

CAM Study

Investigate

Use Tinkercad:

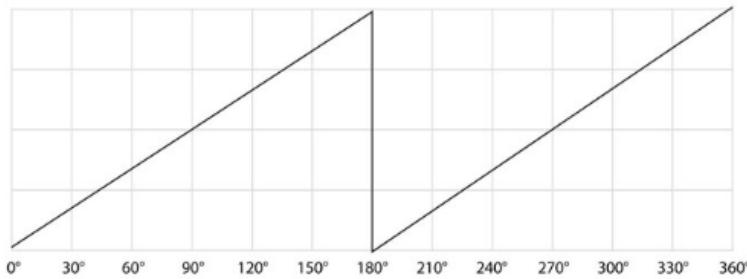
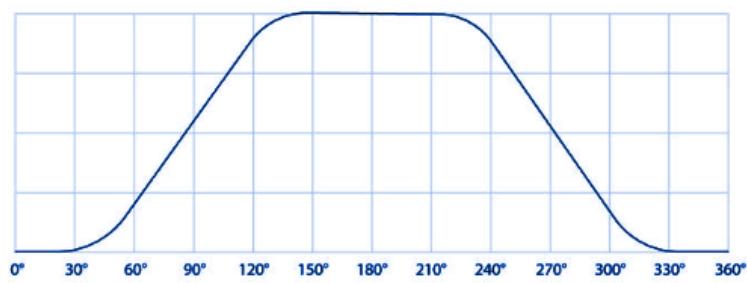
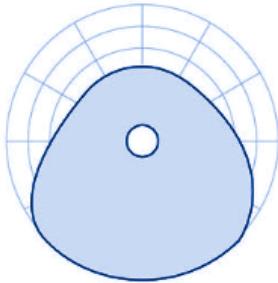
In Tinkercad, design and model five different CAM shapes (circular, elliptical [i.e. oval], snail, heart, pear [i.e. egg]). Consider varying sizes and follower placements.

Graphing the Motion:

For each cam:

- Sketch a graph representing the follower's motion as the cam rotates. (Vertical axis: Height of the rod, Horizontal axis: Time or cam rotation),

For example, the one above is the *dwell*; and below that is the *double snail*.



Reflect

Real-World Motion:

For each cam, brainstorm a real-world motion or object that its graph could represent. Explain your reasoning.

Potential Sculpture Application:

Imagine incorporating these cam motions into a kinetic sculpture. Sketch a rough idea of how you might incorporate one or more of these cams into a sculpture design. Then explain your idea in a few sentences that address the following questions:

- What type of movement could each CAM create in your sculpture?
- What elements or objects could be attached to the followers to bring your sculpture to life?

