

# TEACHER GUIDE

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## Unit

Computer specifications.

## Unit Description

What's inside your PC? The different components, specifications and what they mean when purchasing a new computer.

## Career

I'm a hardware sales specialist.

Every unit is based on a career to help students see the relevance of what they are learning to the real world and to help schools achieve Gatsby benchmarks by linking curriculum learning to careers.

## Career overview

As a hardware sales specialist, I help customers find the right computer hardware for their needs. This includes understanding product specifications, explaining features, and ensuring customers are satisfied with their purchases. My goal is to match the best hardware solutions with each customer's requirements.

## Key question

What should a hardware specialist consider when building, upgrading, replacing or buying a computer?

Every unit is designed to help students answer one over-arching key question relating to the units four knowledge statements.

## Unit objectives: knowledge statements

1. **Know** the function of different components inside a computer: processor, RAM, storage, and graphics.
2. **Know** what the units of measurement for capacity and data transfer mean in terms of performance and capacity. E.g. processor: GHz, network: Gb, storage: TB.
3. **Know** how to interpret basic computer specifications. And match hardware to specific needs. E.g. gaming or general use.
4. **Know** the effect of discarding electronic equipment.

## Unit outcomes

1. Learn it workbooks evidencing the learning journey.
2. Make it workbook evidencing application of learning with an artefact.
  - a) A technology purchasing plan and a custom PC build:
    - i) The student can explain why they chose certain tech specs (like GB or GHz) for their personal device.
    - ii) The student can stay within the budget for both the personal tech and the gaming computer.
    - iii) The student can explain why repairing their old device might be a good idea for the environment.
    - iv) The student can choose the right components (CPU, GPU, and RAM) for a specific job, like gaming.
3. Review it workbook evidencing assessment and review.

## Prior learning / spiral curriculum

No previous learning is necessary because all units have been developed in a modular way to allow you to plug them into your existing scheme of learning.

However, if you are following our recommended pathway for curriculum 2028 here is how this unit fits into the year 7 → 9 progression pathway.

### The big picture: a three-year progression

Once the national curriculum programme of study has been released, we will update this section with how this unit fits into a progressive pathway across Key Stage 3.

### How the three units connect

Once the national curriculum programme of study has been released, we will update this section with how this unit fits into a broader theme of units.

## Contents

In addition to this teacher guide this unit also includes the following resources:

- Folder: Extension work. Use these activities to extend any lesson or for 7–8-week terms.
  - 1 teacher extension answers.
  - 1 student extension workbook.
- Folder: Homework. Use these activities for work outside of the lesson. They are independent of the lessons and can be set at any time.
  - 1 teacher presentation.
  - 3 videos.
  - 3 video scripts.
  - 3 worksheets.
- Folder: Lesson 1 – Learn it. This lesson addresses the key question and first knowledge statement.
  - 1 lesson plan.
  - 1 introduction video.
  - 1 teacher presentation.
  - 1 student workbook.
  - Any associated resources required for the lesson.
- Folder: Lesson 2 – Learn it. This lesson addresses the key question and second knowledge statement.
  - 1 lesson plan.
  - 1 teacher presentation.
  - 1 student workbook.
  - Any associated resources required for the lesson.
- Folder: Lesson 3 – Learn it. This lesson addresses the key question and third knowledge statement.
  - 1 lesson plan.
  - 1 teacher presentation.
  - 1 student workbook.
  - Any associated resources required for the lesson.
- Folder: Lesson 4 – Learn it. This lesson addresses the key question and fourth knowledge statement.
  - 1 lesson plan.
  - 1 teacher presentation.
  - 1 student workbook.
  - Any associated resources required for the lesson.
- Folder: Lesson 5 – Make it. This lesson provides an opportunity for students to evidence their learning.
  - 1 lesson plan.
  - 1 teacher presentation.
  - 1 student workbook.
  - Any associated resources required for the lesson.

