Knowledge Mats - Computer Science – Year 6 – Variable

National Curriculum Links: KS2 Computing

- **design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts**
- **use sequence, selection, and repetition in programs; work with variables and various forms of input and output**
- **use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs**

• **I can explain what a variable is** • I can confidently use events, repeats, selection and variables • I can use a variable in a variety of programming software - 2Simple – 2Code and Scratch	• I can confidently decompose a problem and methodically create a program to solve it, testing and adapting as I go • I can evaluate the effectiveness of my programming and suggest improvements • I confidently use the Blockly programming language

Computer Science Vocabulary

computer science	[BBC Bitesize Computing KS2](#) Computer scientists design new software, solve computing problems and develop different ways to use technology
computational thinking	involves looking at a problem and working out a way a computer might be able to help you solve it
algorithm	a set of instructions in everyday language, e.g 'get ready for school', 'go out to play'
program	a precise set of instructions for a computer
sequence	a program with a number of steps in the right order
repeat	recognising patterns within a program that can be repeated
conditional / selection	a decision must be made for the program to carry on (i.e. if dark, turn the light on)
variables	a part of a program that can change value, e.g. scores, times, lives, hit points
decompose	breaking a program down into smaller steps
debugging/ deglitching	Identifying and correcting mistakes when the program doesn't work as expected
abstraction	being able to focus on the problem and ignoring detail, focus on program before look and feel e.g. colour, size, background
Input / output	data or information that a computer receives in or displays out
unplugged	computer science without using the computer
event blocks	all programs need an event which acts like a start button
mathematical language	Directional language- backward, left, right, angles, clockwise / Anti-clockwise

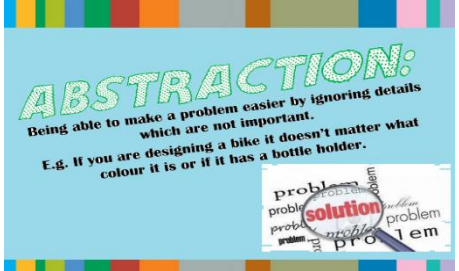### Sample program for a times table game using a variable

What is the 'job' of a VARIABLE in a program?

Variables can be used to add scores, lives, time to your program

Tips:
Once your program is correct, Right Click blocks of code to copy and duplicate

Do you want your Sprites to be seen at the beginning of your program or later in your program?

DO NOT get distracted by the look and feel of your program.
Your program is more important!

ABSTRACTION:
Being able to make a problem easier by ignoring details which are not important.
E.g. If you are designing a bike it doesn't matter what colour it is or if it has a bottle holder.

If the answer was inputted wrong? How could you amend the program?

Further Challenges

Can you program a timed True or False quiz linked to your topic learning?

Can you add a score into your program? Points for the right answer and loose points if wrong.

Can you program a multiple choice quiz with a time and a score linked to your topic?

Can you transfer your Scratch knowledge?

Use Purple Mash Free Code Gibbon, to program your own quiz or game including the following variables - time, points or lives.