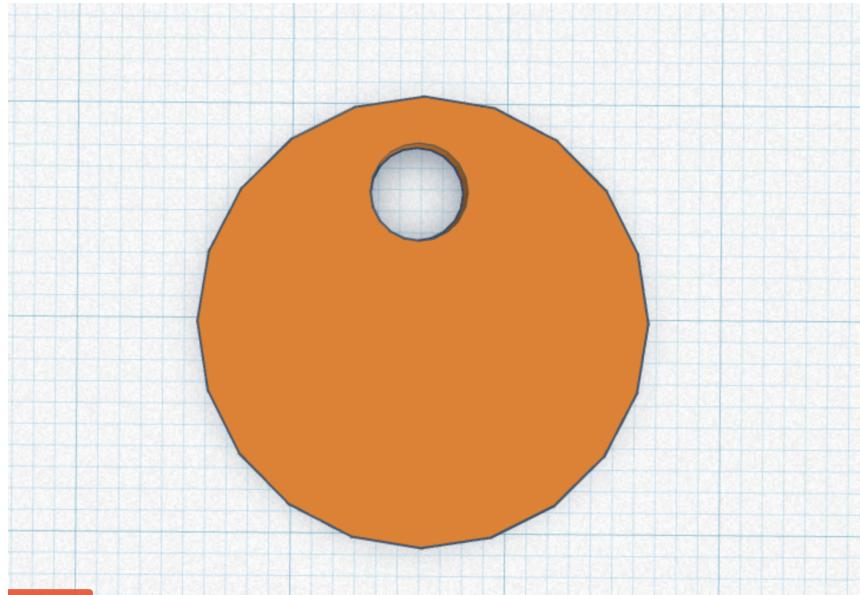
Organize

Cam Type	Tinkercad Design (Screenshot)	Motion Graph Sketch	Real-World Motion	Potential Sculpture Application
Circular	TinkerCAD Design Screenshot	Motion graph sketch	Real-World Motion	Potential Sculpture Application
Elliptical	TinkerCAD Design Screenshot	Motion graph sketch	Real-World Motion	Potential Sculpture Application
Snail	TinkerCAD Design Screenshot	Motion graph sketch	Real-World Motion	Potential Sculpture Application
Heart	TinkerCAD Design Screenshot	Motion graph sketch	Real-World Motion	Potential Sculpture Application

Cam Type	Tinkercad Design (Screenshot)	Motion Graph Sketch	Real-World Motion	Potential Sculpture Application
Pear	TinkerCAD Design Screenshot	Motion graph sketch	Real-World Motion	Potential Sculpture Application

Circular

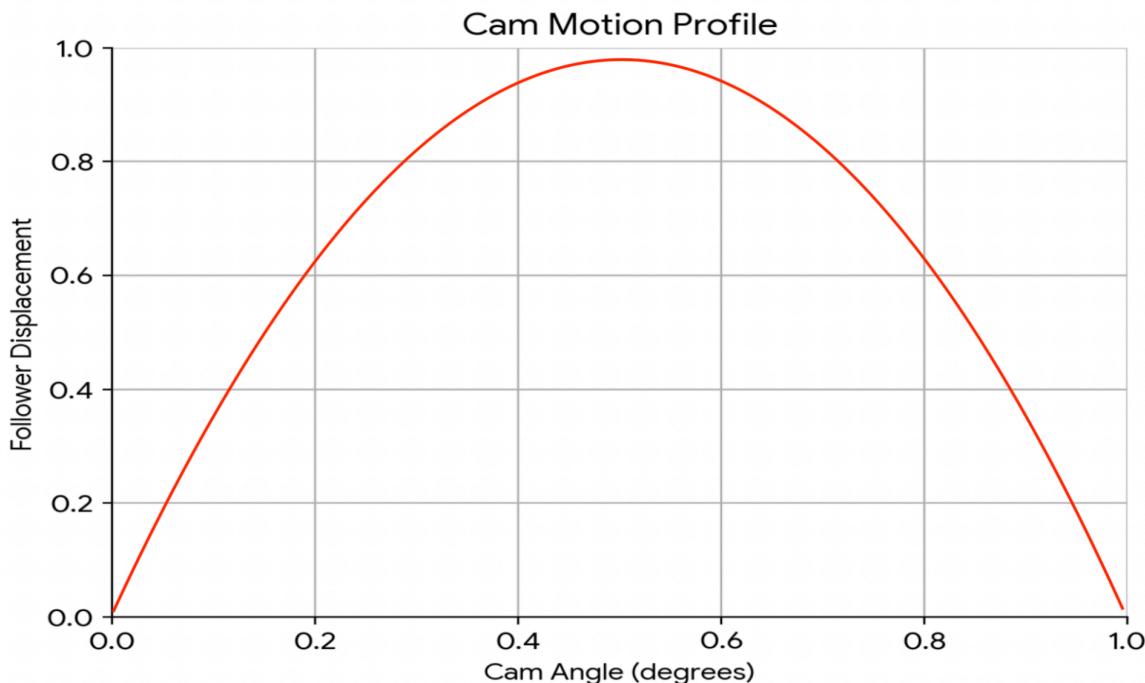
TinkerCAD Design Screenshot



Motion graph sketch

Sketch a graph representing the follower's motion as the cam rotates. (Vertical axis: Height of the rod, Horizontal axis: Time or cam rotation).

Take a screenshot of the graph below and sketch the line.



