

Pulling

What makes objects move?

Key Objectives

In this project, you will:

- Explore what forces are and how they can make objects move.
- Create and program a robot to investigate the effects of balanced and unbalanced forces on the motion of an object.
- Document and present your findings about forces.



1. Explore phase

Max and Mia are impressed by machines that can pull heavy objects.

They wish to investigate what makes objects move.

Explore Max's and Mia's questions:

1. How can you make an object move?
2. Can you explain friction?
3. Predict what will happen if the pull force is greater in one direction than the other.

Share your ideas with the Documentation tool.



2. Create phase

Use the bricks:

Build a Pull-robot that can pull an object over a short distance.

Connect your Smarthub

Turn on the Smarthub and connect it to your device. Watch the video if you need help.

See the Help panel for more guidance.

Program your model

Program your pull-robot to pull an object over a short distance like it did in the video.



Investigate with Max and Mia

1. Add objects to the basket until the Pull-robot stops.

Predict what would happen if you put tires on your Pull-robot.

Document your prediction.

2. Put the big tires on your robot and test.

Document your findings.

3. Find the heaviest object your Pull-robot can pull with the tires on.

Document how forces are balanced or unbalanced for each case.



Investigate more with Max and Mia (optional)

1. Build a different Pull-robot to pull the heaviest object possible.
2. Pair up with another team and create a pulling challenge with the new Pull-robots.

Document how the forces were acting.



3. Share phase

Share your findings:

Based on your investigations, present in your own words the difference between balanced and unbalanced forces.



Finalize your document

1. Review your prediction and explain what happened in this investigation.
2. Organize your information to share with others.
3. Insert important text, pictures, screen capture or videos into your project.

