COMPUTING: PROGRAMMING- Selection in Physical Computing

Y5

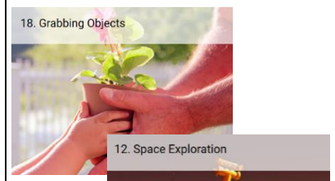
KNOWLEDGE ORGANISER

Sticky Knowledge

Selection in Physical Computing

- Use a condition in an 'if...then...' statement to start an action

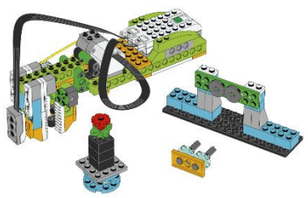
-Create a condition-controlled loop

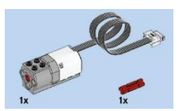


Connection and Lego Kit

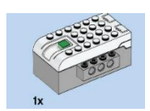
-Bluetooth Connection: Bluetooth enables a secure way to connect and exchange information between devices such as mobile phones, telephones, laptops, personal computers, printers, digital cameras, tablets, voice controlled devices and video game consoles. This connection is needed to exchange information from the App to the Lego model.

Grabbing Objects:





Motor



SmartHub

The motor connects to the SmartHub. The SmartHub connects the device to the computer or tablet using a Bluetooth signal.

Space Exploration:

Select your own solution from these three:

Drive

Grab

Sweep

Programming Blocks

-Flow Blocks:

Start Block

Must be used at the beginning of a program string. Press on it to make the program start.

Wait for

Use this to tell the program to wait for something to happen.

Repeat Block

Use this block to repeat actions. Blocks placed inside will be looped.

-Input Blocks:

Any Distance Change

Inputs the Motion Sensor mode "Any Distance Change" in a block.

Number Input

Inputs a numeric value to a block.

-Output: Motor Blocks:

Motor This Way Block

Sets the motor to turn the axle in the direction shown.

Motor That Way Block

Sets the motor to turn the axle in the direction shown.

Motor Power Block

Sets the motor power to the desired speed and starts the motor.

Motor On For Block

Starts the motor for a chosen amount of time.

Sequencing and Algorithms

-A **sequence** is a pattern or process in which one thing follows another.

-We design **algorithms** (sets of instructions for performing a task) to help us program the sequence that we require to achieve our desired outcomes.

-**Programming** is the process of keying in the code recognized by the computer (using your algorithm).

Trialing and Debugging

-Programmers do not put their computer programs straight to work. They **trial** them first to find any errors:

-Sequence errors: An instruction in the sequence is wrong or in the w

-Keying errors: Typing in the

-Logical errors: Mistakes in pl

-If your algorithm does not work correctly the first time, remember to **debug** it.

Important Vocabulary

Components	Connect	Infinite Loop	Output Devices	Motor	Condition	Input	Action	Selection