Real-World Motion

Carousel horses moving up and down. It is a smooth shape that creates a consistent up and down motion.

Potential Sculpture Application

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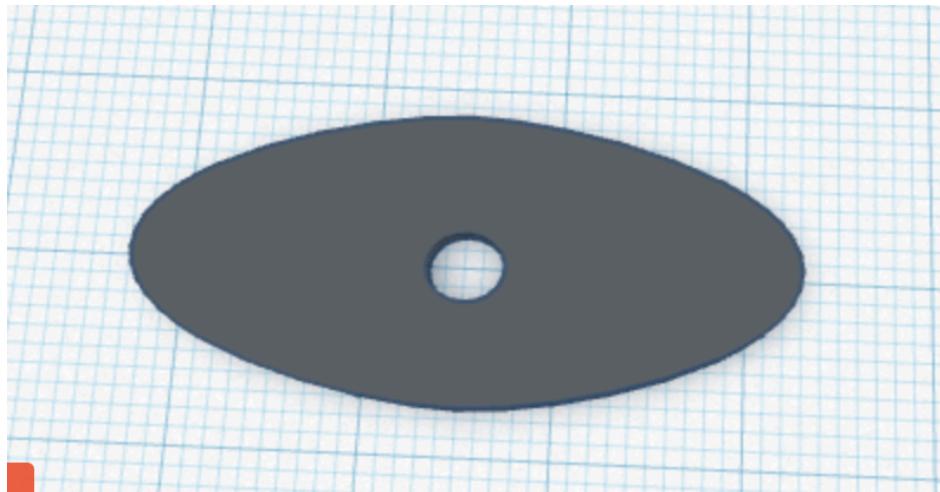
Steady upwards movement.

- What elements or objects could be attached to the rods to bring your sculpture to life?

A hand that could also be attached to a little person. Maybe showing a student raising their hand.

