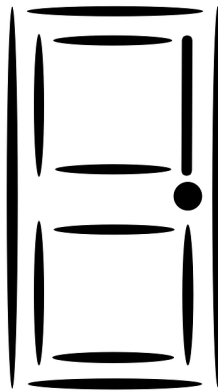


Age: 8+

F is for... Force

What is force? Force is the push or pull on an object. Force can change an object's speed, direction, or shape.

Examples of force include: pushing a door open, pulling a door close, or stretching a rubber band.



Activity: Transfer of energy experiment with marbles

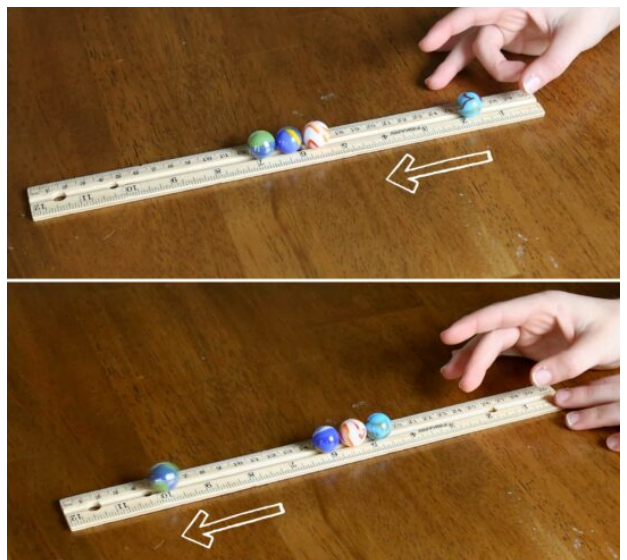
Materials:

- Ruler: with grooves in the middle
- Marbles

Instructions:

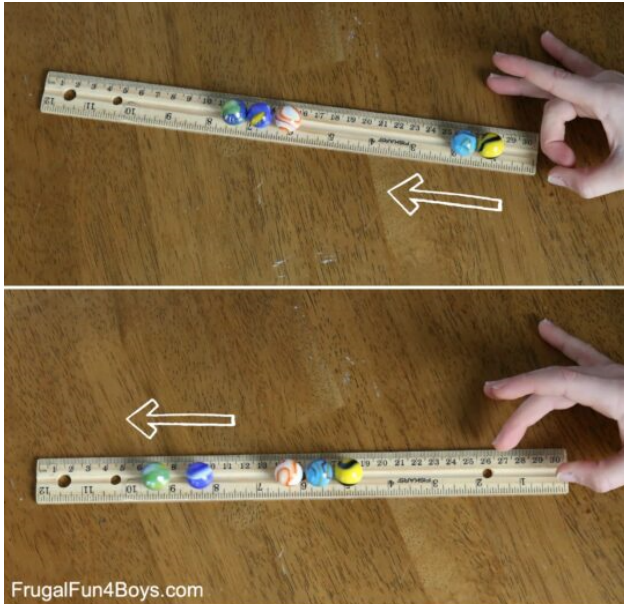
Line up 3 marbles in the middle of the ruler. One marble at the edge of the rule. Flick the marble at the end of the ruler.

- What happened to the marbles? Why?
 - Only 1 marble should have rolled away



- Next, try 2 marbles at the end of the ruler and 3 in the middle. What happens to the marbles?
 - 2 marbles should have rolled away

You are observing the transfer of energy. The amount of marbles that are “flicked” and act upon “force” is equal to the marbles that move from the middle position.



Job Exploration:

- **Physicists:** Physicists study the ways in which various forms of matter and energy interact. Theoretical physicists may study the nature of time or the origin of the universe. Some physicists design and perform experiments with sophisticated equipment such as particle accelerators, electron microscopes, and lasers.
- **Mechanical Engineer:** An engineer designs and builds complex products, machines, and system. A mechanical engineer works with how things are made and how machines operate. They also design and builds complex products, machines, and systems. Mechanical engineers also help with the invention of many machines, including the early inventions of simple machines like the wheel and axle.
- **Chemical Engineer:** Chemical engineers apply the principles of chemistry, biology, physics, and math to solve problems that involve the production or use of chemicals, fuel, drugs, food, and many other products. They design processes and equipment for large-scale manufacturing, plan and test production methods and byproducts treatment, and direct facility operations.

For more information on this activity visit:

<https://frugalfun4boys.com/transfer-of-energy-science-experiment/>