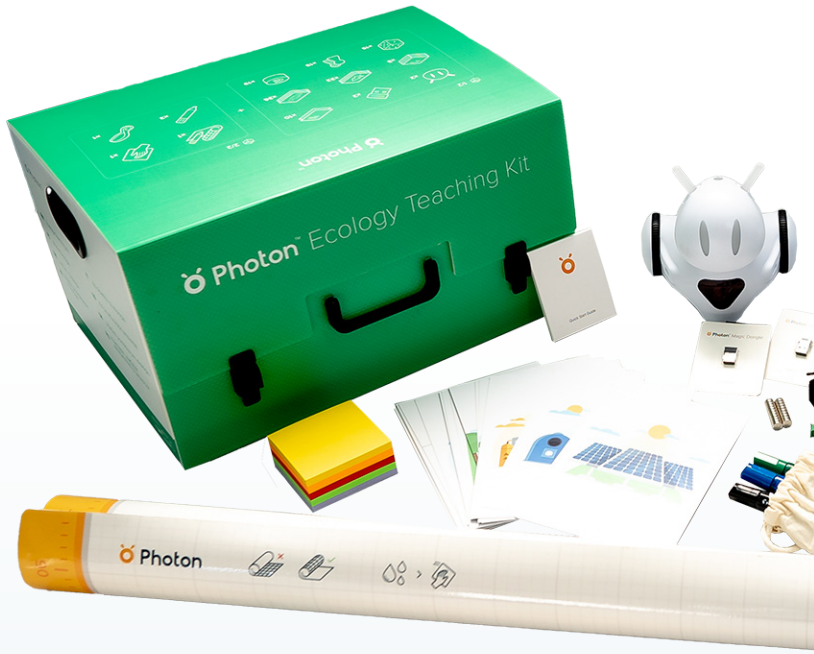
Photon

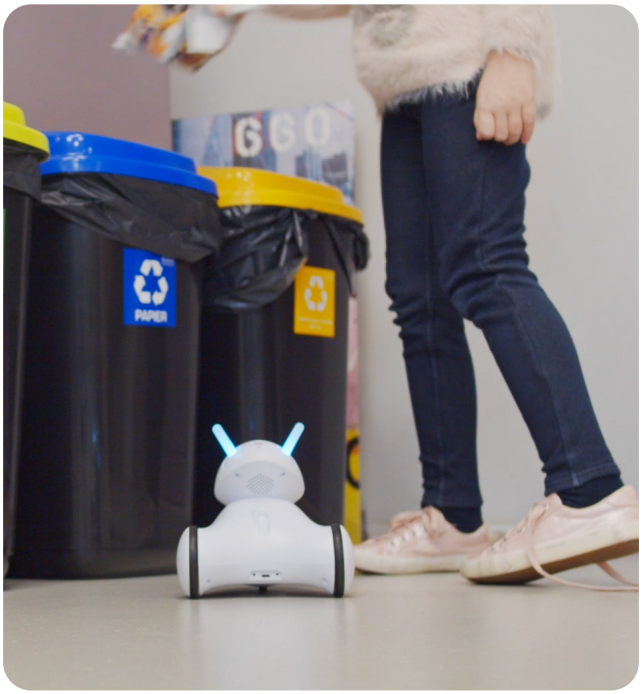
Sustainable Energy
Teaching Kit

A Kit for teaching in early elementary, and grades 4-6. It shapes an attitude of respect for the natural environment in students.