Elliptical

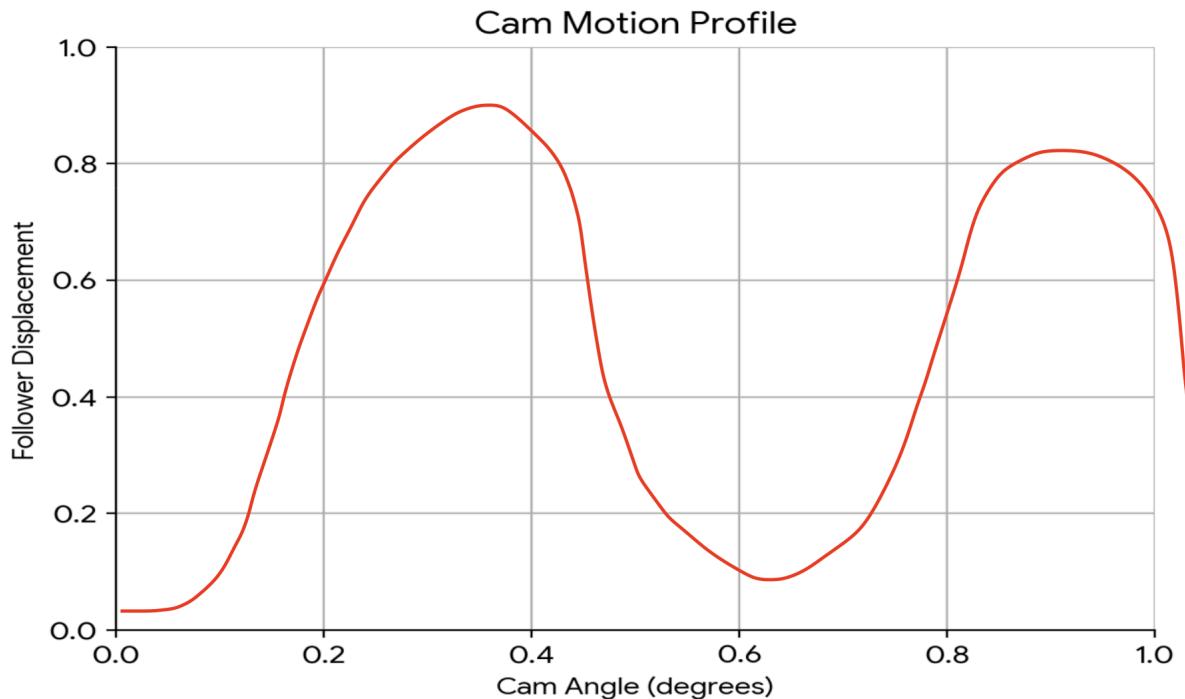
TinkerCAD Design Screenshot



Motion graph sketch

Sketch a graph representing the follower's motion as the cam rotates. (Vertical axis: Height of the rod, Horizontal axis: Time or cam rotation).

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Real-World Motion

Something floating in the ocean. It goes up and down, but is slower than the rest of the movements.

Potential Sculpture Application

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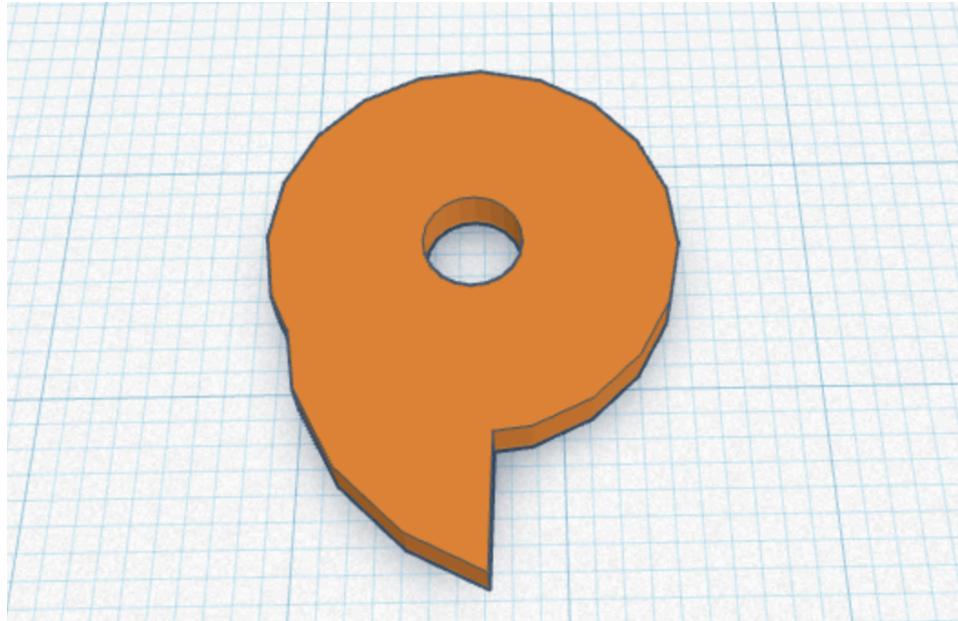
A steady movement.

- What elements or objects could be attached to the followers to bring your sculpture to life?

A floating device in water such as a floaty.

