Hawkesley Church Primary Academy

‘let your light shine’
Matthew 5:16

Computing Curriculum

Curriculum impact in algorithms and programs.

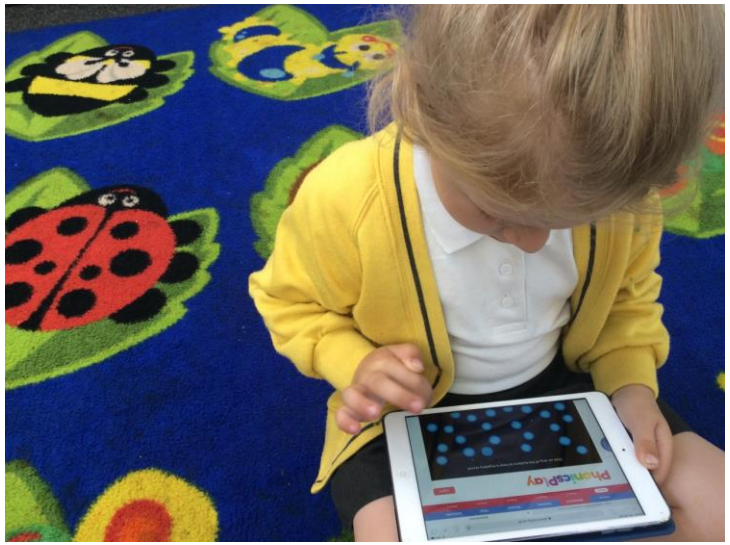
Progression in algorithms and programs

Nursery	Reception		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Guidance from birth-5 Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support	Completes a simple program on electronic devices Uses ICT hardware to interact with age-appropriate software	Algorithms and programs	Read a set of instructions and usually predict the correct outcome Produce a set of instructions that others can usually follow Understands that computers follow instructions given in a precise way	Produce a sequence of instructions that result in planned outcomes Program a short a sequence of commands that results in a planned effect Program and test a simple program Create algorithms to solve simple problems	Plan a sequence of instructions Give a sequence if instructions, some of which are repeated (repetition) and involve choices (selection) e.g. if..then, to make things happen Program a sequence of commands that results in a planned effect Program and test a simple program	Use sequence, selection and repetition in computer programs Predict the outcome of a given algorithm or program and correctly identify if repetition is involved Understand the difference between the internet and internet services e.g. the world wide web Identify a number of computing devices inside and outside of the classroom and identify some common forms of input and output Understand that computers store data as numbers	Write and amend computer programs Program a number of algorithms that achieve a specific outcome Use repetition, variables and conditional statements in computer programs Test computer programs and correct any errors Know that the World Wide Web consists of many websites and that web pages can be accessed using the internet Know that web pages are formatted using a type of 'code'	Write and amend more complex computer programs to create a variety of outcomes Decompose 'problems' by splitting them into smaller 'problems' and designing solutions for each part Use iteration (repeats and loops), variables and conditional statements (if..then) in computer programs Test computer programs and correct most errors

Whole School

Nursery

Turning on a CD player.

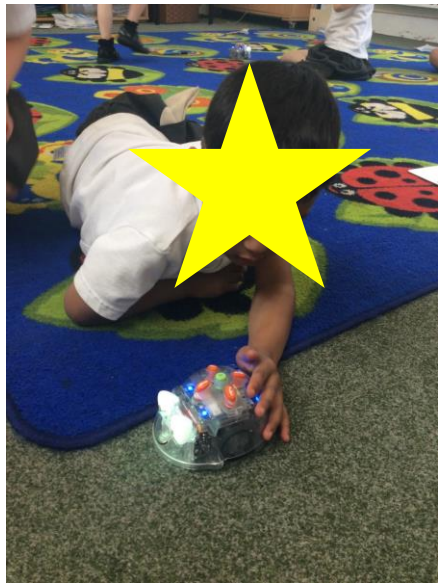


Using touch-capable technology.

Using a remote control.

