Computing

Subject knowledge audit

Subject leader toolkit

How to use this audit

This subject knowledge audit has been designed to help subject leaders identify gaps in teacher subject knowledge so that they can support teachers effectively.

Teachers (or whoever will be teaching the Kapow primary Computing lessons) should be encouraged to look at the statements for all teaching phases and consider whether they feel confident, somewhat confident, or would like more support in this area. The statements relate directly to the Kapow Primary Computing curriculum.

If teachers are lacking in confidence there are a few things you can do to support them: you can ensure they have some time to look at the suggested Kapow Primary teacher videos independently; you could pair them with a teacher who is confident in that area to support them; or, if there is a common area of need, you could set up further training opportunities in school during staff meetings or INSET.

Please note that the teacher videos referenced in this document were originally designed to support individual lessons, rather than for this purpose, but as long as you are aware of this they can be an excellent resource to support ongoing CPD and also to develop teachers' understanding of the sequencing of the curriculum.

Links are also provided to external sites which may support teachers but please be aware that as these are external sites we have no control over their content.

See our webinars, including 'Computing subject leader webinar' and explore our blog posts for further guidance to support you in your role.

Monitor

Subject knowledge audit: EYFS

Question	I feel confident	I am somewhat confident	I would benefit from support	Support available
Computer science				
I know how to operate a camera or device to take a photo.				
I know how to use a computer mouse to select, move, click and drag.				
I understand what an algorithm is.				Teacher video: What's an algorithm? (Y1 up to 1:00); Algorithm pictures; BBC Bitesize: What is an algorithm?
I can programme a floor or virtual robot to follow instructions.				Teacher video: Getting to know a Bee-Bot (Y1)
I can debug instructions (work out what went wrong) when a floor robot has gone wrong.				Teacher video: Debugging direction s (Y1) Teacher video: Getting to know a Bee-Bot (Y1); BBC: Bitesize: What are computer bugs?
Information technology				
I can use an online paint tool to create digital art.				Sketchpad: Teacher video: Click and drag; Drawing shapes (Y1 2:20 onwards) Explore: Sketchpad
I can use pictograms to represent data.				Teacher video: Picturing data (Y1) Explore: J2E - JIT 5
Digital literacy				
I can log in and out of the computer.				
I recognise uses of technology outside school.				Teacher video: Logging in (Y1)

Monitor

Subject knowledge audit: KS1

Question	I feel confident	I am somewhat confident	I would benefit from support	Support available
Computer science				
I can identify devices which are input and output devices.				Teacher video: Inputs (Y2); Teacher video: Inputs and outputs (Y3); Teacher video: Inputs and outputs (Y5)
I can explain what decomposition and abstraction are.				Teacher video: Drawing shapes (Y1 up to 2:20); Teacher video: Step by step (Y1) ; BBC Bitesize: What is decomposition? Teacher video: Making maps (Y2); Teacher video: What is computational thinking? (Y4)
I can use an algorithm to write a basic computer program which contains loop blocks.				Teacher video: Through the maze (Y2); Teacher video: Using ScratchJr (Y2); Teaching video: Creating an animation (Y2); Teacher video: The three little pigs algorithms (Y2) Explore: ScratchJr
I can use logical reasoning to predict what a program will do.				
I can use programming language to explain how a floor robot works.				Teacher video: Getting to know a Bee-Bot (Y1)
I know the different components of a computer and their function: battery, keyboard, monitor, screen, mouse, wires.				Teacher video: Computer parts (Y2); Teacher video: Inputs (Y2)
I understand what the internet is.				Teacher video: The internet (Y3); BBC Bitesize
Information technology				
I can use technology purposefully to create and manipulate digital content.				
I can use a mouse to drag, click, resize images.				

Monitor

Subject knowledge audit: KS1

Question	I feel confident	I am somewhat confident	I would benefit from support	Support available
Information technology				
I can use graphic editing tools to change font styles, size and colour, add backgrounds, create layers, insert shapes and clip art.				Sketchpad: Teacher video: Click and drag; Drawing shapes (Y1 2:20 onwards) Explore: Sketchpad
I can use keyboard shortcuts such as copy and paste.				Teacher video: Getting to know the keyboard (Y2); Teacher video: Getting started with word processing (Y2)
I can use software to create pictograms and branching databases.				Teacher video: Picturing data (Y1 Teacher video: Animal branching databases (Y1) Explore: J2E - JIT5
I can edit photos, including cropping and filtering images.				
I can enter data into a spreadsheet.				Teacher video: Warmer, colder (Y2) Teacher video: Race against the computer (Y3)
Digital literacy				
I can explain the difference between sharing and posting online.				
I understand what information is safe to be shared online.				BBC: Digital footprint Follow the digital trail Common sense information: private and personal information
I understand how to keep personal information private when using the internet.				
I know strategies for checking if something read online is true.				
I know what children should do if they have concerns about what they see online.				