Snail

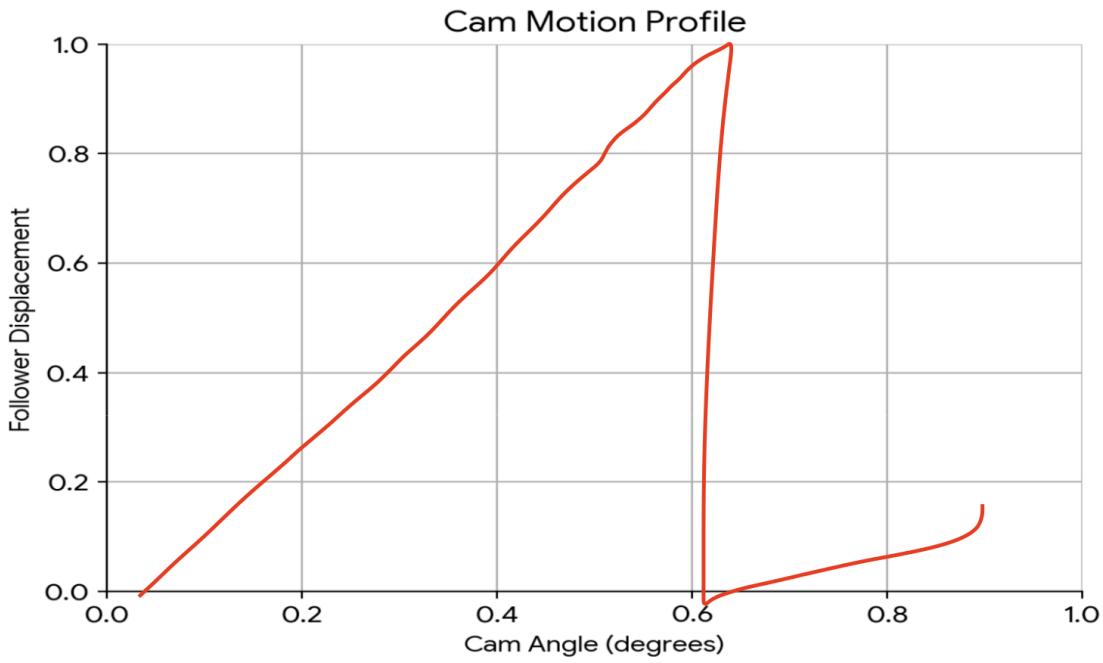
TinkerCAD Design Screenshot



Motion graph sketch

Sketch a graph representing the follower's motion as the cam rotates. (Vertical axis: Height of the rod, Horizontal axis: Time or cam rotation).

Take a screenshot of the graph below and sketch the line.



Real-World Motion

A little kid dropping his ice cream cone. There is a build up when he is bringing it up to eat and then a sharp drop when the ice cream falls from his hands.

Potential Sculpture Application

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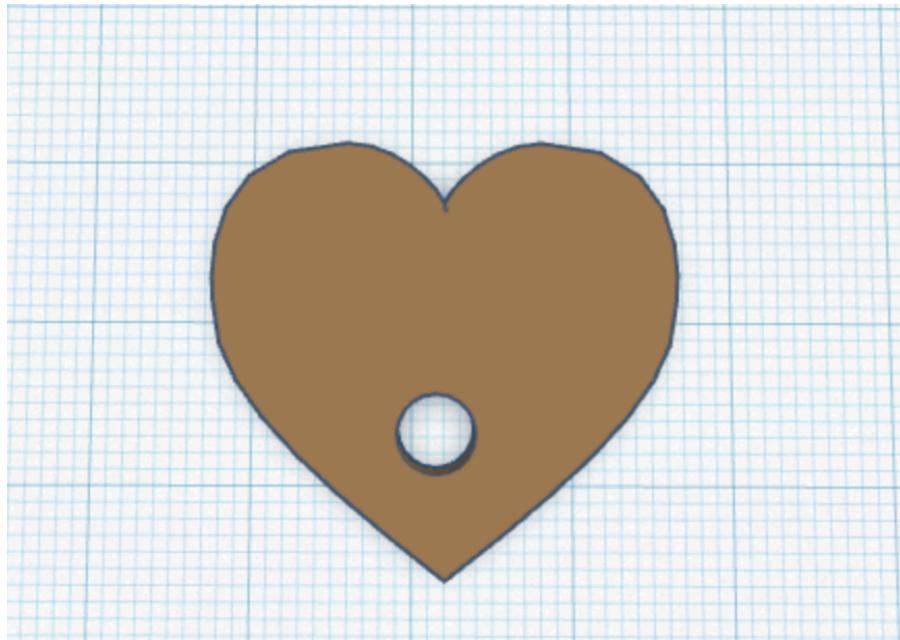
Something falling.

- What elements or objects could be attached to the followers to bring your sculpture to life?

Something or someone jumping or skipping over something because it has a sudden drop, showing the fall.

