EXPLR

BOUYANT BALLOONS: Floating Challenge

Challenge

Every year during the Macy's Thanksgiving Parade, volunteers guide large helium filled balloons down the parade route. Engineers, experts, and designers combine art and science to create beautiful and functional balloons. Using what you have learned about buoyancy and balloons, your challenge is to make a stuffed animal hover three feet in the air for at least 30 seconds with your group members. Before beginning, watch EXPLR's **Parade 101: Creating a Macy's Parade Balloon**.

Goals
- Apply knowledge of buoyancy and forces to an object
- Collaborate with group members as productively as possible

Materials
- Soft object like a stuffed animal, figurine, etc (1x group)
- Helium balloons (set of 5-8 per group)
- String or ribbon
- Masking tape
- Yardstick or tape measure (1x group)

Group Roles

Materials Manager: Collect, set up, and clean up group materials

Inclusion Manager: Pay special attention so that everyone gets a chance to share ideas. Ask quieter members if they would like to share any ideas with the group.

Question Asker: Ask group members questions. Serve as a group spokesperson with the teacher if the group gets stuck.

Checker: Make sure everyone understands what is going on and has taken the right notes before moving on to the next step.

STEP 1: PLANNING

You will have five minutes with your group to create a plan. Document your plan here using words or drawings.

What does your group already know about how buoyant forces impact if something will float?

Create a plan. Be as specific as possible.

STEP 2: EXECUTE YOUR PLAN!

You have five more minutes to execute your plan. Remember that your group must try to do the following: Make your object hover three feet above the ground for at least 30 seconds.

Record your results:

Time afloat: _____ minute/s _____ seconds

Maximum height above ground: _____ feet _____ inches

STEP 3: REFLECT

Discuss with your group:

What did your group do well?

How could your group have improved?

If you had a chance to redo the challenge, what would you do differently?

Take notes about your reflection below:

STEP 4 (optional) : RETRY THE CHALLENGE

- What changes did you make?

- How well did your group collaborate after retrying the challenge?

- What does this experience show you about working with others to solve problems?

- How did you combine your knowledge of buoyancy with your group members' skills to approach the challenge?