KS3 ICT

Revision Guide

Introduction

Welcome to your KS3 ICT Revision Guide. This guide is designed to support students in Years 7, 8, and 9, covering the key topics in line with the national curriculum. It brings together digital literacy, creative media, computational thinking, and safe use of technology.

How to use this guide:
• Read the notes in each section.
• Try the practice questions.
• Use the checklists at the end of each year to track your progress.
• Use the glossary to revise key terms.

Remember: ICT is not just about computers – it's about using technology safely, creatively, and effectively.

Year 7

E-Safety and Digital Citizenship

E-Safety means staying safe online. This includes protecting personal information, knowing how to deal with cyberbullying, and understanding how to report problems.

Key Points:
• Never share personal details (address, phone number, passwords).
• Use strong passwords and keep them private.
• Think carefully before posting online – once shared, it is permanent.
• Cyberbullying should always be reported to a trusted adult or through school systems.
• Respect others online (digital citizenship).

Example Exam Question:
Q: Give one way to protect your identity online.
Answer: Use a strong, unique password. (1 mark)

Digital Literacy

Digital literacy means being able to use technology confidently and responsibly.

Examples:
• Creating documents in Word.
• Using spreadsheets to organise data.
• Creating presentations in PowerPoint.
• Evaluating websites for reliability.

Top Tip: Always check who wrote a website and when it was last updated.

Practice Question:
Q: How can you check if a website is reliable?
Answer: Look at the author, date, and domain (e.g., .gov, .edu). (2 marks)

Creative Media

Creative media includes creating images, videos, and sound using digital tools.

Examples:
• Editing images using software such as GIMP or Photoshop.
• Recording and editing sound in Audacity.
• Making simple videos with iMovie or Movie Maker.

Practice Question:
Q: Name one piece of software used for image editing.
Answer: Photoshop. (1 mark)

Introduction to Computational Thinking with Scratch

Computational thinking is about solving problems like a computer scientist.

Key Concepts:
• Decomposition – breaking problems into smaller parts.
• Abstraction – focusing on important details, ignoring unnecessary ones.
• Algorithms – step-by-step instructions.
• Pattern recognition – spotting similarities.

Scratch is a block-based programming language that helps you learn coding.

Practice Question:
Q: What does decomposition mean in computing?
Answer: Breaking a problem down into smaller parts. (1 mark)

Year 8

Media Creation – Graphics and Images

In Year 8, you learn how to create and edit digital graphics.

Key Points:
• Bitmap graphics are made of pixels (e.g., photographs).
• Vector graphics are made of shapes and lines (e.g., logos).
• Layers allow you to build up complex designs.
• File formats – JPG (compressed), PNG (transparency), SVG (vector).

Example Exam Question:
Q: What is one advantage of vector graphics over bitmaps?
Answer: Vectors can be resized without losing quality. (1 mark)

Computer Systems and Networks

Computers are made of hardware (physical parts) and software (programs).

Key Points:
• Input devices – keyboard, mouse, microphone.
• Output devices – monitor, printer, speakers.
• Storage – HDD, SSD, cloud.

Networks:
• LAN – Local Area Network, e.g., in a school.
• WAN – Wide Area Network, e.g., the internet.
• Router – connects networks together.
• Switch – connects devices within a LAN.

Practice Question:
Q: What is the difference between hardware and software?
Answer: Hardware is the physical parts of a computer; software is the programs that run on it. (2 marks)

Web Development Basics

Web development involves creating websites using code.

Key Languages:
• HTML – structures the content of a webpage.
• CSS – styles the webpage (colours, fonts, layout).
• JavaScript – adds interactivity.

Example:

HTML: <h1>Hello</h1> creates a heading.
CSS: h1 {color: red;} makes the heading red.

Practice Question:
Q: What does HTML stand for?
Answer: HyperText Markup Language. (1 mark)

Introduction to Python Programming

Python is a text-based programming language. It is used to create programs by writing code.

Examples:
• Variables: name = "Alex"
• Input/Output: age = input("Enter your age:")
• IF statements:

```
if age >= 18:
    print("Adult")
```

• Loops:

```
for i in range(5):
    print(i)
```

Practice Question:
Q: Write a Python statement that asks the user for their name and prints it.
*Answer: name = input("Enter your name:")
print(name) (2 marks)*

Year 9

Advanced Programming with Python

In Year 9, programming builds on what you learned in Year 8. You use Python to solve more complex problems.

Key Concepts:
• Data structures – lists (arrays) store multiple values.
• Functions – reusable blocks of code.
• File handling – reading and writing to files.
• Debugging – finding and fixing errors.

Example:
```
def greet(name):
   print("Hello", name)
```

Practice Question:
Q: Write a Python function called square that returns the square of a number.
*Answer: def square(x): return x*x (2 marks)*

Digital Media Projects

Digital media in Year 9 includes combining images, audio, and video to create projects.

Examples:
• Creating a short video with editing software.
• Adding sound effects and background music.
• Designing a poster or digital advert.

