

Topic: Computing - Computer Science	Year group	Term
Espresso Introduction to variables	Year 4	Autumn 2 6 sessions

Background knowledge

Children will have completed two units of Espresso Coding in Year 3, Sequence and Animation and Conditional events (selection)

What should I already know?

Children have learned to make things happen in a sequence, creating simple animations and simulations by using time blocks. Children will have also learned how to use conditional events, where if statements like "if hit" and "if hit background" were included in their own apps.

National Curriculum Objectives / Key Skills	The Journey
<u>Subject intent</u> To stay safe online and understand the positives and negatives of being online. Develop basic computing skills to prepare for the world of work. To design, write and debug programs using if, then, else statements and with guidance begin to program simple hardware. To use sequence, selection, and repetition in programs; work with variables. To use logical reasoning to explain how some simple algorithms work and to begin to detect and correct errors independently. <i>I can create programs that use if, then and else statements to achieve given goals.</i> <i>I can program simple hardware.</i>	1. Children make a game where you must burst the balloons and use variables to count how many you popped. Exceeding children and some Expected children may include a time limit in their own app. 2. Make a game where you must catch the coconuts and use variables to track your score. 3. Learn to use variables and make a simple shop till. 4. Make a game where you must collect all the pirate gold and use variables to count your booty including a time limit and conditional events. 5. Make a game where you must move around and eat healthy food. Get more points for healthier items. 6. Children use what they have learnt so far to make their own app or game that uses variables. 7. Fix the mistakes in the code.

I am beginning to detect and correct errors independently.

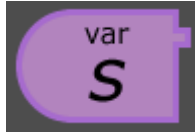
Outcomes

An overview of what children will know / can do

Working towards: Children start to include variables in their codes and to realise that the score changes on their screen depending on their variables.

Expected: Children know how computers use variables to count things and keep track of what is going on. Pupils can create simple games which use a score variable.

Exceeding: Children know how computers use variables to count things and keep track of what is going on. Pupils can create more complex games with their own original ideas which use a score variable.

Key Vocabulary	Timeline / Diagrams
Algorithm - The set of steps to solve a problem. Code - A list of commands in a computer program. Conditional - a part of the code that will only happen "if". Debugging - To correct mistakes or problems in a computer program. Place - a block which moves an object to a random different part of the screen. Program - A set of instructions in a programming language or code that tells a computer what to do. Reset - put the game back to the way it was at the start Run - To make a program follow its instructions.	   

Variable - An object used to store a simple piece of information, such as a score or the time taken.



Key people / places

"Most good programmers do programming not because they expect to get paid or get adulation from the public, but because it is fun to program." Linus Torvalds, software engineer who developed the Linux operating system.

Assessment questions / outcomes

What extra features did you add to make your balloon pop app more difficult and fun?
Can you describe how the scoring in your balloon pop app worked, using the word 'variable'?
What can we use on the computer to add numbers together?
Can you explain how we added up items on the till? Which blocks did we need?
How do games end?
What other blocks can you use on your own design apart from variables?