

## 2.3 Output Devices and Their Uses

Syllabus 2026 - 2028

### WHAT YOU NEED TO KNOW

- Characteristics, uses, advantages and disadvantages of: monitors, touch screen (as an output device), multimedia projector, laser printer, inkjet printer, dot matrix printer, plotter, 3D printers, speaker and actuator

An **output device** presents the results of processing to the user, or controls something outside the computer.

### Screens and projectors

| Device                       | Characteristics and uses                                                                                           | Advantages                                                                          | Disadvantages                                                                                                            |
|------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Monitor</b>               | Displays text, images and video. Types include LCD and LED. Used for general computer use, design work and gaming. | Immediate output; can show colour, video and animation; sharp images; no paper used | Not permanent; large ones take up desk space; can cause eye strain; output cannot be taken away                          |
| <b>Touch screen (output)</b> | Displays output and also senses touch. Used on phones, tablets, tills and kiosks.                                  | Combines input and output in one device; saves space; easy to use                   | Screen gets dirty and scratched; can be costly to repair; smaller display area                                           |
| <b>Multimedia projector</b>  | Projects the computer screen onto a large surface. Used for classroom teaching, presentations, and home cinema.    | Large display for a whole audience; can show video and animation; portable          | Poor in bright light; lower image quality than a good screen; lamps wear out and are costly; needs setting up; noisy fan |

### Printers and plotters

| Device                    | Characteristics and uses                                                                                                                                         | Advantages                                                                                        | Disadvantages                                                                                                           |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Laser printer</b>      | Uses a laser, toner powder and heat to print a page at a time. Used in offices and schools for high-volume, high-quality printing.                               | Fast and quiet; high quality; cheap per page for large jobs; large paper capacity                 | Expensive to buy, especially in colour; toner cartridges are costly; releases ozone and fine particles; slow to warm up |
| <b>Inkjet printer</b>     | Sprays tiny drops of liquid ink onto paper. Used at home and for photographs and small jobs.                                                                     | Good quality, including photos; cheap to buy; quiet; small                                        | Slow; ink is expensive and runs out quickly; wet ink can smudge; not suited to large jobs                               |
| <b>Dot matrix printer</b> | Impact printer: pins strike an ink ribbon to make dots. Used for carbon copies, receipts, and in dusty or hot environments.                                      | Can print multi-part (carbon copy) paper; cheap to run; robust; works in harsh conditions         | Noisy; slow; low quality; poor for graphics; only suitable for simple text                                              |
| <b>Plotter</b>            | Draws large, precise designs using pens or ink on large sheets. Used for architects' plans, engineering drawings, maps and posters, and in CAD.                  | Very accurate; prints very large sizes; high quality lines; can use many paper types              | Expensive to buy; slow; large; needs specialist maintenance; not suited to ordinary printing                            |
| <b>3D printer</b>         | Builds a solid object layer by layer from a digital design, using plastic, resin or other materials. Used for prototypes, models, medical parts and spare parts. | Makes complex shapes; quick prototyping; little waste; custom products; cheaper for one-off items | Slow; expensive to buy; limited materials and size; objects may be weak; can be misused, for example to make weapons    |

## Speakers and actuators

| Device          | Characteristics and uses                                                                                                                                      | Advantages                                                                               | Disadvantages                                                                                               |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Speaker</b>  | Converts electrical signals into sound. Used for music, alerts, voice assistants, video calls and announcements.                                              | Allows sound output for those who cannot see a screen; can be loud for groups; wide use  | Can disturb others; quality varies; poor ones distort; can be affected by background noise                  |
| <b>Actuator</b> | Converts an electrical signal into physical movement, for example motors, valves and relays. Used in robots, automatic doors, heating control and irrigation. | Lets a computer control physical devices automatically; accurate; works without a person | Needs a digital to analogue converter; can wear out or fail; mechanical parts need maintenance; needs power |

### EXAM TIP

A printer question often asks you to **justify a choice**. Match the printer to the job: dot matrix for carbon copies, laser for fast high-volume text, inkjet for occasional photo prints, plotter for large drawings, 3D printer for solid objects.

## Key terms

| Term                        | Meaning                                                      |
|-----------------------------|--------------------------------------------------------------|
| <b>Output device</b>        | Presents results or controls something outside the computer. |
| <b>Monitor</b>              | Screen that displays text, images and video.                 |
| <b>Multimedia projector</b> | Projects the screen image onto a large surface.              |
| <b>Laser printer</b>        | Prints with a laser and toner powder.                        |
| <b>Inkjet printer</b>       | Prints by spraying tiny drops of ink.                        |
| <b>Dot matrix printer</b>   | An impact printer that strikes a ribbon with pins.           |
| <b>Plotter</b>              | Draws large, precise designs.                                |
| <b>3D printer</b>           | Builds a solid object layer by layer.                        |
| <b>Speaker</b>              | Converts electrical signals into sound.                      |
| <b>Actuator</b>             | Converts an electrical signal into movement.                 |