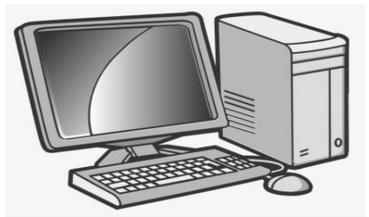
Year 1 Unit 1 - COMPUTING SYSTEMS AND NETWORKS: Technology Around Us

KNOWLEDGE ORGANISER

Overview



Technology Around Us

-Technology is something that has been made by people to help us.

-Technology is 'man-made' and not 'natural.' Technology is things like computers, traffic lights, laptops, and iPads.

-Computers are a type of digital technology.

-Some of the different parts of a computer are the:

monitor, mouse and keyboard.

-There are a some important rules to help us use computers safely.

Technology

-Technology is the name for man-made things that help us.

-Technology is all around us and helps to make our lives easier.

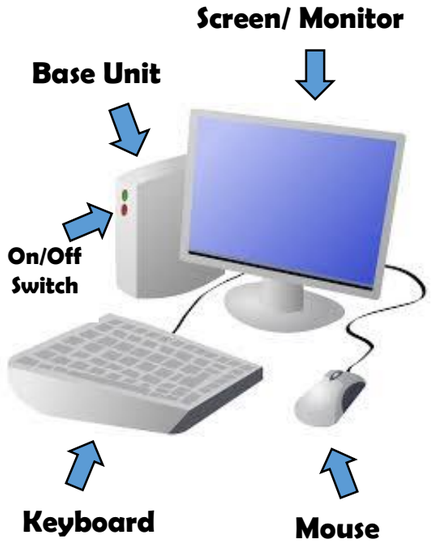
-Digital technology is the name for electronic items that create and store information, e.g. computers, mobile phones, and televisions.

-Non-digital technology is the name for non-electronic items do not create and store information.

Using Technology Safely

When using technology, we should:
-Hold the device carefully and use it gently.
-Not have food and drink around the device.
-Only use the programs that we are supposed to be using.
-Take turns and stop using the device when we are being spoken to.

Computers



-Desktop computers need to be put on a table or desk. Laptop computers are portable – they can be moved to different places.

-The screen (or monitor) displays what the computer is doing.

-The mouse lets you select and move objects (some computers have a trackpad instead).

-The keyboard lets you type letters and numbers.

-Computers can run different programs. Programs do different tasks on the computer. E.g. Microsoft Word, Microsoft PowerPoint and Paint.

-When we are using a program, we can save our work by clicking on this icon.

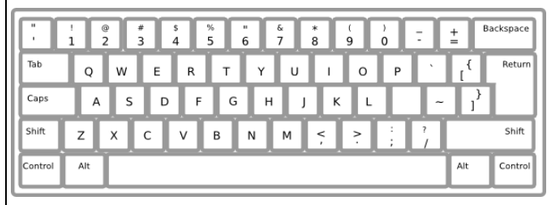
Using a Mouse

-The mouse can be used to click and drag.

-Clicking the left button lets us select something. Clicking twice quickly lets us open files and programs.

-Holding the left button down allows us to drag things.

Using a Keyboard



-Writing on a computer is called typing. We do this on a keyboard.

-Holding the shift key, or pressing caps lock, helps us to type a capital letter.

-Delete and backspace buttons can help us to remove

Important Vocabulary

Technology | Computer | Screen | Space bar | Mouse | Keyboard | Safely | Click | Drag | Responsibly

Year 1 Unit 2 COMPUTING: CREATING MEDIA- Digital Painting

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Overview

Digital Painting

-We can use digital devices to help us to draw and paint pictures.

-When we use paint programs, we can use tools to create different effects.

-We can draw in different ways, using the pencil tool, lines and shapes.

-We can also change sizes and colours.

Simple Tools

-The buttons at the top/side of the page are called tools, and they all have different jobs.

-By clicking on a tool (with the left button on our mouse) we can select to use it.

This is the pencil tool. It draws freehand. As we click and hold the left mouse button, it draws on the page. As we hold and move the mouse, the pencil follows on the page!

This is the paintbrush tool. It works freehand, like the pencil does. We can choose different colours (by clicking on them) to paint with!