Nursery expectation: Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support

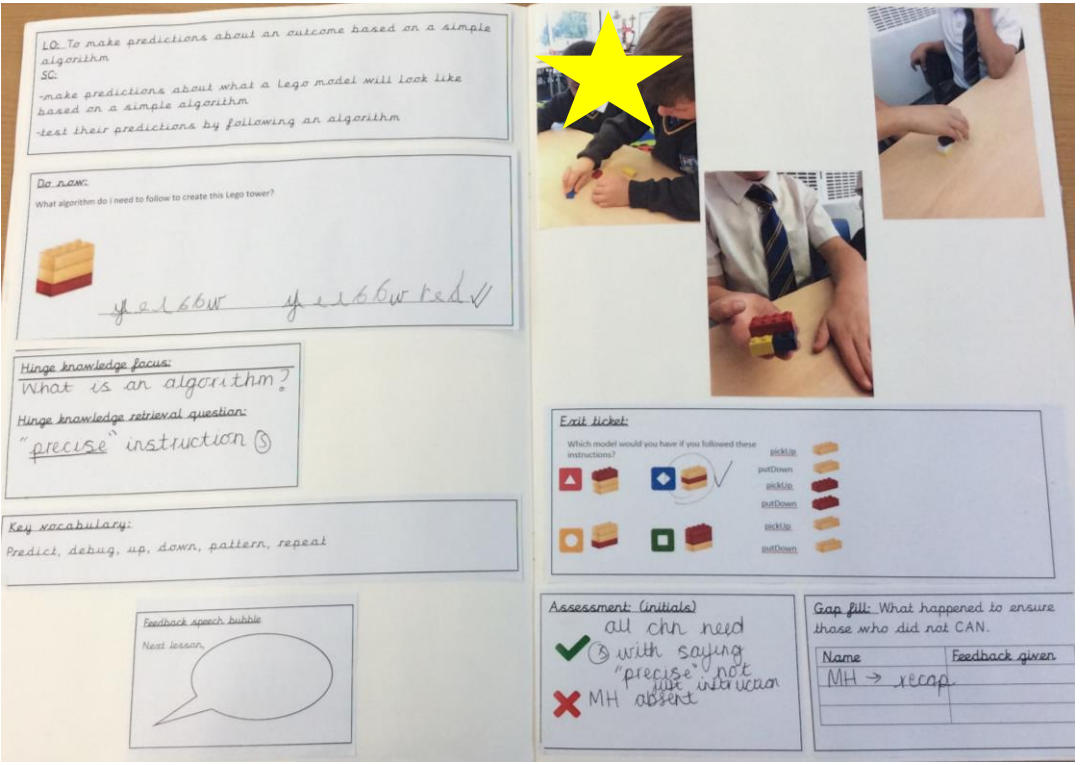
Reception



Using Bee-Bots to input different directions.

Reception expectation: Completes a simple program on electronic devices. Uses ICT hardware to interact with age-appropriate software

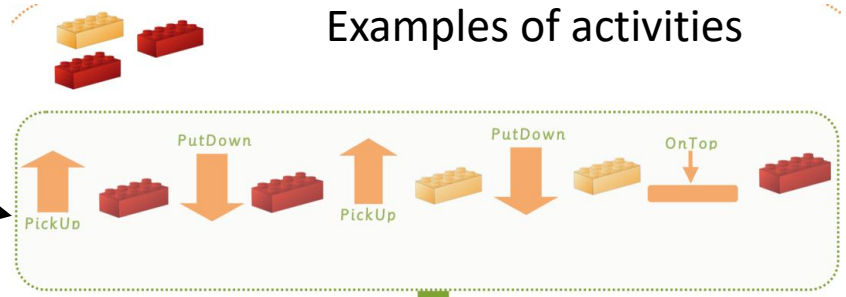
Year 1

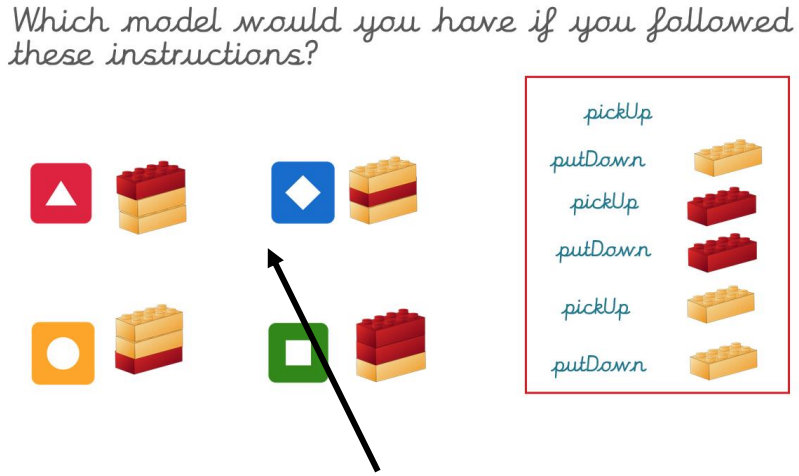


All learning is recorded in a journal detailing the structure of the lesson and include pictures of the children's work.

