Gravity Pulls

Sections

Joey Scouts | Cub Scouts | Scouts | Venturer Scouts | Rover Scouts

Scouts VICTORIA

Last updated:

Challenge Areas

COMMUNITY | CREATIVE | OUTDOOR | PERSONAL GROWTH

Scout Method Elements

COMMUNITY INVOLVEMENT | LEARNING BY DOING | NATURE AND THE OUTDOORS | PROMISE AND LAW | PERSONAL PROGRESSION | PATROL SYSTEM

SYMBOLIC FRAMEWORK | YOUTH LEADING, ADULTS SUPPORTING

SPICES Growth Areas

CHARACTER | EMOTIONAL | INTELLECTUAL | PHYSICAL | SOCIAL | SPIRITUAL

The Adventure

Compare how quickly different objects fall, do heavier objects fall faster in free fall. Try different strategies to make things fall faster and slower.

Plan

- Where will you do this adventure - Indoors, outdoors, or at camp?
- Is there a safe structure from which you can drop your objects?
- How could you build one?
- What objects will you drop?
- Choose objects that are similar in size and shape but have different masses.
- How will you form your groups?

Materials

- One set of unbreakable objects with different weights and shapes for each group
    - (e.g. small stones, tennis balls, ping pong balls, sheets of paper, feathers, pieces of Styrofoam, pieces of wood of different sizes)
- Stopwatches
- Pencils
- At least 20 sheets of paper
- Tape or glue
- Three garbage bags, three plastic grocery bags and newspapers for each parachute
- Treads or thin ropes (at least 1.5 m for each parachute)
- Colouring supplies

Online resources

- Speed of Freefall
- Dropping a feather and a hammer on the moon
- Science of gravity
- What falls faster?

Do

Activity #1: What falls faster?

- In your group, predict which objects will fall the fastest. What characteristics of the objects will change how fast they fall?
- Make a list of your hypotheses.
- Drop the objects from a consistent height and time how long it takes them to reach the ground.
- Record your observations and calculate the speed of each object's fall. Speed is measured in metres per second, or distance over time.
- As a group, discuss which object fell the fastest. Which one was the slowest? Why?
- What causes an object to fall?

Activity #2: Fall Faster!

- Take a few minutes to do whatever you want to a piece of paper (without cutting it) to make it fall faster.
- Then, drop the paper from a height and see which group's paper falls the fastest.
- After the first round, change your design and try again. Repeat as many times as you want, using a fresh piece of paper each time.
- Which designs fell faster? Why?

Activity #3: Slow Down!

- This time, groups will design and build a parachute that slows down a falling object.
- Using garbage bags, plastic bags and newspapers, make a parachute and then compete to see which design works best.
- If you have time, you can decorate your parachutes.
- Which design went slower? Why?

Review

- What do you know now that you did not know before?
- What kinds of objects fall faster? What kinds of objects fall slower?
- Did the shape of the object make any difference?
- What did you do to make the paper fall faster? Why?

- What did your parachute do to make the object fall slower?
- How did your group work together on this Adventure?
- What elements of STEM were in this Adventure? Science, Technology, Engineering, or Mathematics?
- What did you like about this Adventure?
- What did you not like?

Safety

Remember: garbage bags and plastic grocery bags can be very dangerous and should never be put over anyone’s head.