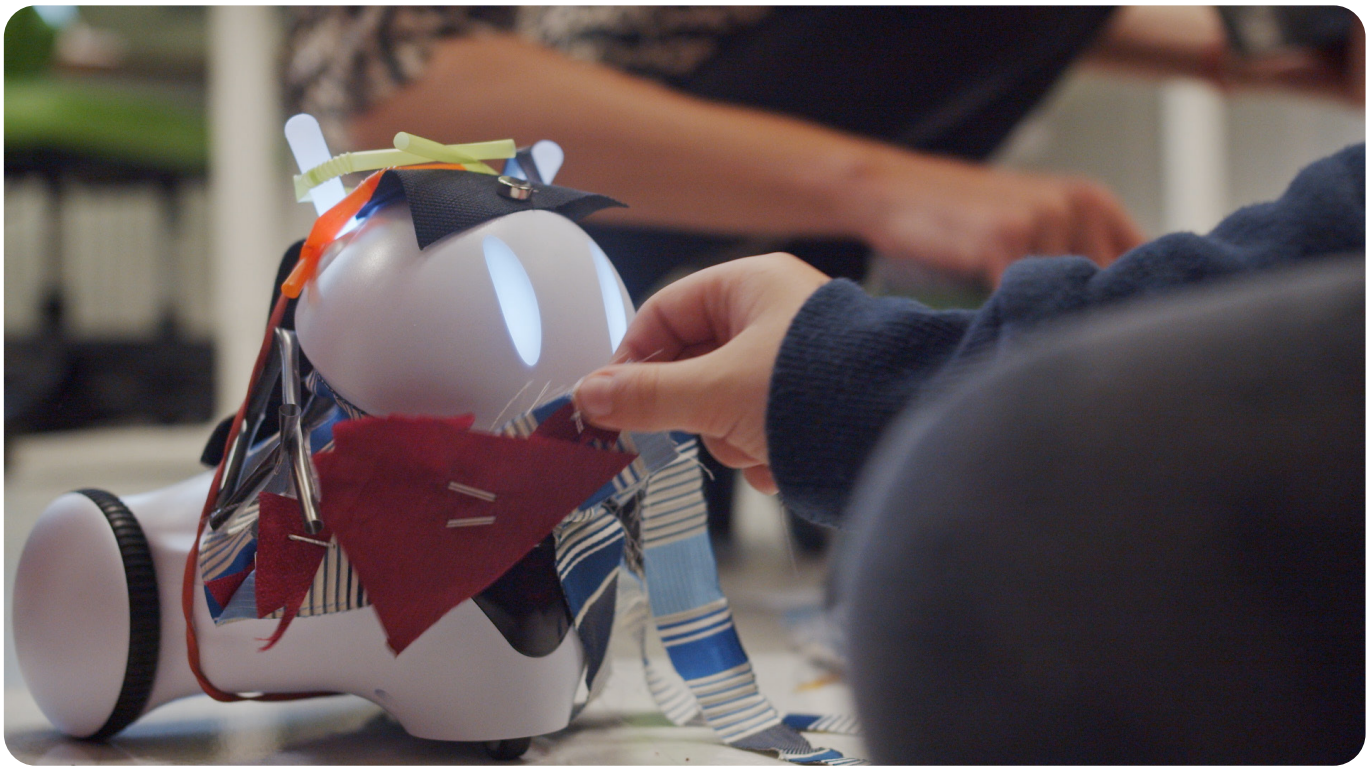
What's in the Kit:

- 2x Photon Robot
- 10x Lesson plans
- 2x Magic Dongle
- 32x Worksheets
- 1x Drawing mat
- 1x Marker holder
- 3x Marker
- Paper notes (1 set)
- 3x Character cutout sheets
- Dice and game pieces (1 set)
- 19x Neodymium magnet
- 1x Wiping cloth for the mat



Why Sustainable Energy Kit?

Teaching environmental awareness is more important than ever. We have designed the Sustainable Energy Kit to help shape an attitude of respect for the natural environment and promote pro-environmental behaviors in students. The Kit includes 10 lesson plans that can be used as a whole or as individual activities. Promoting environmental awareness is an easy way to actively participate in creating a brighter future for our children.



The Kit is suitable for teaching in early elementary, and grades 4-6. With it, students will:

Develop Environmental Awareness and Sensitivity

Activities in this set provide an introduction on why & how to care for the environment and encourage children to become responsible adults who truly care about it.

