Year 4

Year 4 — The internet

Computing systems and networks

Prior learning retrieved

Year 3 computing, including systems, media, data and programming

New knowledge / skill

describe how networks physically connect to other networks; recognise how networked devices make up the internet; outline how websites can be shared via the World Wide Web (WWW); describe how content can be added and accessed on the World Wide Web (WWW); recognise how the content of the WWW is created by people; evaluate the consequences of unreliable content

Why this? Why now?

Learners will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the...

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

Network/internet diagrams; connected devices; browser demonstrations.

Key vocabulary

internet • network • router • switch • server • website • web • data • connection • network of networks

Year 4 — The internet: Sessions 1–3

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

1	**Connecting networks**	To describe how networks physically connect to other networks	Network/internet diagrams; connected devices; browser demonstrations.
2	**What is the internet made of?**	To recognise how networked devices make up the internet	Network/internet diagrams; connected devices; browser demonstrations.
3	**Sharing information**	To outline how websites can be shared via the World Wide Web (WWW)	Network/internet diagrams; connected devices; browser demonstrations.

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

Year 4 — The internet: Sessions 4–6

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

4	**What is a website?**	To describe how content can be added and accessed on the World Wide Web (WWW)	Network/internet diagrams; connected devices; browser demonstrations.
5	**Who owns the web?**	To recognise how the content of the WWW is created by people	Network/internet diagrams; connected devices; browser demonstrations.
6	**Can I believe what I read?**	To evaluate the consequences of unreliable content	Network/internet diagrams; connected devices; browser demonstrations.

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

Year 4 — Repetition in shapes

Programming A

Prior learning retrieved

Year 3 computing, including systems, media, data and programming

New knowledge / skill

identify that accuracy in programming is important; create a program in a text-based language; explain what 'repeat' means; modify a count-controlled loop to produce a given outcome; decompose a task into small steps; create a program that uses count-controlled loops to produce a given outcome

Why this? Why now?

Learners will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language. This unit is the first of the two programming…

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

Device with Logo/Turtle environment; command cards; shape planning sheets.

Key vocabulary

Logo • turtle • command • sequence • repeat • repetition • loop • count-controlled • angle • debug • decompose

Year 4 — Repetition in shapes: Sessions 1–3

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

1	**Programming a screen turtle**	To identify that accuracy in programming is important	Device with Logo/Turtle environment; command cards; shape planning sheets.
2	**Programming letters**	To create a program in a text-based language	Device with Logo/Turtle environment; command cards; shape planning sheets.
3	**Patterns and repeats**	To explain what ‘repeat’ means	Device with Logo/Turtle environment; command cards; shape planning sheets.

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

Year 4 — Repetition in shapes: Sessions 4–6

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

4	**Using loops to create shapes**	To modify a count-controlled loop to produce a given outcome	Device with Logo/Turtle environment; command cards; shape planning sheets.
5	**Breaking things down**	To decompose a task into small steps	Device with Logo/Turtle environment; command cards; shape planning sheets.
6	**Creating a program**	To create a program that uses count-controlled loops to produce a given outcome	Device with Logo/Turtle environment; command cards; shape planning sheets.

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

Year 4 — Audio production

Creating media

Prior learning retrieved

Year 3 computing, including systems, media, data and programming

New knowledge / skill

identify that sound can be recorded; explain that audio recordings can be edited; recognise the different parts of creating a podcast project; apply audio editing skills independently; combine audio to enhance my podcast project; evaluate the effective use of audio

Why this? Why now?

Learners will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. Learners will discuss the ownership of digital audio and the copyright…

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

Device with audio recording/editing software; microphone/headset; planning sheets.

Key vocabulary

audio • sound • recording • microphone • input • output • podcast • edit • trim • layer • playback • export

Year 4 — Audio production: Sessions 1–3

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

1	**. Recording sound**	To identify that sound can be recorded	Device with audio recording/editing software; microphone/headset; planning sheets.
2	**. Editing audio**	To explain that audio recordings can be edited	Device with audio recording/editing software; microphone/headset; planning sheets.
3	**. Planning a podcast**	To recognise the different parts of creating a podcast project	Device with audio recording/editing software; microphone/headset; planning sheets.

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

Year 4 — Audio production: Sessions 4–6

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

4	**. Creating a podcast**	To apply audio editing skills independently	Device with audio recording/editing software; microphone/headset; planning sheets.
5	**. Behind the scenes**	To combine audio to enhance my podcast project	Device with audio recording/editing software; microphone/headset; planning sheets.
6	**. Evaluating podcasts**	To evaluate the effective use of audio	Device with audio recording/editing software; microphone/headset; planning sheets.

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

Year 4 — Data logging

Data and information

Prior learning retrieved

KS1 data units and Y3 branching databases

New knowledge / skill

data over time; sensors; automatic collection; data points; intervals; analysis; conclusions

Why this? Why now?

Moves pupils from manually collected data to automated environmental sensing.

Careers link

Environmental scientist; meteorologist; data technician; smart-building engineer

SMSC link

Moral/social: collect and interpret data responsibly and accurately. Spiritual: develop curiosity about patterns in the world. Cultural: consider how data supports real-life decisions.