- Folder: Lesson 6 – Review it. This lesson provides an opportunity for students to check their understanding of the key vocabulary and knowledge statements plus dedicated improvement and reflection time.
  - 1 lesson plan.
  - 1 teacher presentation.
  - 1 student workbook.
- Folder: Reading. Use these activities to support reading initiatives in your school.
  - 3+ two-page reading passages with 5 questions.

PowerPoint format is used for workbooks as it allows for easy sharing on displays, animations, simultaneous collaboration and pasting without disrupting content on other pages. All PowerPoints have been checked for compatibility with Google Slides.

## Differentiation

Differentiation should be provided through “adaptive teaching”. This is defined as, “The opportunity for all pupils to experience success, by adapting lessons, whilst maintaining high expectations for all, so that all pupils have the opportunity to meet expectations”. This also meets the expectations of Deborah Eyre’s [High Performance Learning](#) strategy. Differentiation is provided by instruction and support rather than by task.

## Vocabulary

| Term                                                       | Definition                                                                                                                                                                    |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Binary</b>                                              | A number system that uses only two digits, 0 and 1. Computers use this to store and process data.                                                                             |
| <b>Bit</b>                                                 | The smallest piece of data in a computer, either a 0 or a 1.                                                                                                                  |
| <b>Byte</b>                                                | A group of 8 bits. It's the basic unit of computer memory.                                                                                                                    |
| <b>Central Processing Unit (CPU)</b><br>- <b>Processor</b> | The "brain" of the computer that processes information and carries out instructions.                                                                                          |
| <b>Component</b>                                           | An individual part that makes up a larger system, like the pieces of a computer.                                                                                              |
| <b>Cores</b>                                               | CPU cores are like little "brains" inside your computer's CPU. Each core can work on its own task. Having more cores means your computer can do more things at the same time. |
| <b>E-waste</b>                                             | Old or broken electronic devices that are thrown away. It can be harmful to the environment.                                                                                  |
| <b>GB (Gigabyte)</b>                                       | A unit of digital storage. A gigabyte is much larger than a megabyte.                                                                                                         |
| <b>GHz (Gigahertz)</b>                                     | A unit used to measure the speed of a processor. The higher the number, the faster the processor.                                                                             |
| <b>Graphical Processing Unit (GPU)</b>                     | A component that creates and displays images and videos on a screen.                                                                                                          |
| <b>Landfill</b>                                            | A large area of land where rubbish is buried.                                                                                                                                 |
| <b>Motherboard</b>                                         | The main circuit board of a computer that connects all the other components together.                                                                                         |
| <b>RAM (Random Access Memory)</b><br>- <b>Memory</b>       | A type of short-term memory the computer uses to store data that is being used right now.                                                                                     |
| <b>Recycling</b>                                           | The process of taking old materials and making them into new products.                                                                                                        |
| <b>Storage</b>                                             | The long-term memory of a computer, used to store files, programs, and data permanently.                                                                                      |
| <b>TB (Terabyte)</b>                                       | A very large unit of digital storage. A terabyte is much larger than a gigabyte.                                                                                              |
| <b>Toxic</b>                                               | Something that is poisonous and can harm people or the environment.                                                                                                           |

## Lesson overview

Detailed lesson plans for each lesson are provided in the relevant lesson folder.

| Lesson | Lesson Type | Phase 1                                                                                        | Phase 2                                                                                  | Phase 3                                                                                                                               |
|--------|-------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Learn it    | Career overview                                                                                | Investigate different components inside the computer.                                    | Understand the function of different components inside the computer.                                                                  |
|        |             | Students consider what a hardware sales specialist does and what skills / knowledge they need. | 🔧 Students find 12 clues to identify 4 computer components.                              | 🔧 Students participate in a role play to demonstrate how components interact with each other.                                         |
| 2      | Learn it    | Retrieval                                                                                      | Understand the units of measurement for capacity.                                        | Understand the units in terms of performance and capacity.                                                                            |
|        |             | Students match components to their descriptions.                                               | Students sort capacity measurements, file types and typical uses into the correct order. | 🔧 Students participate in a class activity of standing up or sitting down when either performance or capacity measurements are shown. |
| 3      | Learn it    | Retrieval                                                                                      | Understand the key parts of a computer specification.                                    | Investigate and interpret specifications.                                                                                             |
|        |             | Students put capacity and performance measurements in order.                                   | Students examine computer specifications identifying which                               | 🔧 Students play top trumps with computer specifications.                                                                              |