Good Practice:
• Always consider your target audience.
• Keep designs consistent with colour schemes and fonts.

Practice Question:
Q: Why is it important to consider your audience when making a media product?
Answer: It ensures the product is appropriate and effective for the people who will use it. (2 marks)

Cybersecurity

Cybersecurity is about protecting systems and data from attacks.

Common Threats:
• Malware – harmful software such as viruses or spyware.
• Phishing – fake emails trying to steal information.
• Hacking – unauthorised access to systems.
• Denial of Service (DoS) – overwhelming a system with traffic.

Protection Methods:
• Use firewalls and antivirus software.
• Strong passwords and two-factor authentication.
• Regular software updates.
• Educating users about online risks.

Practice Question:
Q: What is phishing?
Answer: A scam where fake emails or messages try to steal personal information. (1 mark)

Creative Computing – Micro:bit and Data Science

Creative computing projects use physical devices and data to solve real problems.

Micro:bit:
• A small programmable device with buttons, sensors, and an LED display.
• Can be programmed in block code or Python.
• Example project: create a step counter using the motion sensor.

Data Science:
• Collecting and analysing data to spot patterns.
• Using spreadsheets or Python to create graphs and charts.

Practice Question:
Q: Give one example of a project you could make with a Micro:bit.
Answer: A digital dice that shows a random number when you shake it. (1 mark)

Key Stage 3 ICT revision resources:

- BBC Bitesize
- Data Representation
    - Its only logical
    - Numbers in Binary
    - Introduction to Binary
    - How To Do Binary Addition (The Easy Way) -
- Computer Hardware
    - Under the hood
    - Computer Basics: Inside a Computer3.
- Creative iMedia (Preproduction Documentation)
    - What is Preproduction
    - Pre-production documents
- Programming
    - Scratch tutorial
    - Python Tutorial

Software links:

- Tynker code
- Scratch
- Python
    - W3 Schools
    - Google collab
- iMedia
    - Miro
    - Canva
    - Photopea

Glossary of Key ICT Terms

This glossary covers important words and definitions from KS3 ICT.

General ICT Terms

• ICT – Information and Communication Technology.
• Digital Literacy – using technology confidently and responsibly.
• Cyberbullying – bullying that takes place online.
• Digital Citizenship – behaving responsibly online.

Hardware & Software

• Hardware – the physical parts of a computer.
• Software – programs that run on a computer.
• Input Device – lets you put data into a computer (keyboard, mouse).
• Output Device – shows results from a computer (monitor, printer).
• Storage – saves data (SSD, HDD, cloud).

Networks & Security

- LAN – Local Area Network (e.g., school).
- WAN – Wide Area Network (e.g., the internet).
- Router – directs data between networks.
- Firewall – blocks unauthorised access.
- Encryption – scrambles data so only the right person can read it.
- Phishing – fake emails to steal information.

Programming

- Algorithm – step-by-step instructions.
- Pseudocode – a way to write algorithms in plain English.
- Variable – stores a piece of data.
- Loop – repeats instructions.
- IF statement – makes decisions.
- Function – reusable block of code.

Creative Media

- Bitmap – image made of pixels.
- Vector – image made of shapes/lines.
- Layer – part of an image you can edit separately.
- Format – type of file (JPG, PNG, SVG).
- Audience – the people who will use the media product.

Revision Checklists

Tick off each topic when you are confident.

Year 7 Checklist

☐ E-Safety and online privacy
☐ Digital citizenship
☐ Using documents, spreadsheets, and presentations
☐ Creative media basics (images, sound, video)
☐ Scratch programming basics (algorithms, decomposition)

Year 8 Checklist

☐ Bitmap vs vector graphics
☐ Layers and file formats
☐ Hardware and software basics
☐ LANs, WANs, routers, switches
☐ HTML and CSS basics
☐ Introduction to Python (variables, IF, loops)

Year 9 Checklist

☐ Python lists and functions
☐ File handling and debugging
☐ Creating digital media projects (poster, video, audio)
☐ Cybersecurity threats and protection methods
☐ Micro:bit projects
☐ Collecting and analysing data (data science basics)

Practice Tasks

Here are some practice activities and mini exam-style questions.

Year 7 Tasks

1. Write down three rules for staying safe online.
2. Create a short presentation on 'How to be a good digital citizen'.
3. In Scratch, make a program that moves a sprite across the screen when you press the space bar.

Year 8 Tasks

1. Create a poster using vector graphics software. Include text, images, and layers.
2. Explain the difference between a LAN and a WAN.
3. Write HTML and CSS to make a red heading that says 'Hello World'.
4. Write a Python program that asks the user for two numbers and prints their sum.

Year 9 Tasks

1. Write a Python function that checks if a number is even or odd.
2. Create a short video with background music and titles.
3. Explain what phishing is and how to protect against it.
4. Program a Micro:bit to display a smiley face when button A is pressed.