Climate / sustainability

Strong link: monitor temperature/light/sound; investigate energy use, microclimates and environmental change.

Key resources / platform

Data Harvest Vu+ and EasySense2; or Arduino Science Journal/micro:bit; devices; sensor/data files.

Key vocabulary

data • data logger • sensor • input • data point • interval • automatic collection • table • graph • analyse • conclusion

Year 4 — Data logging: Sessions 1–3

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

1	**Answering questions**	To explain that data gathered over time can be used to answer questions	Data Harvest Vu+ and EasySense2; or Arduino Science Journal/micro:bit; devices; sensor/data files.
2	**Data collection**	To use a digital device to collect data automatically	Data Harvest Vu+ and EasySense2; or Arduino Science Journal/micro:bit; devices; sensor/data files.
3	**Logging**	To explain that a data logger collects ‘data points’ from sensors over time	Data Harvest Vu+ and EasySense2; or Arduino Science Journal/micro:bit; devices; sensor/data files.

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

Year 4 — Data logging: Sessions 4–6

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

4	**Analysing data**	To recognise how a computer can help us analyse data	Data Harvest Vu+ and EasySense2; or Arduino Science Journal/micro:bit; devices; sensor/data files.
5	**Data for answers**	To identify the data needed to answer questions	Data Harvest Vu+ and EasySense2; or Arduino Science Journal/micro:bit; devices; sensor/data files.
6	**Answering my question**	To use data from sensors to answer questions	Data Harvest Vu+ and EasySense2; or Arduino Science Journal/micro:bit; devices; sensor/data files.

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

Year 4 — Photo editing

Creating media

Prior learning retrieved

Y2 digital photography

New knowledge / skill

crop/rotate; recolour; cloning; combining; purpose; ethics; evaluate edits

Why this? Why now?

Develops critical media literacy and purposeful image manipulation.

Careers link

Photographer; photo editor; digital marketer

SMSC link

Moral: consider truth, manipulation and responsible image editing. Social/cultural: discuss how edited images can influence audiences and respect ownership and consent.

Climate / sustainability

Create truthful climate/sustainability campaign imagery; discuss misleading edited environmental images.

Key resources / platform

Windows device with Paint.net, or approved Pixlr/Photopea alternative; prepared image files.

Key vocabulary

digital image • composition • crop • rotate • recolour • clone • combine • layer • edit • effect • purpose • evaluate

Year 4 — Photo editing: Sessions 1–3

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

1	**Changing digital images**	To explain that the composition of digital images can be changed	Windows device with Paint.net, or approved Pixlr/Photopea alternative; prepared image files.
2	**Recolouring**	To explain that colours can be changed in digital images	Windows device with Paint.net, or approved Pixlr/Photopea alternative; prepared image files.
3	**Cloning**	To explain how cloning can be used in photo editing	Windows device with Paint.net, or approved Pixlr/Photopea alternative; prepared image files.

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

Year 4 — Photo editing: Sessions 4–6

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

4	**Combining**	To explain that images can be combined	Windows device with Paint.net, or approved Pixlr/Photopea alternative; prepared image files.
5	**Creating**	To combine images for a purpose	Windows device with Paint.net, or approved Pixlr/Photopea alternative; prepared image files.
6	**Evaluating**	To evaluate how changes can improve an image	Windows device with Paint.net, or approved Pixlr/Photopea alternative; prepared image files.

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

Year 4 — Repetition in games

Programming B

Prior learning retrieved

Y3 Scratch sequence/events and Y4 repetition in shapes

New knowledge / skill

count-controlled/infinite loops; concurrent loops; modify/design/create game; repetition

Why this? Why now?

Applies repetition in Scratch after pupils meet loops through Logo.

Careers link

Game developer; programmer; QA tester

SMSC link

Spiritual: use imagination and creativity in game design. Social: test and respond constructively to peers' work. Moral: design experiences that are fair and appropriate for users.

Climate / sustainability

Games can model recycling, biodiversity or energy-saving choices without distorting the computing objective.

Key resources / platform

Device with Scratch online/offline; project starters; design/debug sheets.

Key vocabulary

repetition • loop • count-controlled loop • infinite loop • sequence • concurrent • sprite • algorithm • program • modify • debug

Year 4 — Repetition in games: Sessions 1–3

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

1	**Using loops to create shapes**	To develop the use of count-controlled loops in a different programming environment	Device with Scratch online/offline; project starters; design/debug sheets.
2	**Different loops**	To explain that in programming there are infinite loops and count-controlled loops	Device with Scratch online/offline; project starters; design/debug sheets.
3	**Animate your name**	To develop a design that includes two or more loops which run at the same time	Device with Scratch online/offline; project starters; design/debug sheets.

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

Year 4 — Repetition in games: Sessions 4–6

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

4	**Modifying a game**	To modify an infinite loop in a given program	Device with Scratch online/offline; project starters; design/debug sheets.
5	**Designing a game**	To design a project that includes repetition	Device with Scratch online/offline; project starters; design/debug sheets.
6	**Creating your games**	To create a project that includes repetition	Device with Scratch online/offline; project starters; design/debug sheets.

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