Coley Primary School – Knowledge Organiser

SUBJECT FOCUS:	Computing – coding	YEAR	2

Prior learning: programming Bee-Bots; planning a route using symbol cards; debugging

Key knowledge

An **algorithm** is a set of **instructions**. We use algorithms all the time: for example, when we follow a recipe or when we play a board game. We also use algorithms to **program** toys and computers.

It is really important that when we give instructions they are clear and **precise**. This means that we give the instructions:

- ✓ in order
- ✓ saying exactly what needs to happen

We are always looking for the algorithm with the least number of steps. We call this the most **efficient**. This is like in real life when we look for the shortest way to get somewhere or the quickest way to make a sandwich.

The **Bee-Bot app** lets you program an **algorithm** to make a **virtual** Bee-Bot reach an end square. It has the same **commands** as the Bee-Bot: forward, backward, turn left, turn right, pause and clear.



You can make the game easier by:

- doing your journey in stages
- having a Bee-Bot in front of you to help you work out which direction to go in
- using symbol cards to plan out your journey before you program it

You can make it more of a challenge by:

- planning your whole route before you begin (jot it down on a whiteboard) and programming it in one go
- making sure you find the most **efficient** route

Vocabulary

algorithm – set of instructions

code – algorithms (instructions) for a computer

sequence – set of instructions in order

precise - accurate

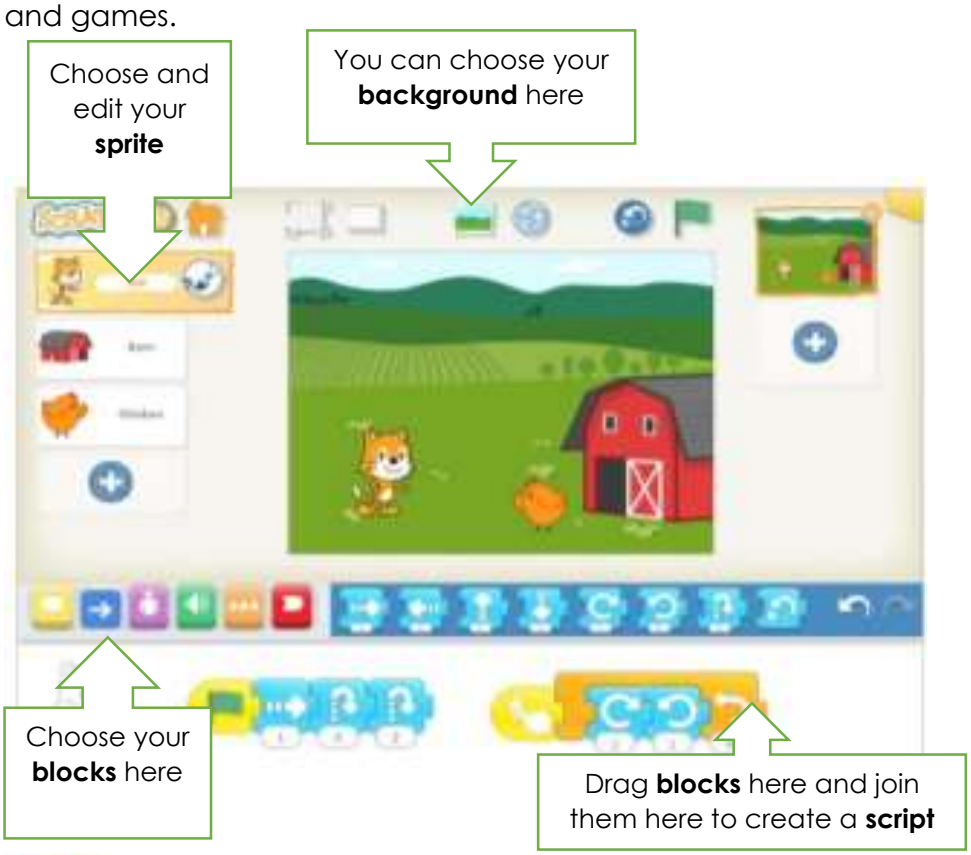
efficient – the quickest or shortest way

app – a computer program designed to run on a tablet computer or a phone

virtual – looks like it's real but isn't

commands - instructions

Scratch Junior is an **app** where you can program your own stories and games.




Green flag blocks are placed at the start of your script (algorithm). When you click it, your script (algorithm) will start.


Repeat blocks are placed at the end of your script. When your script is running, with the repeat block at the end your script will keep repeating itself over and over again.



Vocabulary

background – picture at the back of the scene

sprite – objects or images in Scratch

script – the instructions that makes the sprites do things

repeat - do something again

grow—when something gets bigger

shrink— when something gets smaller

trigger – make something happen

motion – movement

Can you …?

Give and follow instructions accurately

Break down problems into smaller parts to solve them

Talk and plan with others

Use a simple program to create a story or animation

Select and change characters and backgrounds

Make characters move and speak

Come up with your own stories and animations using what you have learnt

Debug your program to fix errors

Possible experiences

Crazy Character Algorithms
https://www.barefootcomputing.org/resources/crazy-character-algorithms

Lego duck
https://www.digitalschoolhouse.org.uk/system/files/cms/docs/CT%20Lego%20Duck%20Teacher%20Guidance%20v2-2019.pdf

Decomposition – unplugged
https://www.barefootcomputing.org/resources/decomposition-unplugged-activity-ks1

Scratch Junior Coding Cards
https://www.amazon.co.uk/gp/product/1593278993/ref=ox_sc_act_title_1?smid=AQPJIWMQBN5JN&psc=1

Official Scratch Junior Book
https://www.amazon.co.uk/gp/product/1593276710/ref=crt_ewc_img_dp_2?ie=UTF8&psc=1&smid=AHRB2OK2Q2YCL