|   |           |                                                                        |                                                                                                                        |                                                                                                                                            |
|---|-----------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
|   |           |                                                                        | relate to the RAM, storage or CPU.                                                                                     |                                                                                                                                            |
| 4 | Learn it  | Retrieval                                                              | Investigate 3 problems caused by the production and disposal of electronic waste.                                      | Understand why repairing electronic devices can be a more environmentally friendly choice than replacing them.                             |
|   |           | Students answer true or false questions about computer specifications. | Students work in groups to research whether components are toxic / harmful.                                            | 🔍 Students move to 6 stations around the classroom to discover facts about computer waste. Can also be done in seats.                      |
| 5 | Make it   | Retrieval                                                              | Make a technology purchasing plan and a custom PC suitable for the user's needs.                                       |                                                                                                                                            |
|   |           | Students fill in the blanks in sentences describing computer hardware. | Students explore the Curry's website to find suitable replacement devices and PC Part Picker to build a new gaming PC. |                                                                                                                                            |
| 6 | Review it | Assess                                                                 | Self/Peer review.                                                                                                      | Reflect and improve.                                                                                                                       |
|   |           | Students complete a multiple-choice quiz.                              | Student's mark each other's answers to the quiz and self-assess or peer-review work from lesson 5.                     | Students RAG rate themselves against a series of "I can" statements.<br><br>Students improve their work or undertake extension activities. |

## Homework

3 activities provided.

Students watch up to a 5-minute video about the hinterland (discovering), real-world application (exploring) or consolidation (revisiting) related to the unit. Students complete a simple sheet, with all the information required to complete it included within the video.

Homework is designed to require no parental support and is independent of any lesson.

| Homework | Title                |
|----------|----------------------|
| 1        | Computer components. |
| 2        | Capacity and speed.  |
| 3        | E-waste.             |

Extension activities in the student extension workbook could also be used for homework.

## Assessment

Students are graded intern, junior, associate and senior to reflect the careers-oriented approach.

### Artefact

It is recommended that the Learn it workbook is used for students to record their development in learning, new knowledge and skills. They may need help with these activities in order to make progress, and therefore it is not the best work for assessment.

Instead, assess the Make it artefact workbook. This should be the best work the student can produce and will allow you to judge their independence.

|                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>Intern      | <ul style="list-style-type: none"> <li>At least <b>one</b> knowledge statement is achieved.</li> <li>Identify the main components and use the correct vocabulary from the unit.</li> <li>Select the correct parts to build a computer based on a simple, provided plan.</li> <li>Identify the units of measurement for capacity.</li> </ul>                                                                                             |
| <br>Junior     | <ul style="list-style-type: none"> <li>At least <b>two</b> knowledge statements are achieved.</li> <li>Identify which devices I'm going to buy / repair and stay in budget.</li> <li>Describe the function of different components.</li> <li>Explain the units of measurement in terms of performance and capacity.</li> <li>Identify the toxic parts of a component.</li> </ul>                                                        |
| <br>Associate | <ul style="list-style-type: none"> <li>At least <b>three</b> knowledge statements are achieved.</li> <li>Justify my component choices with a detailed understanding of the technical reasons.</li> <li>Create an original plan for a computer build from a specific need.</li> <li>Explain why the devices I chose to buy are suitable for me.</li> <li>Identify the problems caused the producing and disposing of e-waste.</li> </ul> |
| <br>Senior    | <ul style="list-style-type: none"> <li>All <b>four</b> knowledge statements are achieved.</li> <li>Explain how my final product meets a specific user's needs and stays within a set budget.</li> <li>Explain the social or environmental impact of the choices I made (e.g., repairing vs. buying new).</li> </ul>                                                                                                                     |

Tick the statements that best apply to the student when making their artefact. Award a best-fit mark of intern, junior, associate or senior.