The eraser tool lets us rub out parts of our drawing when we have made a mistake. It works by clicking and holding the left mouse button over the areas to erase.

The undo tool reverses the last thing that you did. If you make a mistake, the undo tool can help you to get your drawing back to how it was.

More Complex Tools

This is the fill tool. It lets us fill a shape with a colour of our choice. Be careful though, if the shape has any gaps in it, the fill tool will colour everything else!

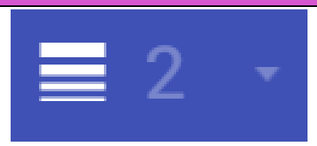
This is the spray-paint tool. When you hold down the left button on the mouse, it is like you are spraying a can of spray-paint. With this tool, it is more difficult to colour neatly.

The line tools help us to draw neat lines.

The shape tools draw circles, rectangles, or squares. As we click and drag using the left mouse button, we make the shape bigger and smaller.

When we want to save our painting, we should click on this icon.

Making Careful Choices

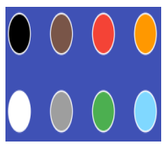


Be clicking on this icon, we are able to choose the size of the lines that we draw with.

We can choose thick, bold lines, or thin lines.

We can add text to our painting by clicking this icon. We use the keyboard to type letters or numbers.

We can select different colours for our artwork.



Important Vocabulary

Tool | Erase | Fill | Undo | Primary Colours | Shape tools | Line tool | Brush style | Pointillism

YEAR 1 COMPUTING: UNIT 3 PROGRAMMING- Moving a Robot

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Overview

Moving a Robot

- **Programming** is when we make a set of instructions for computers to follow.

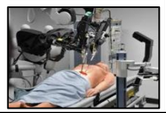
-**Robots** are one type of machine that can follow programs. Floor robots include Bee-bots and Blue-bots.

-**Floor robots** have buttons which help us to direct them. We can use algorithms (a set of instructions to perform a task) to program floor robots along routes.

Robots and Floor Robots

-Robots: Robots are machines that we can program to do human jobs.

-Robots help us to do things, for example to help us clean, mow and learn!



-Robots in factories make things, and in hospitals they help make us better.

-**Bee-bots**: Bee-bots are a type of floor robot.

-We can programme Bee-bots to move around.

Bee-bots should only be used on the floor, and not tables etc. They can be damaged if they fall from high surfaces.

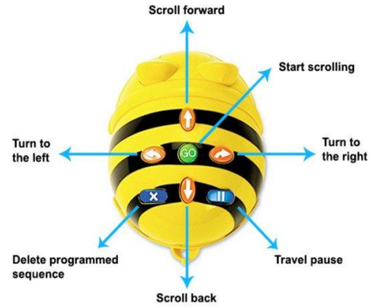
-Turning on a Bee-bot: Before we use a Beebot, we need to make sure it is charged.

To turn it on, using the switch underneath. You can tell that the Bee-bot is on because its eyes light up.

Switch it back off again after you have finished using it.

Buttons and Programs

-**Buttons**: Bee-bots have buttons on the top. They each make the Beebot do something different (see picture).



-The **arrows** move the Bee-bot in different directions.

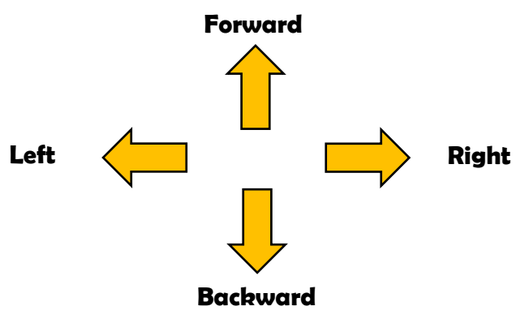
-The **GO** button makes the Bee-bot start its program. (on some models, it also pauses the Beebot in-program).

-**Programs**: A program is a series of instructions. We can program the Bee-bot by pressing the direction buttons (in order) that we want it to move in, followed by GO.

-The **X button** makes the Bee-bot delete the program and make a new program. Switching the Bee-bot off and on again also deletes the program.

Directions

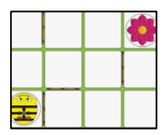
-In order create clear routes for our Bee-bots, we need to be sure of our directions.



