Roboplast

Overview

Become a scientist for a day and program LEGO® MINDSTORMS robots to simulate an automatic waste sorting machine. Find out about plastic leakage into the oceans and design a creative solution to the problem.

STEM links: Science – chemistry, environmental sciences and Technology – basic introduction to programming

Objectives

Pupils will learn about plastic and the need for a circular plastic economy. They will design a LEGO® MINDSTORMS program that is capable of transporting plastic to a recycling site.

Suitable for

10 – 15 year olds

Activities

- Plastic leakage into the ocean – take on the role of an environmental scientist and estimate the plastic content of a sample you are given
- Prevent plastics getting into the ocean – program a robot to automatically sort waste for recycling and reduce pollution
- Improve the robots to optimise their work

Pre/post-activity

- Pre-activity – at the time of booking, teachers are encouraged to visit My World of Work and use the Strengths tool with pupils
- Post-activity – teachers are encouraged to explore the related job profiles and industries on My World of Work with pupils and to use the resources in the partner area

My World of Work links

Job profiles – Oceanographer, Software developer, Materials engineer, Environmental consultant, Chemist

Modern Apprenticeships – IT and Telecommunications, Life Sciences

Industries – Life Sciences, Chemical sciences, ICT and digital

Skills Investment Plans

ICT and digital technologies, Life sciences, Chemical sciences

Experiences and outcomes

SCN 4-18a I can monitor the environment by collecting and analysing samples. I can interpret the results to inform others about levels of pollution and express a considered opinion on how science can help to protect our environment.

MNU 2-01a I can use my knowledge of rounding to routinely estimate the answer to a problem then, after calculating, decide if my answer is reasonable, sharing my solution with others.

TCH 2-01a When exploring technologies in the world around me, I can use what I learn to help to design or improve my ideas or products.

TCH 2-02a Having analysed how lifestyle can impact on the environment and Earth's resources, I can make suggestions about how to live in a more sustainable way.

TCH 3-01a From my studies of technologies in the world around me, I can begin to understand the relationship between key scientific principles and technological developments.

TCH 4-01c I can debate the possible future impact of new and emerging technologies on economic prosperity and the environment.

TCH 3-09a Using appropriate software, I can work individually or collaboratively to design and implement a game, animation or other application.

TCH 4-09a By learning the basic principles of a programming language or control technology, I can design a solution to a scenario, implement it and evaluate its success.

Career Management Skills

Supports the development of the career management skills young people need to plan and pursue, life, learning and work opportunities.

Career Education Standard

Second level I can discuss the relevance of skills to the wider world and make connections between skills and the world of work.

BGE I can demonstrate and apply the skills I have learnt across the curriculum in relation to the world of work.

LEGO education INNOVATION STUDIO