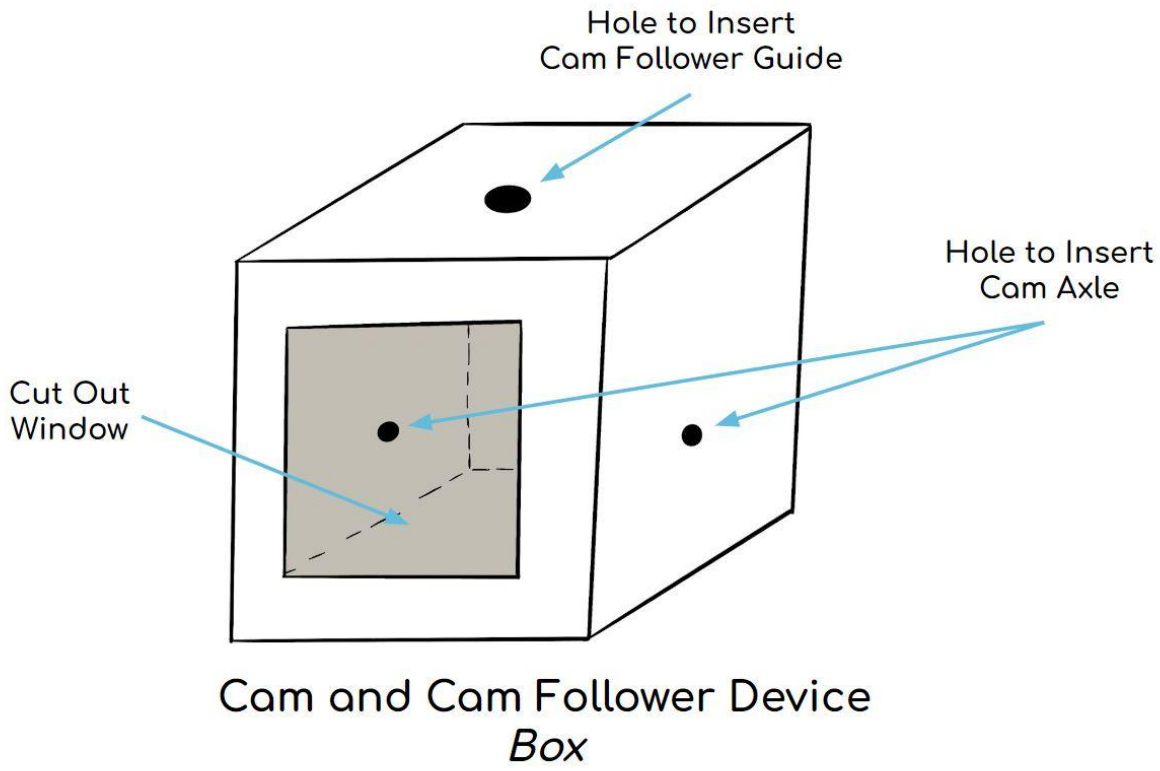
Cam and Cam Follower Device
Interior View from the Right