Make sure that you stand behind the Bee-bot.

Routes and Algorithms

-A **route** is the course that we travel to get somewhere. We use **algorithms** (a set of guidelines to complete a task) to program our floor robot to take a route to where we want it to go.



-We should think carefully about how to avoid obstacles. We should also consider how many times we need to press each button to travel the correct distance.

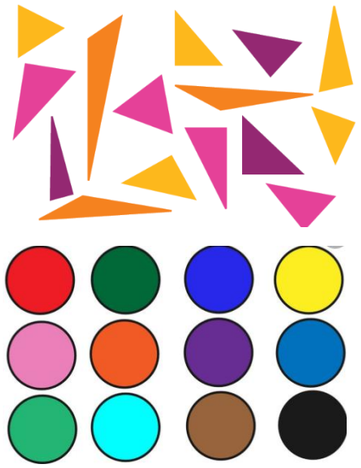
Important Vocabulary

Bee-bot | forwards | backwards | turn | clear | go | commands | instructions | directions | plan | algorithm | program | route

Year 1 Unit 4 COMPUTING: DATA AND INFORMATION- Grouping Data

KNOWLEDGE ORGANISER

Overview



Grouping Data

- Data can be numbers, words or pictures. Information is what we can understand from looking at data.

-Objects can be labelled using either their names or describing their properties.

-Labels can be used to place objects into groups. This helps us to count and compare data easily, through looking at similarities and differences.

Labels and Properties

-**Labelling**: Labels are all around us!

-Labels are the names that we give to things so that we can easily identify them.

-On computers, we can label different objects so that the computer knows what they are.

-**Properties**: Objects have different properties (features) that we can choose to label them by.

-Some examples of the properties of an object include its size, its colour and shape.

-We can use properties to tell computers what objects are and how to sort them.

-**Describing**: Objects can be described by their name labels and their properties.

-E.g. the picture here could be correctly labelled as 'dog', 'Labrador' or 'animal.'

Use describing adjectives for accuracy, e.g. big, circular, blue, old, thin, long, heavy etc.

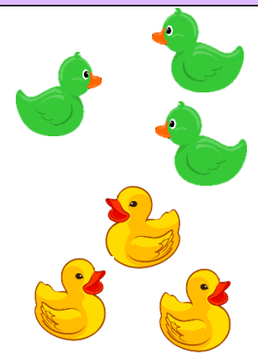
Grouping and Counting

-**Grouping**: The same objects can be put into different groups, depending upon their properties. Computers can help us by allowing us to put different objects into groups.

-For example, a computer can be asked to group all of the pictures that have a certain name label, e.g. 'duck', or property, e.g. yellow.

-**Counting**: Computers can be programmed to count the amounts in each group.

-For example, when your teacher takes the class register, the computer program can count how many ticks and crosses there are, to tell the teacher how many children are in school.



Jamie	✓
Elizabeth	✓
Ella	✗
Harry	✓
Marcus	✓

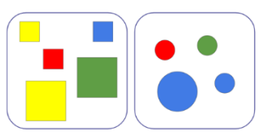
In school: 4 Absent: 1

Comparing

-Comparing is when we look at what is similar (the same) and what is different between objects. You can compare objects or groups of objects.

Examples of comparing words

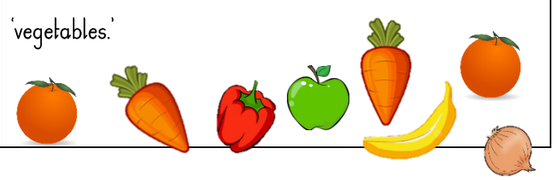
-more than, less than, the same as, least, most, bigger, smaller, older, younger, longer, shorter, wider, thinner.



Answering Questions

-Objects can be grouped in order to answer questions and solve problems.

-For example, if asked how many orange items there are below, you could group them into 'orange' and 'not orange.' To find out if there is more fruit than vegetables, you could group them into 'fruit' and 'vegetables.'



Important Vocabulary

The same | Object | Label | Group | Search | Image | Properties | Colour | Size | Shape | Value | Data | More/less | Most/fewest/least