Question: How does a robot move?
Programming- Robot Algorithms

National Curriculum Link:

-Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions
-Create and debug simple programs
-Use logical reasoning to predict the behaviour of simple programs
-Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

International Baccalaureate Learner Profile Link:

Risk takers.
Sticking with the task in hand and remaining focused.
Taking responsible risks with new challenges.
Thinkers
How can I stretch myself by thinking deeply about new information?
How might thinking about thinking help me as a learner?
Inquirers
Having a questioning attitude and develop questioning strategies.
Gather data through all sense.
To create, imaging and innovate my ideas.

Prior Skills: Year 1	New Skills: Year 2	Future Skills: Year 3
To enact a given word. To recall words that can be enacted. To predict the outcome of a command on a device. To list which commands can be used on a given device. To explain what a given command does. To match a command to an outcome. To recognise how to run a command.	To choose a series of words that can be enacted as a sequence. To explain what happens when we change the order of instructions. To choose a series of commands that can be run as a program. To trace a sequence to make a prediction. To test a prediction by running the sequence.	To explain that programs start because of an input. To explain what a sequence is. To build a sequence of commands. To combine commands in a program. To order commands in a program. To create a sequence of commands to produce a given outcome.

To choose a series of words that can be enacted as a program. To choose a series of commands that can be run as a program. To run a program on a device.	To create and debug a program that I have written.	To identify that different sequences can achieve the same output. To identify that different sequences can achieve different outputs.

Knowledge, Skills and Understanding To understand algorithms that can be turned into programs. To implement their algorithm as a program on a digital device or programmable toy/ robot. To independently identify and fix a 'bug' in multiple programs. To create a simple program that includes a repeat x times loop. To understand the difference between inputs and outputs.
Challenge

Resources: Hardware: iPads, Computers (scratch may look different on both.	**Websites or Apps:** https://scratch.mit.edu This will allow children to create their programs. Book Creator, Scratch 3.0 Free.
	Extended Writing Opportunities: Write a set of instructions for their partner to solve (treasure hunt). Information text based on a specific insect. The life of an insect – a first person write in the role of a chosen insect.
Vocabulary: Command, device, sequence, forwards, backwards, right, left, turn, debug, programs, solutions, algorithms.	**Numeracy skills:** Data collecting: The children will be collecting information using a tally system and then sharing the information in different forms, including bar charts and pie charts.
Suggested Quality Texts: See selection in library Use information texts related to insects and mini-beasts. This will enable children to extend their understanding in the topic.	**WOW Experience:** A storyteller could come into school and deliver a story in which children could base their story off as an introduction of the topic.

Cross Curricular Links:

Maths- use maths when building and making their one robot mat.
Art- The use of colour and straight lines to create a work of art on mini beasts.
DT- Make their own puppet/toy using mini beasts for their video.