Unplugged activities using no technology to introduce algorithms.

Examples of activities

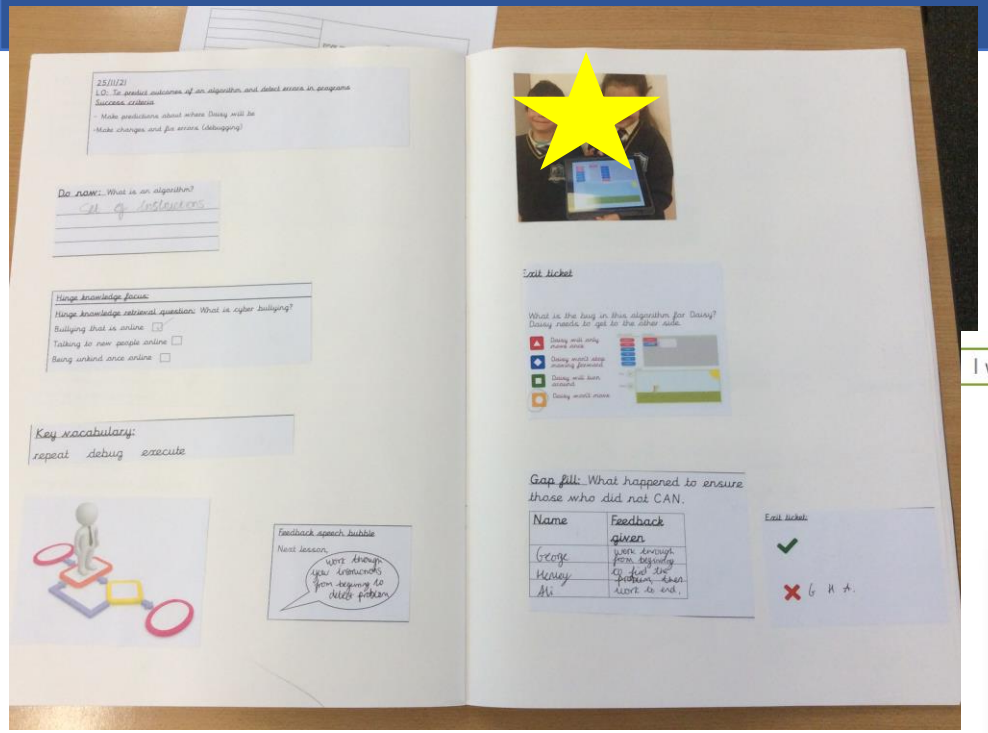




Exit ticket for lesson

Year 1 expectation: Read a set of instructions and usually predict the correct outcome
Produce a set of instructions that others can usually follow
Understands that computers follow instructions given in a precise way

Year 2



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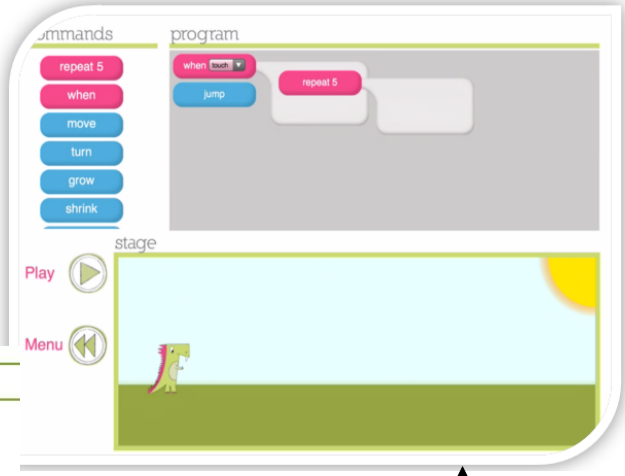
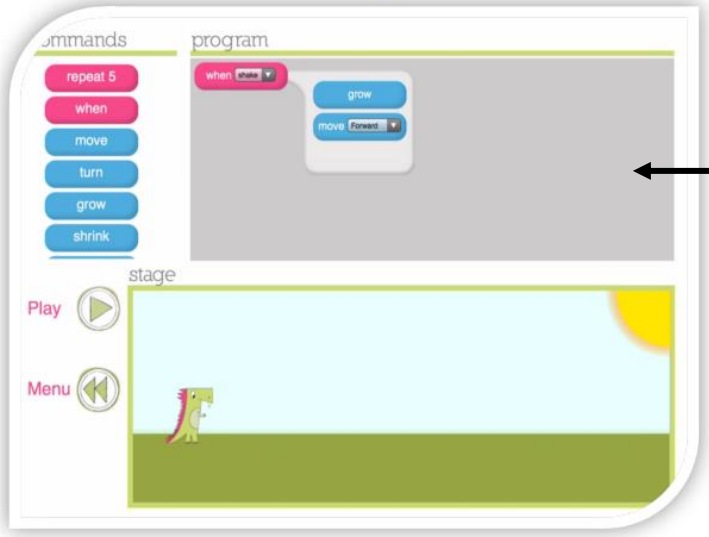
I want Daisy to move forwards and backwards (like in the Hokey Cokey) but she only moves backwards once!

