

Year 5 – Systems and searching

Computing systems and networks

Prior learning retrieved

Year 4 computing, including networks, repetition, media and data

New knowledge / skill

explain that computers can be connected together to form systems; recognise the role of computer systems in our lives; identify how to use a search engine; describe how search engines select results; explain how search results are ranked; recognise why the order of results is important, and to whom

Why this? Why now?

Learners develop their understanding of computer systems and how information is transferred between systems and devices. Learners consider small-scale systems as well as large-scale systems. They explain...

Careers link

IT technician; network engineer; systems engineer

SMSC link

Social/moral: collaborate respectfully, use technology responsibly and explain choices.
Spiritual/cultural: develop curiosity, creativity and confidence with digital tools.

Climate / sustainability

Use technology purposefully; where authentic, connect tasks to efficient systems, environmental data, sustainable choices or reducing unnecessary resource use.

Key resources / platform

Internet-enabled devices; search engine; system diagrams; prepared search tasks.

Key vocabulary

system • input • process • output • search engine • web crawler • index • ranking • search term • result

Year 5 — Systems and searching: Sessions 1–3

Session-by-session breakdown • learning objective • necessary resources

1

Systems

To explain that computers can be connected together to form systems

Internet-enabled devices; search engine; system diagrams; prepared search tasks.

2

Computer systems and us

To recognise the role of computer systems in our lives

Internet-enabled devices; search engine; system diagrams; prepared search tasks.

3

Searching the web

To identify how to use a search engine

Internet-enabled devices; search engine; system diagrams; prepared search tasks.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.

Year 5 — Systems and searching: Sessions 4–6

Session-by-session breakdown • learning objective • necessary resources

4

Selecting search results

To describe how search engines select results

Internet-enabled devices; search engine;
system diagrams; prepared search tasks.

5

How search results are ranked

To explain how search results are ranked

Internet-enabled devices; search engine;
system diagrams; prepared search tasks.

6

How are searches influenced?

To recognise why the order of results is important, and to whom

Internet-enabled devices; search engine;
system diagrams; prepared search tasks.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.

Year 5 – Video production

Creating media

Prior learning retrieved

Year 4 computing, including networks, repetition, media and data

New knowledge / skill

explain what makes a video effective; use a digital device to record video; capture video using a range of techniques; create a storyboard; identify that video can be improved through reshooting and editing; consider the impact of the choices made when making and sharing a video

Why this? Why now?

Learners will learn how to create short videos by working in pairs or groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing,...

Careers link

Digital designer; content creator; creative technologist

SMSC link

Social/moral: collaborate respectfully, use technology responsibly and explain choices.
Spiritual/cultural: develop curiosity, creativity and confidence with digital tools.

Climate / sustainability

Use technology purposefully; where authentic, connect tasks to efficient systems, environmental data, sustainable choices or reducing unnecessary resource use.

Key resources / platform

Tablet/camera; video editor; storyboard/planning sheets.

Key vocabulary

video • recording • camera angle • framing • pan • tilt • zoom • storyboard • scene • edit • reshoot • evaluate

Year 5 — Video production: Sessions 1–3

Session-by-session breakdown • learning objective • necessary resources

1

What is video?

To explain what makes a video effective

Tablet/camera; video editor;
storyboard/planning sheets.

2

Filming techniques

To use a digital device to record video

Tablet/camera; video editor;
storyboard/planning sheets.

3

Using a storyboard

To capture video using a range of techniques

Tablet/camera; video editor;
storyboard/planning sheets.

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Year 5 — Video production: Sessions 4–6

Session-by-session breakdown • learning objective • necessary resources

4

Planning a video

To create a storyboard

Tablet/camera; video editor;
storyboard/planning sheets.

5

Importing and editing video

To identify that video can be improved
through reshooting and editing

Tablet/camera; video editor;
storyboard/planning sheets.

6

Video evaluation

To consider the impact of the choices made
when making and sharing a video

Tablet/camera; video editor;
storyboard/planning sheets.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.

