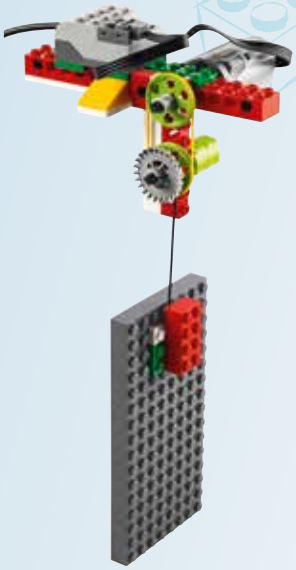
WeDo

Bringing the world of digital technology into your classroom. Cross-curricular learning at its best.

LEGO® Education WeDo is a motivational, hands-on tool designed for children ages 7 and up to enhance everyday lessons in Computing, Science, Language, Social Studies and Design & Technology.

Digital technology plays an active role in the lives of today's pupils. With WeDo, you will get an easy-to-use, differentiated learning tool that integrates digital technology across subjects. WeDo stimulates both the teaching and the learning process and can be applied to your everyday lessons.



Lifting on an Inclined Plane

A WeDo activity with a science focus

This activity was co-created with a teacher using WeDo in the classroom.

LEGO education

Instant Success with WeDo

With these steps, you will be able to have a great experience integrating WeDo into your everyday lessons.

Before-class preparation in four steps

If this is your first experience with WeDo, here are some helpful steps to take before you start:

1. Unpack and sort the sets (about five minutes per box).
2. Install the software.
3. Look at the teacher guide to get inspired by the activities.
4. Print pupil sheets if necessary.

A classroom activity in four steps

1 Start your project by using a story to engage your pupils in the task. You can create your own Connect story or use the Connect videos with Max and Mia in the integrated activities in the software.

2 Discuss the task and let the pupils relate to it. Discuss possible solutions but try not to give the full solution because a problem is an opportunity to learn.

3 In teams of two, pupils should build, program, and explore a model that relates to the task.

4 Ask every team to share their work.

After-class evaluation in two steps

1. Use the experience to inspire new ideas for using WeDo. Tweak the ideas to fit your everyday teaching, integrating technology in an engaging way. The opportunities are endless.
2. Share your best experiences with us on LEGOeducation.com/Community.

Activity

45 minutes

(The exact time depends on how much time you allow for building.)

In this activity, pupils in teams of two will:

Investigate how simple machines such as inclined planes and gears can be used to change the force needed to lift objects.

You will need a ramp to create a slope. The length of the ramp should be about one metre. Two boxes or several books will help you create different heights for the slope.

Description:

Workers must get building materials to the top of a hill. But their materials are in a large box. This box is too heavy to carry. The workers have a winch to help them, but it isn't very powerful. They also have a ramp. How should they use the winch and the ramp to get the building materials to the top of the hill?

Activity steps:

1. Create a prototype of a winch. Use a gear system to increase the speed by making the small gears mesh with the larger gears. The suggested model will help inspire you.
2. Use the rope to connect the box to the winch. You could use LEGO® bricks to represent the building materials.
3. Place the winch at the top of the ramp and make sure that the ramp has a low slope.
4. Use the program to operate the winch and raise the box. You will need to make sure that the motor is on the lowest possible setting to move the box.
5. Place the box at the bottom and start the motor.
6. After two seconds, place a mark on the ramp to show how far the building materials traveled.
7. Measure the distance the building materials travelled, and record your data in Table 1.
8. Adjust the ramp so it has a steep slope.
9. Using the same minimum power as for the low slope, place the box at the bottom and start the motor. Stop after two seconds and see how far the building materials traveled. Place another mark on the ramp.
10. What do you notice? Write the data in Table 2.

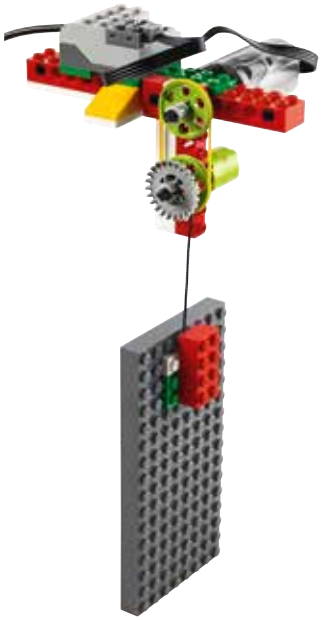
Table 1 – Low slope

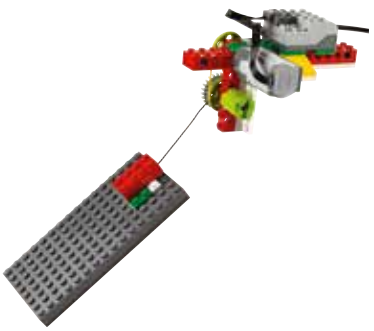
Ramp	
Minimum power	
Distance travelled	

Table 2 – Steep slope

Ramp	
Minimum power	
Distance travelled	

Suggested model:





Suggested program:

This program lets you start and stop the motor for the winch at two-second intervals, at power setting 1, when you press the up arrow.

Discussion Questions:

What can you conclude about the best slope to use?
Was your idea correct as to how you can help the workers?

Your idea is known to scientists and designers as a hypothesis. When you tested it by pulling the box with the winch, you were seeing if your hypothesis was correct. Hypotheses are at the heart of all scientific experiments!

We call the ramp an inclined plane. This acts as a simple machine that can save us a lot of effort when we move a heavy load. It was used by the ancient Egyptians to build the Great Pyramids and is still in use today. Remember to use low and steep inclined planes that have the same surface. By having the same resistance, known as friction, you ensure that the two sets of results are accurate.

Extensions:

Could you use another simple machine to make the work of the motor easier? What about the gears on the winch – how do they affect it?

The LEGO® Education WeDo motor is quite powerful. Increasing the speed of the rotation of the mechanism using gears should get the load to the top much more quickly.

WeDo Construction Set

In the WeDo software, 12 structured activities are integrated, including building steps for the models as well as 20 getting started activities to familiarise you with the building mechanisms and the programming. For more information, visit LEGOeducation.co.uk/WeDo