

The information processing cycle and input

Printable handout — four stages that every computing device repeats, four jobs that every component does, and the six families of input device.

The promise of this topic

By the end of it you will be able to pick up a component you have never seen and say what it does. Not because you memorised a catalogue, but because there are only four jobs any component can do — and this lesson gives you all four.

Objectives

1. Describe the four stages of the information processing cycle and give an example of each.
2. Sort any component into input, processing, storage or output and defend the decision.
3. Name six categories of input device and state what kind of data each captures.
4. Explain why some devices belong to two categories at once.

1 · The information processing cycle

Every computer, from a smartwatch to a weather supercomputer, repeats these four stages.

Stage	What happens	In the worked example
Input	Data goes in: typing, tapping, scanning, a sensor reading.	You type a mark
Processing	The CPU follows instructions and works on that data.	The spreadsheet averages the class
Output	A result comes out: screen, speaker, printer, motor.	The average appears on screen
Storage	The result is kept, so it survives being switched off.	The file saves to the school server

Why storage is listed separately. The cycle would technically work without it — but nothing would survive a power cut. That is the difference between a pocket calculator and a computer, and in this country you will test the theory more often than you would like.

2 · Every component does one of four jobs

Same cycle, now pointing at parts you can hold instead of stages.

Job	Components
Input	Keyboard, mouse, microphone, sensor
Processing	The CPU, supported by RAM

Output	Monitor, speaker, printer
Storage	SSD, hard drive, cloud

The question that classifies anything: which direction is the data moving? Into the machine is input. Out of it is output. Held for later is storage. Changed along the way is processing.

The double cases. Some devices do two jobs at once. A touchscreen is input and output — the glass takes your finger position in, the panel underneath puts the picture out. A network card sends and receives. When that happens, say both and defend both: a full-mark answer names the double case instead of choosing one and hoping.

3 · Getting data in

Family	What it captures
Keyboard	Text, accurately and fast. Learn to touch-type once and you keep it for life.
Pointing devices	Mouse, trackpad, stylus, touchscreen — hand movement turned into position data.
Scanners & readers	Flatbed scanners, barcode readers, card readers: physical things turned into files.
Cameras	Light captured as image data. QR scanning is a camera plus software.
Microphones	Sound, for calls, recordings and voice control.
Sensors	Fingerprint, GPS, accelerometer, temperature — input nobody consciously enters.

Sensors are the category people forget. Your phone knows which way up it is because an accelerometer is feeding it data you never typed. That is still input, and it is what separates a good input audit from a lazy one.

4 · Check yourself

1. A learner taps a card on the reader at the school gate. Which stage is the tap, and which stage is the gate opening?
2. Which two jobs does a touchscreen do, and how would you defend that in one sentence?
3. Name three input devices in this room that nobody deliberately operates.
4. Why is storage listed as a separate stage rather than folded into output?
5. You meet a component you have never seen. What is the one question you ask?

Activities for this lesson

Activity 1 — Map the cycle. Three familiar tasks — taking a photo, tapping in at the gate, printing a document. Break each into all four stages, naming the component at each stage.

Submit as a table, one row per task.

Activity 2 — Input audit. List every input device in one room, including the ones nobody thinks of: sensors, card readers, cameras, microphones. State what data each collects, and name the room.

Neither activity carries marks. The marks for this topic are in the Checkpoint, which assesses Lessons 1–3 together.

Glossary

Input	Getting data into the machine.
Processing	Acting on data according to stored instructions.
Output	Presenting a result outside the machine.
Sensor	An input device that captures data nobody consciously enters.
Peripheral	A device attached to a computer to provide input, output or storage.

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