

02

DIGITAL LITERACY • GRADE 8

Software

The instructions that turn a box of electronics into something useful — what the operating system does, which applications do what, and what the licence on the box actually permits.

Module 2 of 3 • Estimated study time: 4 hours • Ends with a knowledge check

What you will be able to do

Four things you should be able to do without notes by the end of the module.

1 Classify software

Sort any program you meet into system software or application software and justify the choice.

2 Explain the OS

Describe four jobs the operating system does that you never see happening.

3 Match tool to task

Choose the right application for a given task and say why the alternatives fit worse.

4 Read a licence

Tell the difference between proprietary, open-source, freeware and subscription software.

These four objectives are what the end-of-module quiz measures.

DEFINITION

Software is a set of instructions

Software is...

a set of written instructions, stored electronically, that tells the hardware exactly what to do, in what order, and what to do when something goes wrong.

Three things to remember

- You cannot touch it — only its effects
- It is written by people, so it has bugs
- It can be replaced without changing the hardware

Written in code

Programmers write in a language people can read, then it is translated for the machine.

Stored, not wired

It sits on the drive and is loaded into memory when you open it.

Updated

Bugs get fixed and features get added long after you bought the device.

Licensed

You almost never own software — you own permission to use it.

Hardware is what you kick. Software is what you swear at.

Two families of software

System software

Runs the machine itself. It starts before you do anything and keeps running underneath everything else.

Operating system · drivers · utilities · firmware

Application software

Helps you do a task. You install it, open it, close it, and the computer carries on without it.

Word processor · browser · game · photo editor

Who is it for?

System software serves the computer. Applications serve the user.

When does it run?

System software runs from boot to shutdown.
Applications run when opened.

Can you remove it?

Remove an application and the machine is fine.
Remove the OS and nothing works.

Who notices it?

You notice system software only when it fails. You notice applications constantly.

Quick test: if it exists to keep the computer running, it is system software. If it exists to get your work done, it is application software.

Five jobs the operating system does

All of these happen constantly, and none of them are visible when things go well.

1

Manages memory

Decides which program gets which slice of RAM, and takes it back when the program closes.

2

Runs programs

Gives each running program a turn on the processor, thousands of times a second.

3

Handles files

Keeps track of where every file physically sits on the drive and who may open it.

4

Talks to devices

Uses drivers to translate between your software and the printer, camera or keyboard.

5

Provides the interface

Gives you the windows, menus and taps you actually interact with.

Match the tool to the task

Word processor

Text that people read: letters, essays, reports. Formatting, spellcheck, page layout.

Spreadsheet

Numbers that must be calculated, sorted or charted. Formulas update themselves.

Presentation

Visual support while you speak. Slides carry headlines, you carry the detail.

Database

Large amounts of structured records that must be searched and linked reliably.

Browser

Reaches software and information that lives on someone else's computer.

Media editor

Creates or changes images, audio and video files.

You bought a licence, not the software

The licence decides what you may legally do with a program — copy it, change it, share it, sell it.

Proprietary

You pay to use it. The code stays secret and you may not copy or modify it.

Open source

The code is public. You may use, study, change and share it, under the licence terms.

Freeware

Free to use, but the code stays closed and there are usually limits on commercial use.

Shareware

Free to try for a period, then you must pay or stop using it.

Subscription

You pay monthly or yearly. Stop paying and access ends, even for old files.

Site licence

One agreement covers many machines — how your school licenses its computers.

Keeping software safe

Most infections arrive through a decision someone made, not a hole in the machine.

1 Install from the source

Use the official site or the device's app store. "Free download" sites bundle extras you did not ask for.

2 Keep it updated

Updates mostly close security holes that attackers already know about.

3 Read the permissions

A torch app that wants your contacts and location is not asking for what it needs.

4 Run one antivirus

One, kept up to date. Two fight each other and slow the machine down.

If an installer arrives by message, ad or pop-up, treat it as hostile until proven otherwise.

The extension tells you the software

The last few letters after the dot say which program made the file and which can open it.

.docx .odt

Word-processed documents — text with formatting.

.xlsx .csv

Spreadsheets and raw tabular data.

.pptx .pdf

Presentations, and documents fixed for sharing.

.jpg .png

Photographs, and images needing sharp edges or transparency.

.mp3 .mp4

Compressed audio and video.

.exe .apk

Installers. The two extensions you should be most careful with.

Renaming a .docx to .jpg does not convert it — it only hides what the file really is.

Audit the software on one device

Your task

Open the installed-apps list on one device you are allowed to use. Pick twelve programs and build a table classifying each one, then answer the question underneath.

1 Classify

System or application software, and which category of application.

2 Licence

Name the licence type for each and say how you worked it out.

3 Judge

Which three would you remove, and what would break if you did?

Marks: 20 · Due at the end of Week 6 · Work individually

Submit as a table in the assignment upload for Module 2.

KNOWLEDGE CHECK

Before you take the quiz

Answer these three out loud. If any of them stalls you, go back to that slide.

1

Antivirus software helps you get nothing done — so why is it classed as system software and not an application?

2

You have twelve programs open and the computer keeps working. Which part of the operating system is doing the hardest work, and what is it doing?

3

A school wants software its own learners can study, modify and share legally. Which licence type fits, and why do the others fail?

The full quiz has ten questions and gives you feedback after each answer.

What to take with you

Software

is stored instructions: written by people, replaceable, and always licensed.

Two families

system software serves the machine, application software serves your task.

The OS

manages memory, processor time, files, devices and the interface — invisibly.

Licences

decide what you may legally copy, change and share. Read before you install.