Indicate Positive Patterns and Behaviors

Students learn what taking care of nature looks like in practice. They begin to understand that simple actions can make a massive impact.

Applying Lessons in the Real World

Before long, students will be able to transfer their newly acquired knowledge into their everyday lives, making our planet a little bit better with each passing day.

Ability to Express One's Own Opinion

Most classes begin with an open discussion. That way, students learn to express their thoughts and opinions, a skill that will prove particularly important in adulthood.

Title	Key Concepts	Learning Outcomes
Eco Fashion Show	• recycling	A creative group activity introducing the concept and importance of recycling.
Green City	• green city • energy efficiency • renewable energy	Discuss what makes a city green and introduce concepts of renewable energy and energy efficiency.
Waste Segregation	• waste segregation • waste paper • recycling	Teach students about the importance of waste segregation & recycling.
How To Save Energy?	• photocell • light sensor	Brainstorm ways of saving energy and introduce the concepts of photocell and light sensor.
Public Transport	• public transport • bus • electric bus	Which means of transportation are the most eco-friendly? Introduce the benefits of public transport and electric vehicles.
Meeting In The Forest	• wildlife • proper behavior in the forest	Take a walk through the forest with Photon and discover the importance of wildlife and proper behavior.
Drawing Leaves	• tree leaves • conifers and deciduous trees	Discover the rich world of trees using Scratch 3.0 and a permanent market holder.
Electric Cars	• diesel, petrol • green transport	Take a ride into the future with Photon Robot. Speculate on different energy sources and means of transportation.
Eco-Game	• green attitudes • non-green attitudes	Compare green and non-green attitudes in a fascinating group activity.
Nature Quiz	• ecology	Who's going to be the next Green Champion? Test students' knowledge in a fun quiz!

How to work with the Kit?

We always recommend buying one Kit for 5-6 students. The more Kits in class, the more possibilities you get to conduct engaging classes.

With the lesson plans included in the Kit, teachers will be able to develop students' passion for ecology, introduce the concepts of segregating waste, saving energy, recycling, eco-transport, and green cities. The materials allow for conducting group and individual classes.

The Kit also allows special education teachers to conduct cognitive and social communication lessons. Each activity is supplemented with detailed guidelines for implementation and hints on which elements the teacher should pay special attention to.

Sustainable Energy | Students aged 7-12

45 minutes

Scenario: Eco fashion show

Introduction

Gather all the materials you have prepared in one place - make them available to all children.

Learning activity

Divide the class into teams of three - each team designs an eco-outfit for the Photon robot – ask students to use their worksheets and available materials. Inform the children that they can use magnets to attach the clothes. All children prepare their outfits together so that they can be put on the robot. The whole class prepares a catwalk for the model, then each group presents their eco-outfits one by one – one child dresses the robot, the other controls it, and the third tells what materials were used to make the outfits.

Decide which programming interface the children should use to control the robot. The most basic control interface is Joystick. Depending on your students' programming skills, you can also use the more advanced programming interfaces: Photon Draw, Photon Badge, Photon Code. In such cases, encourage students to write a program for the robot's entire fashion show, including color and sound change.

Materials

- waste materials - empty and clean packaging, old newspapers, leaflets, magazines, fabric offcuts, etc.
- glue, scissors, stapler
- rubber bands
- flat magnets
- Photon robots
- worksheets - for each group of 3

Key concepts:

- recycling

Programming interface:

- any interface to control the robot, e.g. Photon Joystick, Photon Draw, Photon Badge, Photon Blocks

Discussion topics

- **What is recycling?**
- **What else can you make out of waste materials?**

Interesting facts

- **An average person produces about 270 kg of waste materials per year, of which 200 kg is the packaging.**
- **Aluminum is easier and cheaper to recycle than to produce.**
- **Glass is 100% recyclable.**

Worksheet