Monitor

Subject knowledge audit: KS2

Question	I feel confident	I am somewhat confident	I would benefit from support	Support available
Computer science				
I know the different components of a computer and their function: Hard disk drive (HDD), Graphics processing unit (GPU), monitor, Random Access memory (RAM), Central processing unit (CPU), read only memory (ROM).				Teacher video: Building a paper laptop (Y3); Teacher video: Inputs and outputs (Y5); Teacher video: Fetch, decode, execute (Y5)
I can explain how a network works, including servers, routers and packets.				Teacher video: What's a network? (Y3); Teacher video: Network safari (Y3); Teacher video: The internet (Y3); Teacher video: What is the internet?; Teacher video: A website's journey (Y3); Teacher video:A file's journey (Y3); Teacher video: Routers (Y3); Video link: A packet's tale: how does the internet work?; Teacher video: Understanding packets (Y3); Teacher video: Mobile data and wi-fi (Y6)
I can form algorithms independently and turn them into code using a range of programming software. I understand the difference between algorithms, code and programmes.				Teacher video: Tinkering with Scratch (Y3); Teacher video: Making an animation (Y3); Teacher video: Robot bop (Y3); Teacher video: Editing your sprite in Scratch (Y4); Teacher video: Creating a variable (Y4); Teacher video: What is computational thinking? (Y4); Teacher video: Tinkering with BBC micro:bit (Y5); Teacher video: Programming an animation - micro:bit (Y5); Micro:bit features; Scratch 2.0 Overview video; Explore: Scratch
I can incorporate variables and make my code more efficient (by including nested loops for example).				Teacher video: Creating an animation (Y2); Teacher video: Using loops (Y3); Teacher video: Live loops (Y5); Teaching video: Polling program (Y5); Teacher video: Nested loops (Y6); Teacher video: Using loops in Python (Y6)
I can debug code.				Teacher video: Storytelling (Y3); Teacher video: Abstraction and pattern recognition (Y4); Teacher video: Tinkering with Sonic Pi (1:50 onwards Y5)

Monitor

Subject knowledge audit: KS2

Question	I feel confident	I am somewhat confident	I would benefit from support	Support available
Computer science				
I can use text based programming languages.				Teacher video: Tinkering with Sonic Pi (Y5); Teacher video: Sonic soundtracks (Y5); Explore: Sonic Pi; Teacher video: Tinkering with Python (Y6), Explore: Turtle academy (Y6), Teacher video: Using Python (Y6); Explore: Trinket
I can use abstraction to identify the important parts of an activity.				Teacher video: Abstraction and pattern recognition (Y4)
I understand and am able to identify HTML tags.				HTML: Cheat sheet, BBC Bitesize: CSS, BBC Bitesize: Using HTML to create websites
I understand how data is compressed and transmitted (as well as how corruption can occur) and how this happens in everyday life.				Teacher video: Data transfer (Y5); Teacher video: Data transfer - binary (Y5); Teacher video: Using binary - numbers (Y5); Teacher video: Using binary - text (Y5); Teacher video: Pixels (Y5); Teacher video: Compressing images (Y5); Teacher video: Barcodes (Y6); Teacher video: Transmitting data (Y6); Teacher video: RFID (Y6); Teacher video: Using RFID (Y6)
Information technology				
I can use software to edit and enhance video and images, adding music, sounds and text.				Explore: iMovie app; Teacher video: Using soundtrap (Y6); Teacher video: Using audacity (Y6); Explore: Soundtrap; Explore: Audacity
I understand how technology can be used to collaborate with others.				Teacher video: Teamwork (Y4 Google); Teacher video: Google forms (Y4 Google)
I can send an appropriate email with an attachment.				Teacher video: Sending an email (Y3); Teacher video: Be kind online (Y3)
I can use the sort and filter functions on a database to retrieve information and create formulas.				Teacher video: Race against the computer (Y3); Teacher video: Sorting and filtering (Y3 Google); Teacher video: Transport data (Y6); BBC Bitesize: Creating and understanding charts and graphs; BBC Bitesize: what is a database?

Monitor

Subject knowledge audit: KS2

Question	I feel confident	I am somewhat confident	I would benefit from support	Support available
Information technology				
I can create and interpret charts to understand data.				Teacher video: Representing data (Y3 Google); BBC Bitesize: Creating and understanding charts and graphs BBC Bitesize: what is a database?
I can use 3D design software.				Explore: TinkerCAD TinkerCAD Tutorial video
I can understand how search engines work (inc. web crawlers) and can use them effectively, evaluating search returns.				BBC: Bitesize: How do search engines work?; Teacher video: Web crawlers (Y5)
Digital literacy				
I know how to identify reliable information when searching online.				BBC: Own it
I understand the terms 'copyright' and 'creative commons.'				Teacher video: Citing sources (Y2)
I know some of the methods used to encourage consumers to buy things online.				
I know some of the dangers that pupils face online.				Teacher video: Be kind online (Y3); BBC: Own it
I can explain to pupils what to do if they experience bullying online (including how to capture evidence) or come across inappropriate content.				Teacher video: Be kind online (Y3); BBC: Own it; Teacher video: TinkerCAD tutorials (Y5)
I understand some of the ways that pupils can keep their private information secure online.				Teacher video: Brute force (Y6)
I know about some of the historical figures that contributed to technological advances in computing.				Teacher video: Bletchley Park (Y6); Quick quiz: Who?; Teacher video: First computers (Y6); BBC Bitesize: How computers have changed