

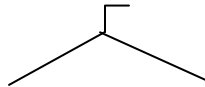
Kinetic Sculptures

What Do I Need?

- ❖ Foam board
- ❖ Wire Hangers
- ❖ String
- ❖ Tape
- ❖ Wire Cutters
- ❖ Random supplies
(egg cartons, spoons, toys, etc.)

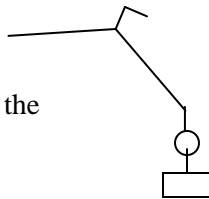
What Do I Do?

Phase 1: Cut off the bottom bar of the hanger using your wire cutters. If your hanger has a cardboard tube supporting the bottom, just pull it off. We want the top of our kinetic sculpture to look like this:

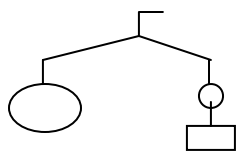


Now, you are going to design foam shapes that will hang from one side with string. You can make them any size or shape that you would like and hang them on a single side of your mobile. Like this:

Notice that your mobile shifts to the right side because of the added weight from the foam boards, changing the center of mass.



Phase 2: In order to balance your mobile, you are going to add a counter weight on the left side. You may choose to experiment with one counter weight or more. This is completely up to you. Try adding objects other than the foam board shapes, such as a spoon or small plastic toy.



Now Try This!

Explore the center of gravity or center of mass using a ruler and spoon. Try to balance the ruler on a single finger. Where did you place your finger to balance the ruler?

Now, try to balance the spoon? Where did you place your finger to balance the spoon? Is the center of mass always located in the center of an object?

What's Going On?

Kinetic sculptures demonstrate the principle of equilibrium. Each foam shape or object in the sculpture hangs from the hanger with a single string, allowing it to rotate about the string. The various hanging objects must balance each other to keep the hanger horizontal and the entire sculpture in a state of equilibrium.

Each individual object in the sculpture has a center of gravity or center of mass, where gravity pulls down on the object and the string holding it up counteracts it. In order for the entire sculpture to reach a state of equilibrium, we must balance the various centers of mass hanging from the hanger. This point where the centers of mass balance is called the barycenter. Once you discover the barycenter between the numerous objects of the sculpture, the mobile can freely rotate about a central point and remain balanced.

By organizing the objects based on their centers of gravity and the barycenter, designers can create structures that move and change over times, but remain in a constant, static state of balance.