Debug 5



I want Daisy to jump 3 times and then grow. But she's not jumping 3 times!

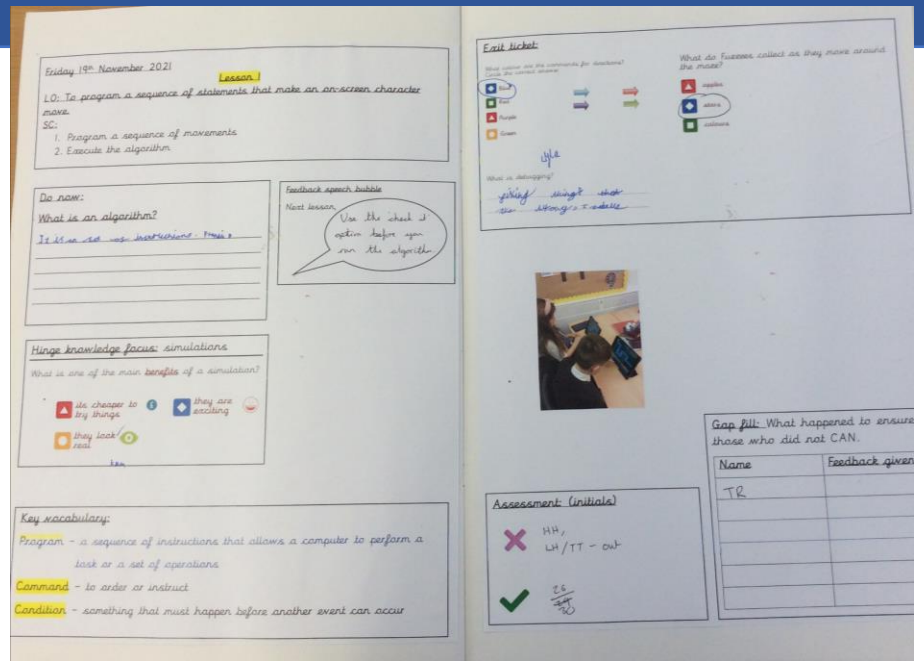
Debug 3



Programming and testing simple programs. Creating algorithms to solve simple problems.

Year 2 expectation: Produce a sequence of instructions that result in planned outcomes. Program a short a sequence of commands that results in a planned effect. Program and test a simple program. Create algorithms to solve simple problems

