Bolton Schools ICT

Knowledge Mat - Computer Science – Year 5 – Conditional / Selection

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**

CS5. 1 I can tell you what a conditional / selection is

CS5. 2 I can plan algorithm and the write a program using the following: commands, sequence, repetition and conditional / selection ('if…then')

CS5. 3 I can detect and debug errors in more complex algorithms and programs

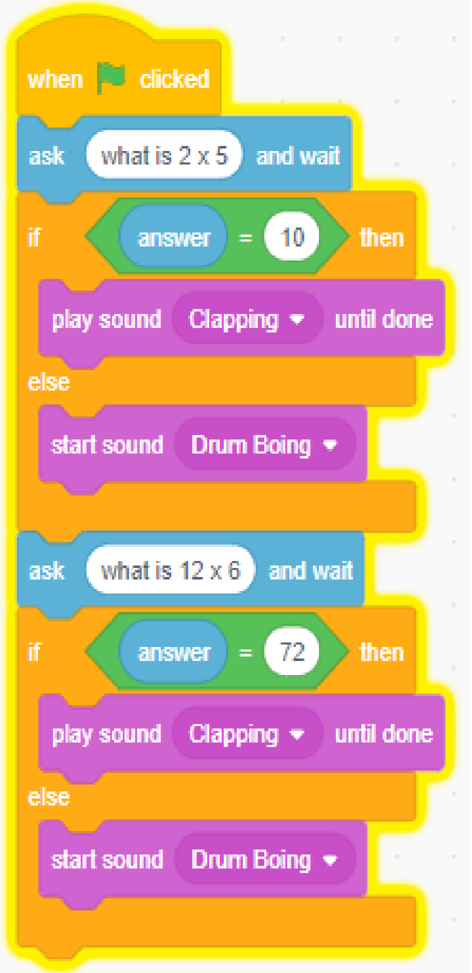
CS5. 4 I can use selection to create games in which the user must make a choice

CS5. 5 I can use my skills and understanding of conditional / selection in more than 2 programs

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)
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 conditionals



```
when 🏁 clicked
ask what is 2 x 5 and wait
if answer = 10 then
    play sound Clapping ▾ until done
else
    start sound Drum Boing ▾
ask what is 12 x 6 and wait
if answer = 72 then
    play sound Clapping ▾ until done
else
    start sound Drum Boing ▾
```

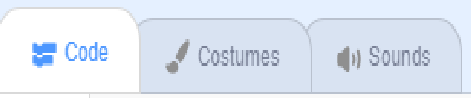
Thinking about these conditionals

If raining what could you do?

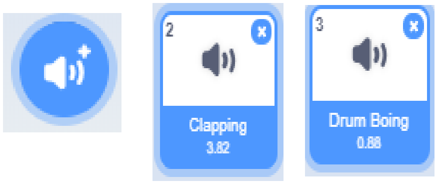
If hungry what could you do?

Adding Sound

Click on the Sound tab

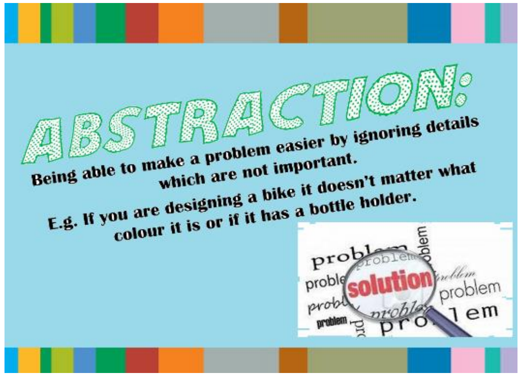


Click on add new



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.

What if the answer was inputted wrong? How could you amend the program?

Can you add a repeat command the question, so the player can retry the question?

Further Challenges

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

Can you program a multiple choice quiz linked to your topic?

Can you transfer your Scratch programming knowledge?

Using Purple Mash Free Code Gibbon, can you program your own maths quiz?