

COMPUTING · Y4–Y6

Databases & Data Representation

Knowledge Organiser — Y4–Y6

Databases

1

Database

An organised collection of structured data, usually stored and accessed electronically. Allows searching, sorting, and filtering.

Example: school library system, NHS patient records

2

Record

One complete set of data about one entity in a database.

Example: one row in a spreadsheet = one pupil's data

3

Field

A single piece of information within a record.

Example: a 'Name' column or 'Date of Birth' column

4

Query

A question or filter applied to a database to retrieve specific data.

Example: find all pupils born in 2015 with grade A

5

Sort

Arrange data in order — alphabetically, numerically, by date.

6

Filter

Show only data that meets certain criteria.

Example: show only female pupils



Binary and data representation

1

Binary

The number system computers use — only 0 (off) and 1 (on). Everything in a computer is stored in binary.

Example: 0=off, 1=on; 4 in binary = 0100

2

Bit

A single binary digit (0 or 1). The smallest unit of data.

3

Byte

8 bits. A byte can represent 256 different values (0–255).

Example: A single letter is typically 1 byte

4

Kilobyte (KB)

1,024 bytes. A short email is roughly 1–2 KB.

5

Megabyte (MB)

1,024 KB. A typical photo is 2–5 MB.

6

Gigabyte (GB)

1,024 MB. A typical film is 1–4 GB.

7

Pixel

The smallest unit of a digital image. Images are made of millions of pixels.

Example: 1920x1080 = 2 million pixels