Heart

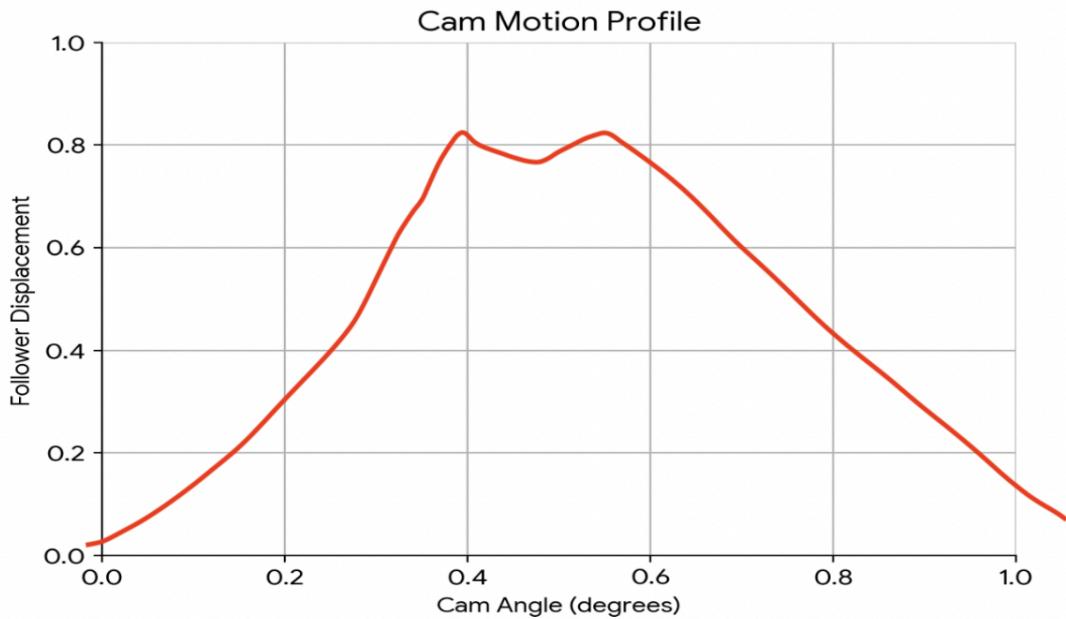
TinkerCAD Design Screenshot



Motion graph sketch

Sketch a graph representing the follower's motion as the cam rotates. (Vertical axis: Height of the rod, Horizontal axis: Time or cam rotation).

Take a screenshot of the graph below and sketch the line.



Real-World Motion

Similar to an actual heart beating. It has a quick jump at the top which would make it similar to the fast pace of a heart beating.

Potential Sculpture Application

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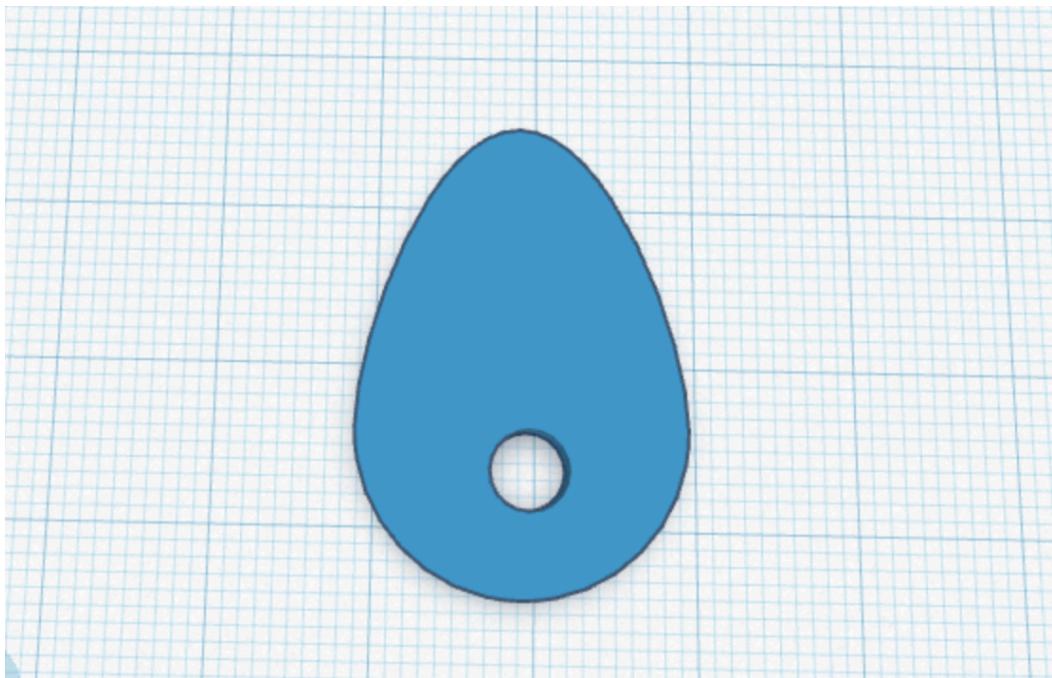
Choppier movement.

