

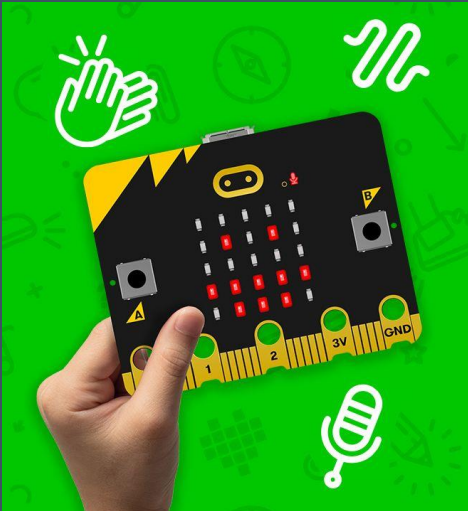
# Y7 DTE

## KNOWLEDGE

## ORGANISER

### HT1 – MICROBIT PROJECT

The micro:bit helps you understand how computers work. When you type on your laptop or touch the screen on your phone, you're using an input device. Inputs allow computers to sense things happening in the real world, so they can act on this and make something happen, usually on an output like a screen or headphones. In between the input and the output, there is the processor. This takes information from inputs like buttons, and makes something happen on outputs, like playing sound in your headphones.



## INPUTS AND OUTPUTS

All programs need data to be added to or removed from code. Data entered into a program, either by the programmer or digitally, are referred to as inputs. These inputs are stored in variables and used to run the program.

In order to keep the user informed about what is happening inside the program, a programmer may choose to include outputs. This is where the data from the program is shown to the user, either on screen or in the form of a physical output such as printouts or signals.



## PROCESSORS

A processor (CPU) is the logic circuitry that responds to and processes the basic instructions that drive a computer. The CPU is seen as the main and most crucial integrated circuitry (IC) chip in a computer, as it is responsible for interpreting most of computers commands.

## CODING

Coding is a list of step-by-step instructions that get computers to do what you want them to do. Coding makes it possible for us to create computer software, games, apps and websites. Coders, or programmers, are people who write the programmes behind everything we see and do on a computer

How is coding useful in design technology and engineering ?



## WHAT IS PYTHON ?

Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems.



## WHERE IS IT USED ?

Web Development. ...  
Data Science. ...  
Artificial Intelligence and Machine Learning. ...  
Enterprise Applications. ...  
Education Sector. ...  
Web Scraping Applications. ...  
Game Development. ...  
Software Development & Engineering.

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## KNOWLEDGE ORGANISER

### HT1 – MATERIALS

#### PAPERS

Papers, like cartridge and tracing paper, vary in weight, texture, and opacity, with environmental considerations focusing on recycling and sustainable sourcing.



#### BOARDS

Boards, such as corrugated cardboard and foam board, are valued for their rigidity and durability, commonly used in packaging and model making.



### TIMBERS

Hardwoods like oak and mahogany are dense and durable, while softwoods like pine and cedar are lighter and easier to work with, with sustainability being a crucial consideration.

#### TYPES OF TREES

##### DECIDUOUS TREES



OAK



MAPLE



CYPRESS



PINE

##### CONIFEROUS TREES



BIRCH



WILLOW



CEDAR



JUNIPER

### METALS

Metals, including ferrous (containing iron) and non-ferrous are valued for their malleability, conductivity, and corrosion resistance, essential in construction and electronics.



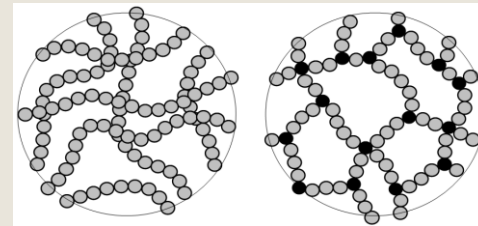
### ALLOYS

Alloys, such as brass and stainless steel, blend metals to enhance properties like strength and corrosion resistance, commonly used in tools, construction, and jewellery.



### POLYMERS

Polymers include thermoplastics like acrylic, polypropylene, and PVC, which can be reshaped with heat, and thermosetting plastics like epoxy resin and melamine, which set permanently, with a focus on recycling and environmental impact.



### TEXTILES

Textiles, made from natural fibres like cotton and wool, and synthetic fibres like polyester and nylon, are selected for their strength, absorbency, and thermal properties, with increasing emphasis on sustainability and recycling.