Year 3



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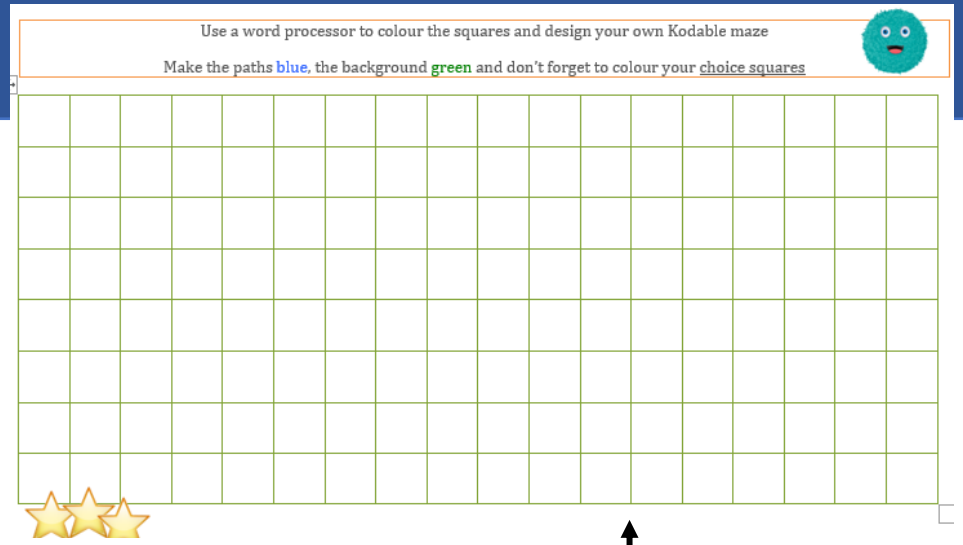
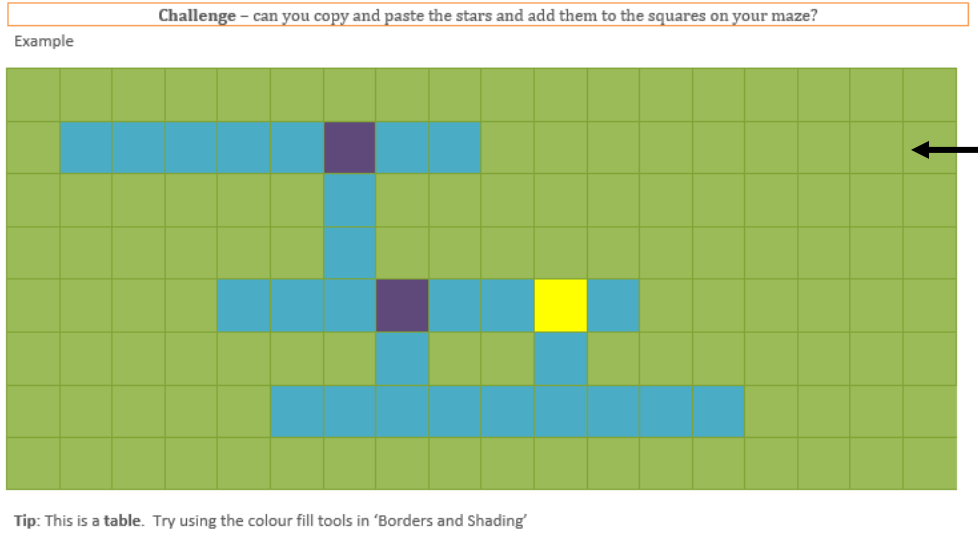
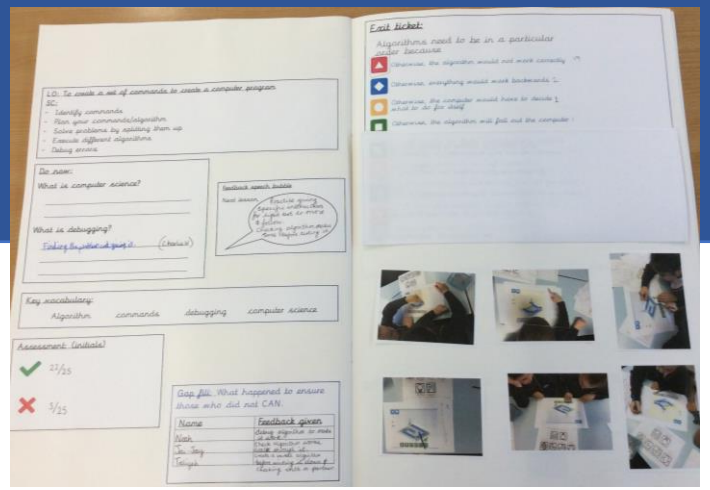