Year 5 – Selection in physical computing

Programming A

Prior learning retrieved

Year 4 computing, including networks, repetition, media and data

New knowledge / skill

control a simple circuit connected to a computer; write a program that includes count-controlled loops; explain that a loop can stop when a condition is met; explain that a loop can be used to repeatedly check whether a condition has been met; design a physical project that includes selection; create a program that controls a physical computing project

Why this? Why now?

In this unit, learners will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. Learners will be introduced to a microcontroller...

Careers link

Software developer; programmer; robotics engineer

SMSC link

Social/moral: collaborate respectfully, use technology responsibly and explain choices.
Spiritual/cultural: develop curiosity, creativity and confidence with digital tools.

Climate / sustainability

Use technology purposefully; where authentic, connect tasks to efficient systems, environmental data, sustainable choices or reducing unnecessary resource use.

Key resources / platform

Crumble or microcontroller kit; LEDs/motors/switches; programming software.

Key vocabulary

microcontroller • input • output • condition • selection • if • switch • LED • motor • program • debug

Year 5 — Selection in physical computing: Sessions 1–3

Session-by-session breakdown • learning objective • necessary resources

1

Connecting Crumbles

To control a simple circuit connected to a computer

Crumble or microcontroller kit; LEDs/motors/switches; programming software.

2

Combining output components

To write a program that includes count-controlled loops

Crumble or microcontroller kit; LEDs/motors/switches; programming software.

3

Controlling with conditions

To explain that a loop can stop when a condition is met

Crumble or microcontroller kit; LEDs/motors/switches; programming software.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.

Year 5 — Selection in physical computing: Sessions 4–6

Session-by-session breakdown • learning objective • necessary resources

4

Starting with selection

To explain that a loop can be used to repeatedly check whether a condition has been met

Crumble or microcontroller kit; LEDs/motors/switches; programming software.

5

Drawing designs

To design a physical project that includes selection

Crumble or microcontroller kit; LEDs/motors/switches; programming software.

6

Writing and testing algorithms

To create a program that controls a physical computing project

Crumble or microcontroller kit; LEDs/motors/switches; programming software.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.

Year 5 — Flat-file databases

Data and information

Prior learning retrieved

Y4 data logging and earlier data representation

New knowledge / skill

records; fields; sort/group; AND/OR search; charts; real-world databases; present findings

Why this? Why now?

Builds structured data handling before Year 6 spreadsheets.

Careers link

Database administrator; data analyst; travel/data researcher

SMSC link

Moral: handle data carefully and question reliability. Social: understand how organised information supports decisions. Cultural: consider how databases are used across society.

Climate / sustainability

Use biodiversity, transport, energy or climate datasets where suitable to ask evidence-based questions.

Key resources / platform

Internet-enabled device; J2E database platform/example databases; record-card templates.

Key vocabulary

database • record • field • data • form • sort • group • filter • search • criteria • compare • chart • query

Year 5 — Flat-file databases: Sessions 1–3

Session-by-session breakdown • learning objective • necessary resources

1

Creating a paper-based database

To use a form to record information

Internet-enabled device; J2E database platform/example databases; record-card templates.

2

Computer databases

To compare paper and computer-based databases

Internet-enabled device; J2E database platform/example databases; record-card templates.

3

Using a database

To outline how you can answer questions by grouping and then sorting data

Internet-enabled device; J2E database platform/example databases; record-card templates.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.

Year 5 — Flat-file databases: Sessions 4–6

Session-by-session breakdown • learning objective • necessary resources

4

Using search tools

To explain that tools can be used to select specific data

Internet-enabled device; J2E database platform/example databases; record-card templates.

5

Comparing data visually

To explain that computer programs can be used to compare data visually

Internet-enabled device; J2E database platform/example databases; record-card templates.

6

Databases in real life

To use a real-world database to answer questions

Internet-enabled device; J2E database platform/example databases; record-card templates.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.

Year 5 – Introduction to vector graphics

Creating media

Prior learning retrieved

Y4 photo editing and earlier digital media

New knowledge / skill

shapes/lines; objects; move/resize/rotate; zoom; grids; layers; grouping; graphic design

Why this? Why now?