- What elements or objects could be attached to the followers to bring your sculpture to life?

Leaves in trees to show how they move unevenly with the wind.

Pear

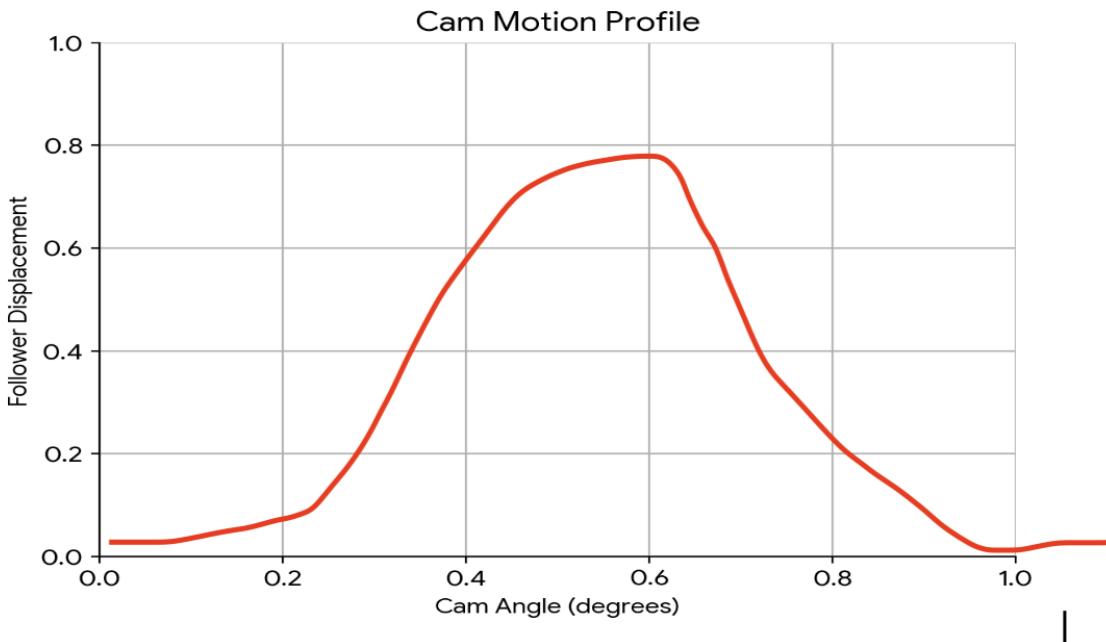
TinkerCAD Design Screenshot



Motion graph sketch

Sketch a graph representing the follower's motion as the cam rotates. (Vertical axis: Height of the rod, Horizontal axis: Time or cam rotation).

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Real-World Motion

Ocean waves going up and down. They have smooth, repetitive movements.

Potential Sculpture Application

Imagine incorporating these cam motions into a kinetic sculpture. Sketch a rough idea of how you might incorporate one or more of these cams into a sculpture design. Then explain your idea in a few sentences that address the following questions:

- What type of movement could each CAM create in your sculpture?

Smooth even up and down movement.

- What elements or objects could be attached to the followers to bring your sculpture to life?

Stars in the background of my sculpture to add more movement to the piece.