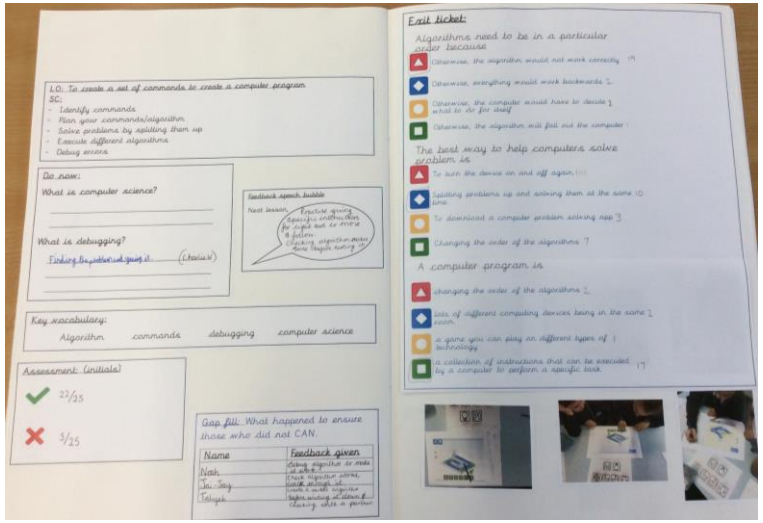


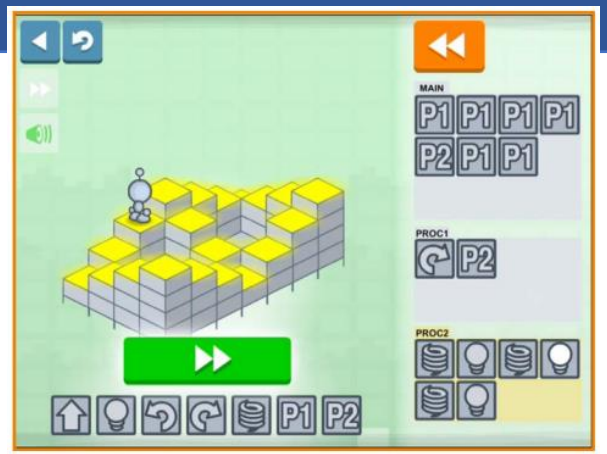
Designing a mazes with a sequence of instructions and test the simple program.

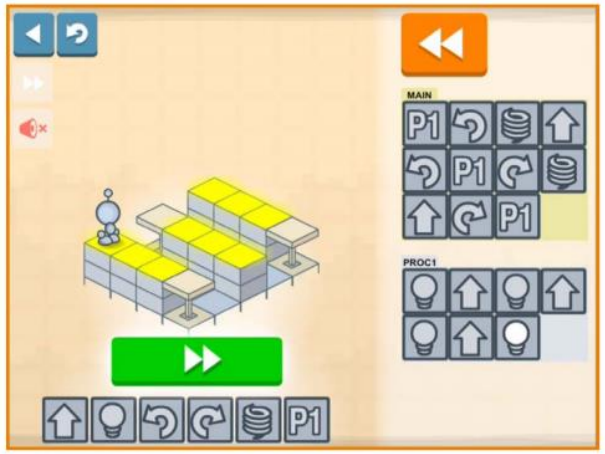
Year 3 expectation: Produce a sequence of instructions that result in planned outcomes. Program a short a sequence of commands that results in a planned effect. Program and test a simple program. Create algorithms to solve simple problems

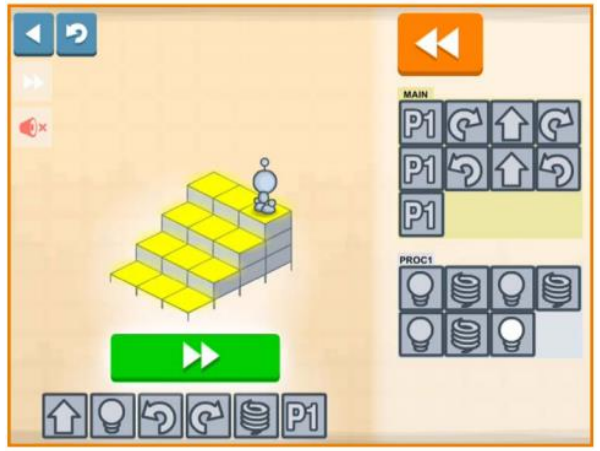
Year 4











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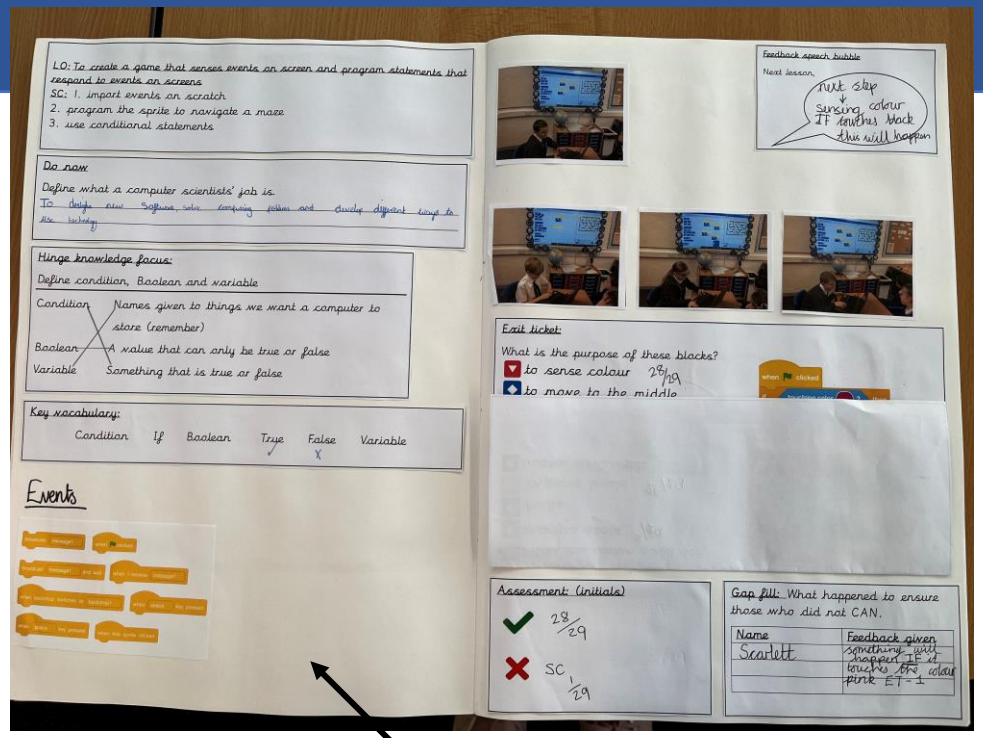
Predicting the outcome of a given algorithm or program and correctly identify if repetition is involved.

