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Scratch:

An introduction to progamming

Computer Science

What is Computer Science?

- Do you know the **difference** between ICT and Computer Science?
- Any suggestions as to what jobs you could do if you were a Computer Scientist?

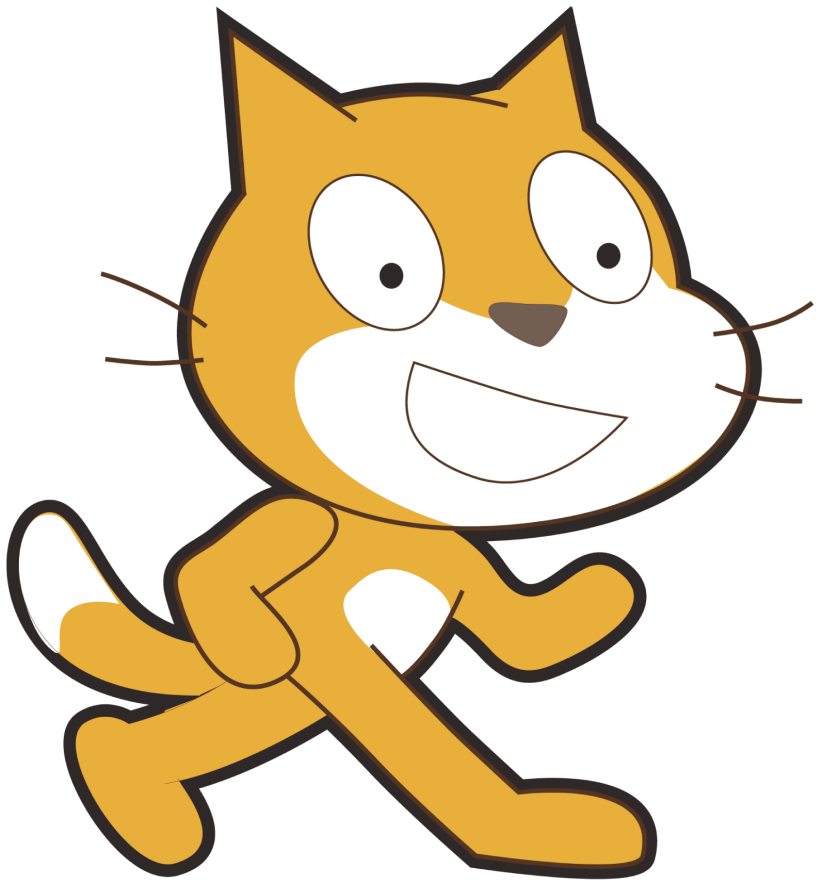
Programming

What is programming?

Who here has experience with programming?

This are the software we will be using today:

Has anybody used or seen these before?



Computers are SILLY!

Why on earth am I calling computers silly?

Remember: Computers do not ask questions!

Let's think about how we could get a computer to make a cup of tea...

Importance of clear instructions

How could we command a computer to make us a cup of tea, step-by-step?

Providing clear, understandable instructions is very important to program. The order of instructions is also very important.

Let's test this theory...

The task:

I will be the programmer. You will each be one of my computers.

I will deliver a range of instructions. Your task is to interpret them and react.

You will each need a piece of A4 paper and a pen to hand!

What do we need our program to do?

Each time we wish to program we need to complete the following processes:

- WRITE
- COMPILE
- RUN
- DEBUG

‘Writing’ the program

The writing of the code is the actual typing out of the instructions bit-by-bit for the computer to complete.

```
class MyFirstJavaProgram{
                public static void main(String [] args){
                        System.out.println(“Hello World!”);
                }
}
```

Above is an example of code for a computer in a programming language called Java. (It looks a bit scary at the moment…)

‘Compiling’ the program

The next step is to ‘compile’ your code.

- Simply writing the code won’t do anything.
- Compiling the code will turn it into a language that the computer understands.

Here is an example of what some binary code may look like:

01001101010100101010101010101101010010111010110111010101010101

But, speaking to the computer in this language is very difficult. Let’s stick to the ‘human friendly’ languages!

‘Running’ the program

You will not know your instructions/code works unless you run your program.

- What if it doesn’t run how we expected it to?
- It is normal if it doesn’t work 1st time.
  Or even the 101st time!
- Even the experts make mistakes.
- We need to ‘debug’ our code to make it better and run the way we command it to.

But, what is debugging?

‘Debugging’ the program

Debugging is a way for the computer to find any errors within your code and alert you of them. That way you can fix them.

<u>It is thought:</u>

It is called **‘Debugging’** because a lady named Grace Hopper in the 1940s discovered the reason her computer was no longer working properly was due to a dead moth she found inside the computer…

Let's start making our games!

You should be able to find the Scratch icon on the dock along the bottom of you screen.

Click on the icon.

Click on '**File**' and then '**New**'.

Don’t forget to save your work!

All of our software is OPEN-SOURCE
(Free and available to download)

It can all be found on our Technocamps website:
www.technocamps.com