### Multiple-choice quiz

A 24-question multiple-choice quiz assesses the 4 knowledge statements and vocabulary of the unit. Award intern for 0-9 marks, junior for 10-16 marks, associate for 17-21 marks and senior for 22-24 marks.

You may choose to put the quiz into Microsoft Forms or equivalent for automatic marking.

Students should not open their Learn it workbook or Make it artefact workbook when completing the quiz.

### Reflection

Lesson 6 provides an opportunity for students to review the work of their peers, identify and carry out improvements to their own work. It may not be necessary for teachers to mark the artefact for every unit for every student. Instead, you could take a moderation approach instead, sampling just a few pieces of work.

It is suggested that peers highlight statements on the assessment grid in yellow and teachers highlight in green to distinguish the two markers.

### Grading

Consider both the mark for the artefact and the mark for the quiz to award a best-fit judgement.

## National curriculum links

These will be populated when the new National Curriculum is released.

## Applications of AI

How the students can use AI to produce or enhance their work. Includes instructions for how use of AI can also be avoided.

### 1. Component Identification & Function

- **Using AI:** Students can ask AI tools (e.g. Copilot, Bing AI) to generate labelled diagrams of a computer's internal components. AI can also provide analogies (e.g. RAM as "short-term memory") to make technical functions easier to grasp.
- **Without AI:** Students physically examine hardware (old PCs, component cards, or printed diagrams) and label parts themselves. They practise describing functions in their own words, reinforcing understanding through peer presentations.

### 2. Units of Measurement & Performance

- **Using AI:** AI can convert between units (GB to TB, Mbps to Gbps) and explain how these affect performance in everyday tasks such as gaming or streaming. Students can use AI to create comparison tables showing the impact of different capacities.
- **Without AI:** Students manually calculate conversions using formulas and practise interpreting specifications from product sheets. They compare how different storage sizes or transfer speeds meet specific needs, building confidence in numerical reasoning.

### 3. Interpreting Specifications & Matching Needs

- **Using AI:** Students can role-play as hardware sales specialists with AI generating customer scenarios (e.g. "a student who needs a laptop for video editing"). AI can then suggest suitable specifications, which students critique and refine.
- **Without AI:** Students analyse real product listings or printed spec sheets, identifying key features and debating which machine best suits a given customer profile. They practise persuasive communication by justifying their choices in writing or presentations.

### 4. E-Waste & Sustainability

- **Using AI:** AI can provide case studies on the environmental impact of discarded electronics and suggest repair-or-replace scenarios. Students can use AI to brainstorm sustainable solutions or simulate the long-term effects of recycling vs disposal.
- **Without AI:** Students research local recycling schemes, examine case studies of e-waste problems, and discuss why repair can be more environmentally friendly. They create posters or presentations advocating for sustainable practices without digital assistance.

## How to Avoid Using AI

To ensure students understand and develop their skills without relying on AI, teachers can:

- Encourage manual interpretation of specification sheets and product adverts.
- Assign tasks that require students to explain their reasoning clearly without AI support.
- Use printed materials or offline hardware catalogues to reduce reliance on digital tools.
- Facilitate peer-led debates and role-play activities to strengthen communication skills.
- Provide conversion exercises and customer scenarios to support diverse learners.

By balancing AI-enhanced tasks with manual approaches, students build both technical fluency and critical resilience—essential traits for becoming informed consumers and effective hardware specialists.