Year 4 expectation: Use sequence, selection and repetition in computer programs. Predict the outcome of a given algorithm or program and correctly identify if repetition is involved. Understand the difference between the internet and internet services e.g. the world wide web. Identify a number of computing devices inside and outside of the classroom and identify some common forms of input and output. Understand that computers store data as numbers

Year 5



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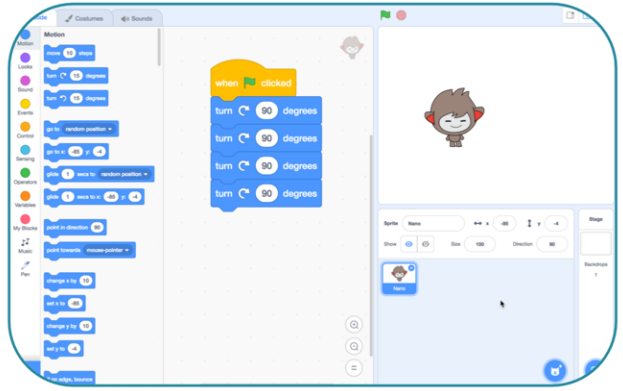
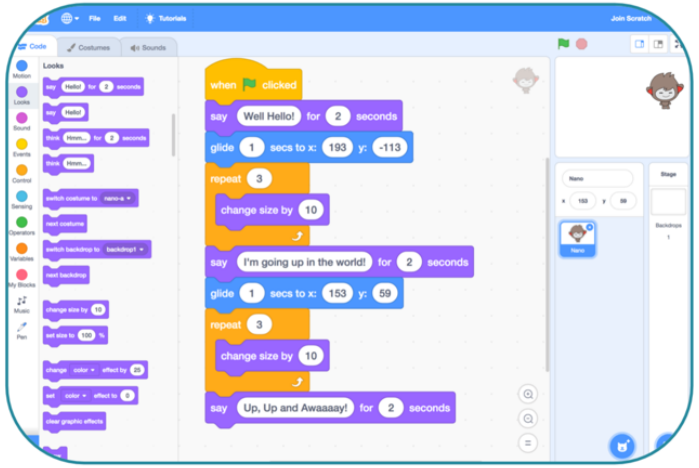
Debug 1

Ben wants Nano to rotate when he presses the space bar.
But isn't going anywhere!
What is wrong with his code?