Moves from pixel/photo editing to object-based design and precision.

Careers link

Graphic designer; illustrator; CAD/vector designer

SMSC link

Spiritual/cultural: develop creativity, precision and appreciation of digital design. Social: respond constructively to design feedback and consider audience needs.

Climate / sustainability

Design logos/icons for sustainability campaigns; discuss reusable scalable graphics and purposeful digital production.

Key resources / platform

Google Drawings; or PowerPoint/Google Slides alternatives; mouse/trackpad; provided drawing files.

Key vocabulary

vector • object • shape • resize • rotate • duplicate • align • layer • order • group • ungroup • zoom • handles

Year 5 — Introduction to vector graphics: Sessions 1–3

Session-by-session breakdown • learning objective • necessary resources

1

The drawing tools

To identify that drawing tools can be used to produce different outcomes

Google Drawings; or PowerPoint/Google Slides alternatives; mouse/trackpad; provided drawing files.

2

Creating images

To create a vector drawing by combining shapes

Google Drawings; or PowerPoint/Google Slides alternatives; mouse/trackpad; provided drawing files.

3

Making effective drawings

To use tools to achieve a desired effect

Google Drawings; or PowerPoint/Google Slides alternatives; mouse/trackpad; provided drawing files.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.

Year 5 — Introduction to vector graphics: Sessions 4–6

Session-by-session breakdown • learning objective • necessary resources

4

Layers and objects

To recognise that vector drawings consist of layers

Google Drawings; or PowerPoint/Google Slides alternatives; mouse/trackpad; provided drawing files.

5

Manipulating objects

To group objects to make them easier to work with

Google Drawings; or PowerPoint/Google Slides alternatives; mouse/trackpad; provided drawing files.

6

Becoming a graphic designer

To apply what I have learned about vector drawings

Google Drawings; or PowerPoint/Google Slides alternatives; mouse/trackpad; provided drawing files.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.

Year 5 – Selection in quizzes

Programming B



Prior learning retrieved

Y5 Selection in physical computing; Y3 sequence; Y4 repetition

New knowledge / skill

conditions; if/then/else; questions; true/false outcomes; design, test and evaluate quiz

Why this? Why now?

Transfers selection from physical computing into Scratch and consolidates program flow.

Careers link

Software developer; game/quiz designer; QA tester

SMSC link

Moral/social: design fair questions and appropriate feedback for users. Spiritual: develop perseverance through testing and debugging. Cultural: create content for varied audiences.

Climate / sustainability

Create quizzes about climate, biodiversity or sustainable choices where curriculum links are authentic.

Key resources / platform

Device with Scratch online/offline; teacher account if used; quiz starters/design sheets.

Key vocabulary

selection • condition • conditional statement • outcome • true • false
• if • else • question • flow • algorithm • debug

Year 5 — Selection in quizzes: Sessions 1–3

Session-by-session breakdown • learning objective • necessary resources

1

Exploring conditions

To explain how selection is used in computer programs

Device with Scratch online/offline; teacher account if used; quiz starters/design sheets.

2

Selecting outcomes

To relate that a conditional statement connects a condition to an outcome

Device with Scratch online/offline; teacher account if used; quiz starters/design sheets.

3

Asking questions

To explain how selection directs the flow of a program

Device with Scratch online/offline; teacher account if used; quiz starters/design sheets.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.

Year 5 — Selection in quizzes: Sessions 4–6

Session-by-session breakdown • learning objective • necessary resources

4

Designing a quiz

To design a program that uses selection

Device with Scratch online/offline; teacher account if used; quiz starters/design sheets.

5

Testing a quiz

To create a program that uses selection

Device with Scratch online/offline; teacher account if used; quiz starters/design sheets.

6

Evaluating a quiz

To evaluate my program

Device with Scratch online/offline; teacher account if used; quiz starters/design sheets.

Online safety is taught through PHSRE; computing lessons reinforce safe, respectful and responsible use in context.