## Software

PowerPoint or equivalent for students to complete the workbook and teachers to show class presentation.

Web browser to provide them with access to the online tools required for completion of this unit.

## Online and unfiltered sites required

The following two sites are needed for the assessment lesson (Lesson 5):

- <https://www.currys.co.uk/>
- <https://uk.pcpartpicker.com>

These sites can be substituted for any other two suitable sites you choose as long as they offer similar functionality.

The following site is used to host our homework videos for this unit:

- <https://www.tella.tv>

## Extension activities

These can be used as additional activities in 7–8-week terms, for alternative homework, or for additional activities in lessons.

Extension activities are included in a separate workbook for students “Student Extension workbook.pptx”

Extension answers are included in a separate presentation for teachers “Teacher Extension answers.pptx”

| Extension 1 | Component Detective Challenge                                                                                                                                                                                                                                                                                                      |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Activity    | <p>You task is to investigate some less known PC components which we have not covered in the unit so far.</p> <p>For each component below carry out some research and produce a mini “fact file” with 3-4 bullet points per component.</p> <p>Include a brief description of what each component does and why it is important.</p> |
| Extension 2 | Performance Units in Real Life                                                                                                                                                                                                                                                                                                     |
| Activity    | <p>Read each scenario carefully and decide which unit of measurement is most important (GHz, GB, TB, Mbps/Gbps).</p> <p>Write one sentence explaining why that unit matters in the scenario by completing the table below.</p>                                                                                                     |
| Extension 3 | Spec Sheet Showdown                                                                                                                                                                                                                                                                                                                |
| Activity    | <p>Read the two spec sheets below and for each customer scenario, choose the computer that best fits their needs.</p> <p>Write a short justification (1–2 sentences) for your choice by completing the table below.</p>                                                                                                            |
| Extension 4 | E-Waste Case Study                                                                                                                                                                                                                                                                                                                 |
| Activity    | <p>Read the short case study below:</p> <p>“A school replaces 50 old laptops with new ones. The old laptops are sent to landfill.”</p> <p>Identify 3 problems this causes and suggest 1 alternative solution.</p> <p>Write your answers in the table provided.</p>                                                                 |
| Extension 5 | Build Your Dream PC                                                                                                                                                                                                                                                                                                                |

|                    |                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Activity           | <p>Your task is to build a “dream PC”, you have an unlimited budget.</p> <p>Use the following site <a href="https://www.overclockers.co.uk/pc-components">https://www.overclockers.co.uk/pc-components</a></p> <p>Choose a CPU, RAM, storage, and graphics card as a minimum, feel free to add extra components as you see fit and complete the table below.</p> |
| <b>Extension 6</b> | <b>Repair vs Replace</b>                                                                                                                                                                                                                                                                                                                                         |
| Activity           | <p>Write two short lists: 1) “Reasons to repair a computer” 2) “Reasons to replace a computer”</p> <p>Apply your lists to one of the three scenarios below.</p> <p>Choose which option (repair or replace) is best for the scenario and write a short explanation (2-3 sentences) for your final verdict.</p>                                                    |

## Reading

This unit includes a folder titled, “Reading”. The files in this folder contain passages of text about scenarios related to the topic and each include five questions. These resources can be used in many ways. For example:

- Guided reading and oracy activities in terms of more than six weeks.
- Cover work.
- Work for students disappplied from the lesson.
- Alternative homework.

Guided reading is where the teacher reads the text to the students who follow along with a ruler on the line being read. To support literacy, it is important that students are both supported and challenged with text that is accessible and in places more demanding. The text has been checked that it meets these criteria and is suitable for a reading age of 11–14.

The associated questions go beyond simple comprehension using a framework that provides progression from basic understanding to deeper analytical thinking. Either moving students through increasingly demanding reading skills—retrieval, vocabulary, connection, inference and evaluation or encouraging students to identify and critique the structure of an argument or explanation.