LEGO® Education WeDo 2.0 Curriculum Pack

LEGO® Education WeDo 2.0 is developed to engage and motivate primary school students' interest in learning science and engineering related subjects. This is done through the use of motorised LEGO models and simple programming.

WeDo 2.0 supports a hands-on, "minds on" learning solution that gives students the confidence to ask questions, and the tools to find answers and solve real-life problems.

Students learn by asking questions and solving problems. This material does not tell students everything they need to know. Instead it makes them question what they know and explore what they do not yet understand.

Learn science and engineering through projects

WeDo 2.0 has a range of different projects. The projects are divided into the following types:

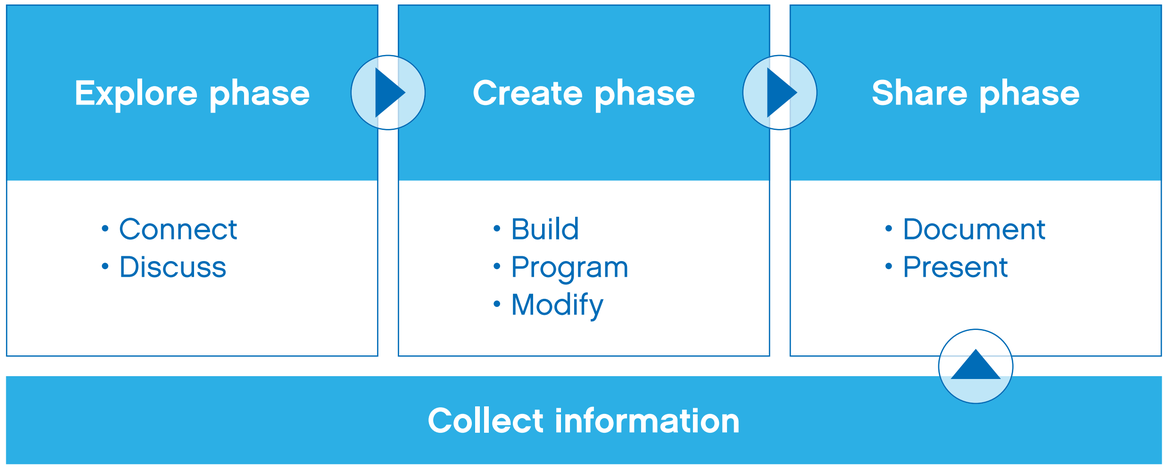
- A Getting Started Project divided into four parts, where you can learn the basic functions of WeDo 2.0.
- Eight Guided Projects linked to the Australian Curriculum: Science requirements, with step-by-step instructions for the complete project.
- Eight Open Projects linked to the Australian Curriculum: Science requirements, with a more open experience.

The Guided Projects and the Open Projects are divided into three phases: the Explore phase, to connect students to the task; the Create phase, to allow them to build and program; and the Share phase, where they document and present their projects.

Each project should last approximately three hours. Each phase has an equal importance in the project flow and an estimated completion time of around 45 minutes, but you can modify the time spent on each phase to suit your teaching.

How to teach science with WeDo 2.0

WeDo 2.0 uses a project progression defined by three phases.



Explore phase

Students connect to a scientific question or an engineering problem, establish a line of inquiry, and consider possible solutions.

The steps of the Explore phase are: connect and discuss.

Create phase

Students build, program, and modify a LEGO® model. Projects can be one of three types: investigate, design solutions, and use models. Depending on the type of project, the Create phase will differ from one project to another.

The steps of the Create phase are: build, program, and modify.

Share phase

Students present and explain their solutions and findings using their LEGO models and the documents they have created with the integrated Documentation tool.

The steps of the Share phase are: document and present.

Important

During each of these phases, students will document their findings, the answers, and the process, using various methods. This document can be exported and used for assessment, display, or sharing with parents.

Use the Guided Projects

The Guided Projects will help you to set the scene and facilitate the learning experience. They are designed to build your students' confidence and provide the foundations necessary for success.

All Guided Projects follow the Explore, Create, and Share sequence to ensure that students progress step-by-step through the learning experience.

Teacher's notes have been provided for every project, and include:
- Curriculum links
- Detailed preparation
- Assessment grids
- Differentiation techniques and notes on possible student misconceptions
- Explore, Create, and Share Help panel

See the "Guided Projects" chapter for information about all Guided Projects.

Suggestions

It is recommended that you start with the Getting Started Project followed by one or two Guided Projects to make sure students understand the approach and methodology. "Pulling" is a good Guided Project to start with.

Using Open Projects

The Open Projects also follow the Explore, Create, and Share sequence, but intentionally do not offer the same step-by-step guidance as the Guided Projects. They provide an initial brief and starting points to build on.

The key to using the Open Projects is to make them your own; offer opportunities for projects that are locally relevant and challenging in the areas you want them to be. Use your creativity to adapt these project ideas to suit your students. You will find teacher support about Open Projects in the "Open Projects" chapter.

With every Open Projects brief, students will be given three suggested base models to look at in the Design Library.

The Design Library, located in the software, will provide inspiration for students to build their own solutions. The goal is not to replicate the model, but to get help on how to build a function, such as to lift or walk. Students will find building instructions for the 15 base models in the Design Library, as well as pictures of inspirational models.

Suggestion

The Design Library and Open Projects can be found in the WeDo 2.0 Software.

Document projects

Asking your students to document their work will help you to keep track, identify where they need more help, and evaluate their progress.

Students can use many different methods to express their ideas. During the ongoing documentation process, they can:

1. Take photographs of important steps of their prototypes and their final models.
2. Take photographs of their team working on important stages of the process.
3. Record a video explaining a problem they are facing.
4. Record a video explaining their investigation.
5. Make notes using the Documentation tool.
6. Find supporting pictures on the Internet.
7. Take screenshots of their programs.
8. Write, draw, or sketch on paper and then take photographs to record the information.

Suggestion

A combination of paper and digital documentation can be the most effective, depending on the age group you are working with.

Share projects

At the end of the project, students will be eager to share their solutions and findings. This is a great opportunity to develop their communication abilities.

Here are a few examples of how your students can share their work:

1. Ask the students to create the display where the LEGO® model will be used.
2. Ask the students to describe their investigations or dioramas.
3. Ask a team of students to present their best solution to you, another team, or to the class.
4. Invite an expert or a group of parents to your classroom for a student presentation.
5. Organise a science fair at your school.
6. Ask the students to record videos explaining their projects, and post them online.
7. Create and display posters of the projects around your school.
8. Email the project documents to parents, or publish them in students' portfolios.

Suggestion

To make this experience even more up-beat, ask each student to make a positive comment or to pose a question about another student's work during the sharing session.

The Science Lab

Max and Mia's virtual WeDo 2.0 Science Lab is a great place for students to get connected to real-life questions or problems. You can meet them in every Guided Project.

Max is always ready for a new project. He loves to discover fresh topics, and he's very creative when it's time to invent something new.

Mia is thrilled by any discoveries. She's very curious about the world around her, and she always wants to know more.

In the Getting Started Project, Max and Mia are joined by Milo the Science Rover, who is capable of great discoveries.

Max and Mia have great projects to propose, and they are excited to **welcome you to the LEGO® Education WeDo 2.0 Science Lab!**