



FSC PROGRAM DESCRIPTION

1205 - 3-2-1 Liftoff!

Grade Level: 2nd grade
Location: Planetarium
Capacity: 275

Instructor: Lancaster, Lambert
Type: Single Visit
Length: 45 minutes

Program Description

Alan is a hamster scientist who lives in a dump yard. He tries to fit in the local rats' community but nobody takes him seriously. The rats aren't interested in his scientific experiments which often fail in practice.

One day Alan hears a crash. In his garden he finds a crater and a damaged robot inside. How did he get here? Alan fixes the robot and finds out that he fell from a spaceship which is going to prepare Mars for colonization. But the ship leaves in three days.

And that's how Alan's great adventure starts. Will he manage to get the robot back to his ship before it leaves with all the robot's friends?

3-2-1 Start! Is an adventurous animated fulldome film about courage and wits you need to have to get in space and back.

Georgia Standards of Excellence

S2P2 Obtain, evaluate, and communicate information to explain the effect of a force (a push or a pull) in the movement of an object (changes in speed and direction).

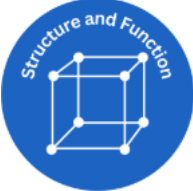
- a. Plan and carry out an investigation to demonstrate how pushing and pulling on an object affects the motion of the object.
- b. Design a device to change the speed or direction of an object.
- c. Record and analyze data to decide if a design solution works as intended to change the speed or direction of an object with a force (a push or a pull).

Vocabulary

Force, motion, object, position, push, pull, direction, speed

Learning Targets	Success Criteria
Students will understand that an object's motion is based on the amount of push or pull it receives.	Students can explain that an object changes speed and direction when given a push or pull.
Students will recognize that friction is a force that will slow and object down.	Students can explain why a moving object will eventually slow down and stop due to friction.
Students will understand that the amount of mass an object has affects the amount of force it needs to move.	Students can explain what causes a smaller object to move more easily than a larger object.

Science Cross-Cutting Concepts

		
Students observe how the shape of an object and moving parts such as wheels help an object to speed up or slow down.	Students understand that when two objects collide or touch they can change the direction and speed.	Students explore how a bigger push or pull and how massive the object is can affect the movement.

Science and Engineering Practices

		
Students use familiar objects to explore changing its speed and direction.	Students ask questions about the motions of objects and how we launch rockets into space.	Students construct explanations about how energy must be used to speed up an object to launch into space.

Pre-Visit Activities

Provide students with a picture of someone on a swing (or, if your school has swings, go outside and demonstrate).

Have students work in groups to determine how to slow a swing down and speed it up. (Please review safety rules for using swings; for example: Be aware of your surroundings near the swings so you don't get hit.)

Literacy Connection: *Thud! Wile E. Coyote's Experiments with Forces and Motion* by Weakland & Cornia

Post-Visit Activity

Host you class's own boxcar derby! Provide each group of students with similar items (toilet paper rolls, straws, lego wheels, etc.) and have them design their own car. Use ramps and measuring tapes to see who can get their car to roll the farthest!

FSC Program Evaluation Survey Link:

<https://forms.office.com/r/CSCkZYqxjY>