Cam and Cam Follower Connection
Bottom View

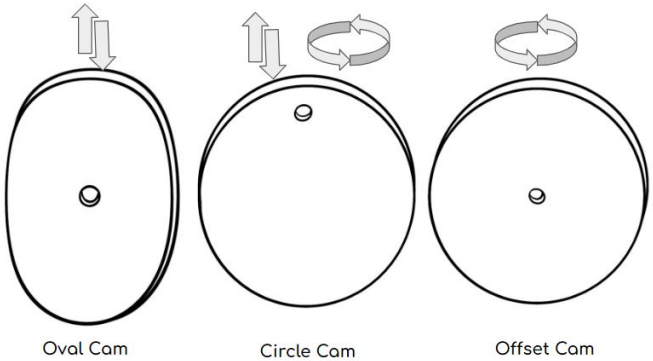
CAM AND CAM FOLLOWER DEVICE, 3rd page



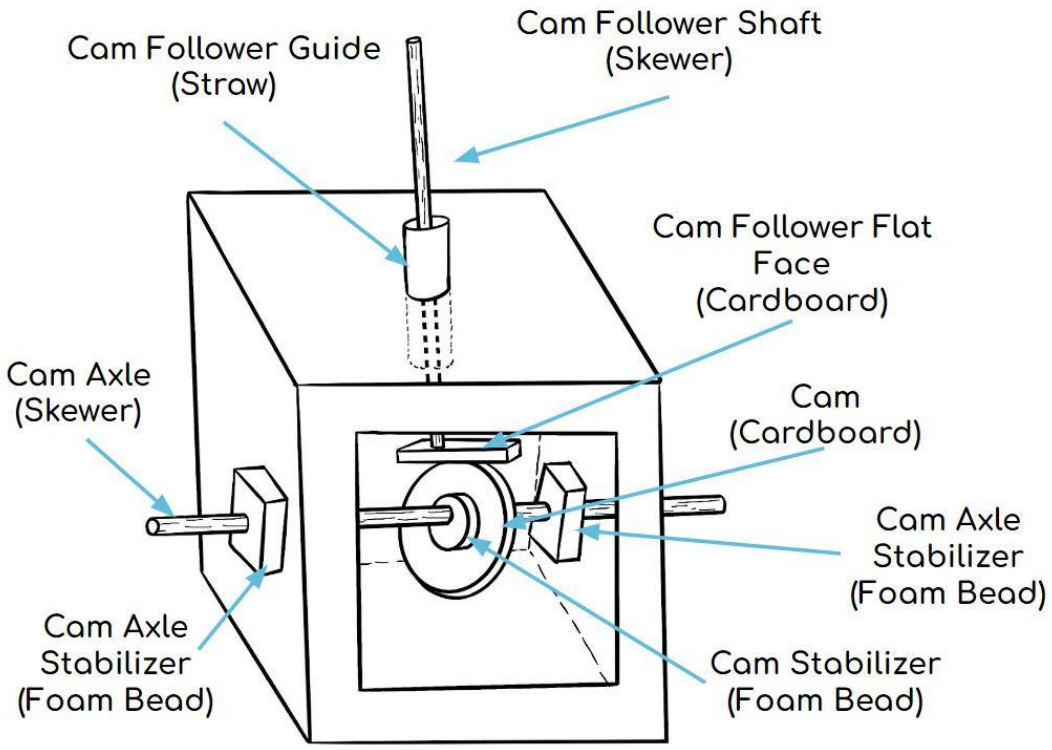
Cam and Cam Follower Device
Box

Creating Your Cam

- Round **cams** with a center **axle** touching the cam follower off to the side will spin the **cam follower**.
- Oval **cams** with a center **axle** make the **cam follower** go up and down.
- Round **cams** with an off center axle make the **cam follower** go up and down and spin around.



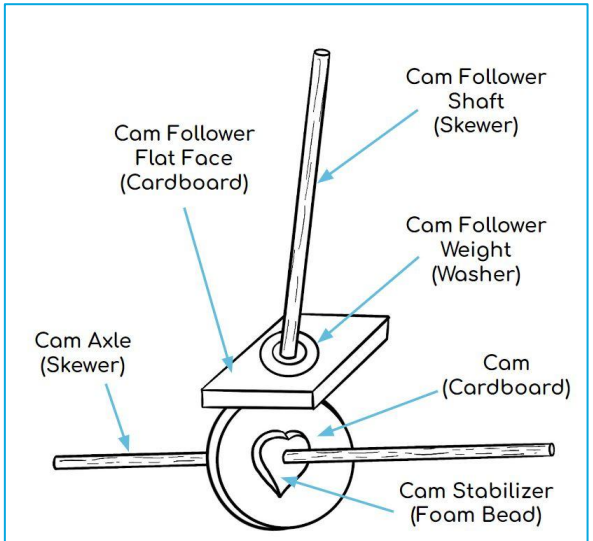
CAM AND CAM FOLLOWER DEVICE, 4th page



Cam and Cam Follower Device
Interior View from the Left

Building Tips

- A **guide** made from a short piece of drinking straw can keep the **cam follower** from wobbling or falling off the **cam**.
- The **cam follower** might need more weight to keep it in place.
- Foam beads can be used to hold the **axle**, **cam** and **cam follower** steady.
- As the engineer, you are designing what motion the **cam** and **cam follower** will produce.



Cam and Cam Follower Connection
Top View