Introduction to
Robotics Club

Sessions Overview

Through a series of entertaining and educational workshops, based on practical hands-on experiences, this course is designed to give an appreciation of how Robotics and Engineering contributes to everyday applications, through the medium of Photography/Imaging and for pupils to gain an insight into a range of related careers.

After taking part in this club, students will be able to:

- Define a robot as a machine that gathers information about its environment (senses) and uses that information (thinks) to follow instructions to do work (acts).
- Recognize the advantages and limitations of robots by comparing how robots and humans sense, think, and act by exploring uses of robots in manufacturing, research and everyday settings.
- Understand their connection with technology and create an excitement about science and maths that will prepare them for a workplace in which computer, robotics, and automation are common and essential.

Breakdown of Sessions for the Robotics Workshops:

Session 1: Introduction to Robotics

Learning opportunities include:

- What is a robot?
- The essential characteristics of robots
- Recognising that robots rely on instructions
- That programmes require thorough testing

Session 2: Structures

Learning opportunities include:

- What is a structure?
- What is triangulation?
- Working together as a team to complete a structural task
- Recording the process: Documentary Photography

Session 3: Sensing

Learning opportunities include:

- How robots sense their surroundings
- An introduction to electronic circuits
- Designing and modelling a switching solution
- Using photography to create an instruction set

Session 4: Movement

Learning opportunities include:

- Looking at how robots move
- Comparing human/animal movement to robots
- Using human walking to model robotic movement
- Using Stop Motion to review solutions

Session 5: Energy

Learning opportunities include:

- Reviewing the choices of energy source to power robots
- Looking at battery cells and how they work
- Exploring sensing electronics including how transistors work

Session 6: Robotic Intelligence

Learning opportunities include:

- Introduction to Systems – Input/Process/Output
- Using photography to record images of I/P/O
- Creating instructions for robots to carry out a range of tasks