Debug 2

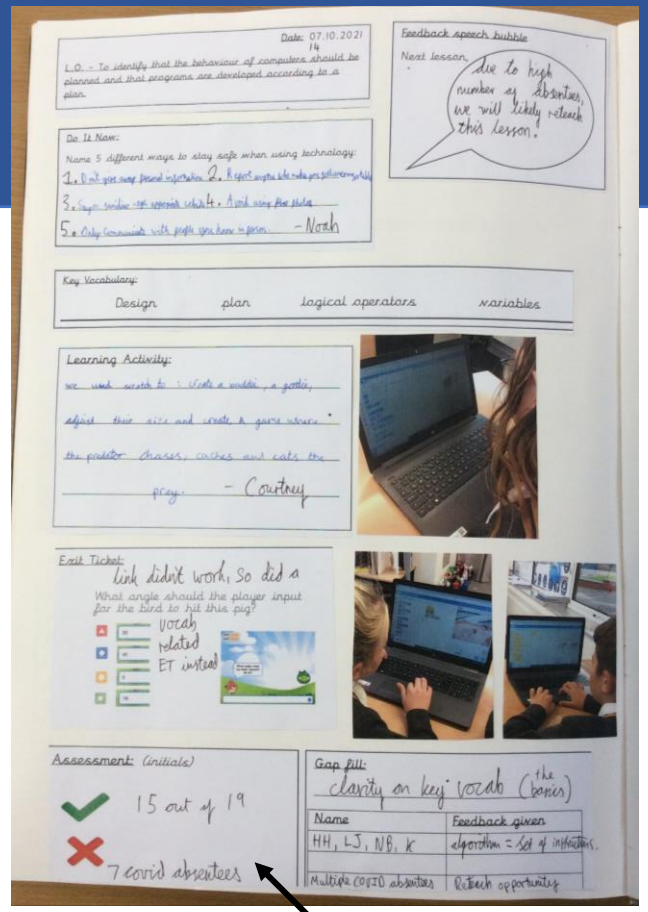
Debbie want to move to the middle of stage when the flag is clicked, growing as he moves.
It works the first time she clicks the flag but not when she clicks it again!
What is wrong with her code?



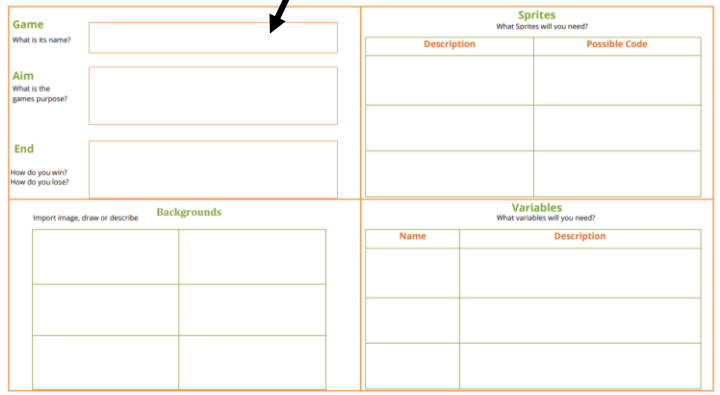
Amending computer programs through debugging and correct errors.

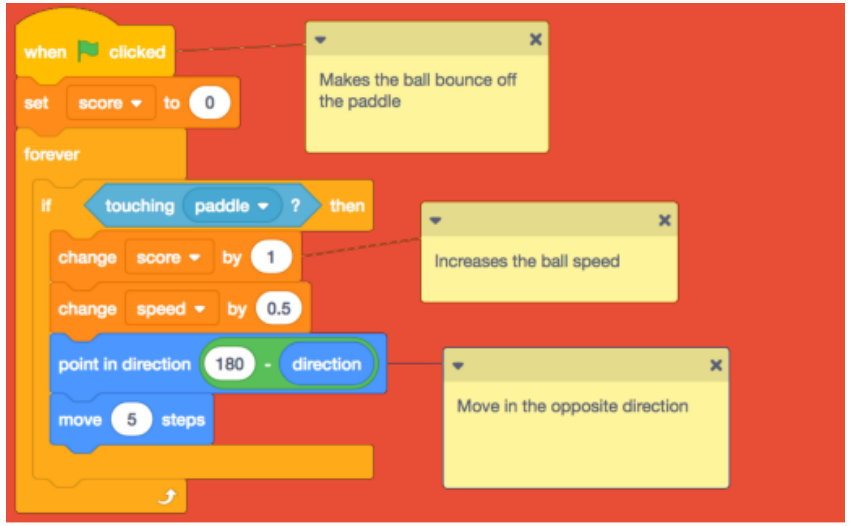
Year 5 expectation: Write and amend computer programs. Program a number of algorithms that achieve a specific outcome. Use repetition, variables and conditional statements in computer programs. Test computer programs and correct any errors. Know that the World Wide Web consists of many websites and that web pages can be accessed using the internet. Know that web pages are formatted using a type of 'code'.

Year 6



Planning sheet for creating a computer game.





Uses iteration (repeats and loops)

Stages split into smaller problems

Conditional statements if

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Year 6 expectation: Write and amend more complex computer programs to create a variety of outcomes. Decompose 'problems' by splitting them into smaller 'problems' and designing solutions for each part. Use iteration (repeats and loops), variables and conditional statements (if..then) in computer programs. Test computer programs and correct most errors.