FACTFILE:
GCSE
DIGITAL TECHNOLOGY
Unit 1 – DIGITAL DATA

Rewarding Learning

Fact File 1: Representing Data

Learning Outcomes

Students should be able to:

- Describe the difference between information and data;
- Describe how data is stored in the following units:
  - Bit
  - Nibble
  - Byte
  - Kilobyte
  - Megabyte
  - Gigabyte
  - Terabyte
- Identify the following data types: numeric (integer and real), date/time, character and string.

Content in Representing Data

- **Information and data**
- **Units of storage**
- **Data types**

What is data and information?

What does '151216' mean to you? Or '85748'? Or 'AABBCCDD'? They should mean nothing. This is because they are examples of **DATA**.

Data is meaningless. It is raw facts and figures that has no context or meaning.

Data is information coded and structured for subsequent processing, generally by a computer system. The resulting codes are meaningless until they are placed in the correct context. The subtle difference between data and information is that information is in context, data is not.

When data is processed, it is given meaning. It then becomes **INFORMATION**.

DATA + MEANING = INFORMATION

Data	Information
151216	15th December 2016
85748	Product Number
AABBCCDD	Grades in your Christmas exams

Units of storage

Bit

The smallest unit of storage is a bit. A bit (short for Binary digit) is either a 1 or 0.

Nibble

A nibble is the name given to a group of 4 bits.

Byte

8 bits are known as a byte. Each character e.g. letter, number, special character is represented by 8 bits. For example, when you press the 'A' button on the keyboard, the computer processes this as 01000010.

Kilobyte

A kilobyte is 1024 bytes. Kilobyte is often abbreviated to KB. This would be equivalent to 1024 characters on screen.

Megabyte

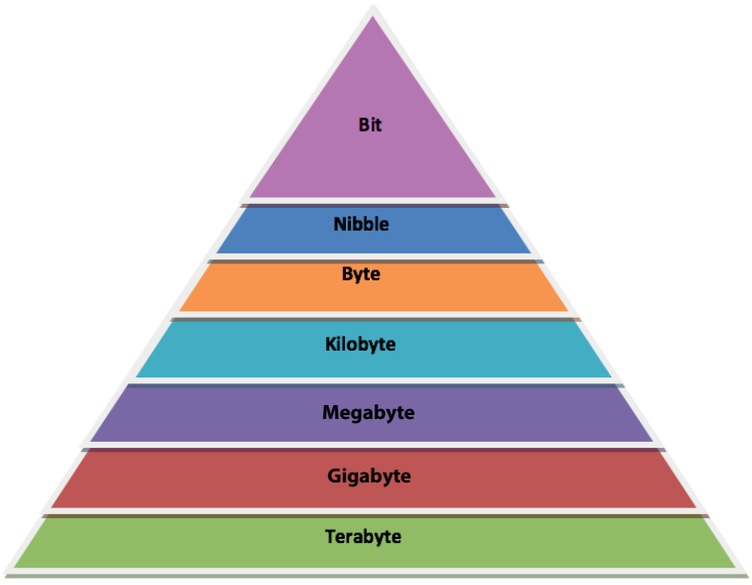
A megabyte is 1024 kilobytes. Megabyte is often abbreviated to Mb.

Gigabyte

A gigabyte is 1024 megabytes. Gigabyte is often abbreviated to Gb.

Terabyte

A terabyte is 1024 gigabytes. Terabyte is often abbreviated to Tb.



Activity:

Can you think of a rhyme to help you remember the order of the units of storage?

Data Types

When entering data into a computer system, it is important to tell the computer what type of data it is. This is because a computer processes different data in different ways. There are several different types of data you need to know about. These are:

Numeric (Integer & real)

A numeric data type contains numbers.

An **integer** is a whole number either positive or negative.
e.g. 24, 152, 1000, –23, –12

A **real numeric data type** is a number that contains a decimal point. It can also be positive and negative.
e.g. 1.34, 2.6, -0.124, -4.53

Date/Time

A Date/Time data type allows a date or time to be stored. A date and time can be in many different formats e.g.
Date: 18/12/2016, 18-12-16, 18th December 2016.
Time: 9am, 9:00pm, 21:12:05, 23:00

Character

A letter, number and symbol are all known as a character. Programming languages use the data type character or 'char'. It takes up one byte of storage. Examples of a character would be: A, 5, &

String

This is also sometimes known as 'text' or 'alphanumeric'. A string allows letters, numbers, punctuation marks and symbols to be entered. Examples of string data types are:

Name:	Mary Black
Address:	1 Main Street, Any town, Co Anywhere
Email:	mblack@mail.com
Car Reg:	ONZ 7182

Activity:

1. **What is the difference between data and information? (2)**

2. **Place the following in descending order according to size: (7)**

Megabyte Bit Terabyte Nibble Byte Gigabyte Kilobyte

3. **Mix and match. Which of these storage units is most appropriate for the following? (3)**

10 minute video clip	Kilobyte (s)
A persons surname	Megabyte (s)
A two page document	Byte (s)

4. **How much is 3 Terabytes in Gigabytes? (2)**

Bibliography

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