



Y4 Computing – Audio Production

Key Concept – Creating Media



Essential Knowledge

How can we record and play sound using a computer?

Sound can be recorded and saved using a computer. A microphone records sounds, and speakers or headphones play it back. The person who records the sound can decide who is allowed to use or share it.

How can we edit audio to make a recording better?

Audio can be edited to remove mistakes and improve the recording. A soundwave helps us see where to trim and we can add music or sound effects.

How can we plan and create an engaging podcast?

A podcast is planned and made by combining different sounds, such as voices, music and sound effects. Projects can be saved so each part can still be edited and improved.

How can we improve the quality of our audio recordings?

Audio recordings can be reviewed, edited and re-recorded to improve their quality. Following a plan helps to organise ideas, while listening back allows us to spot mistakes, remove unwanted sounds and make the recording clear and engaging for the audience.

How can we combine sounds to improve our podcast?

A podcast can be improved by arranging and combining different sounds. Saving keeps the project editable, while exporting creates a finished audio file.

How can we evaluate and improve a podcast?

A podcast can be evaluated by listening carefully we can identify what works well and what could be improved. Appropriate edits can make a podcast clearer and more engaging.

Key Vocabulary

audio

sound that is recorded or played on a digital device

podcast

a digital audio recording that we can listen on a device

speaker

output device that plays sound from a computer

sound

something that we can hear

record

to capture and save sound using a device

Aspirational Knowledge

Audio can be recorded, edited and combined to create an engaging podcast using voices, music and sound effects. Podcasts can be planned, reviewed and improved to make sure they are clear and effective. Skilled podcast creators make purposeful choices about sound and editing to communicate effectively with their audience.



Y4 Computing – Audio Production

Key Concept – Creating Media



Key Knowledge

How can we record and play sound using a computer?

Sound can be recorded and saved on a computer using a microphone. Speakers or headphones play sound, and we should ask permission before using or sharing someone else's recording.

How can we edit audio to make a recording better?

Audio can be changed to removed mistakes and make it sound better. A soundwave helps us see where to cut the recording and we can add music or sound effects.

How can we plan and create an engaging podcast?

A podcast is planned and made using different sounds, such as voices, music and sound effects. The podcast can be saved so the sounds can be changed and improved later.

How can we improve the quality of our audio recordings?

Audio recordings can be listening to and changed to make them better. Following a plan helps us make a recording that is clear and easy to understand.

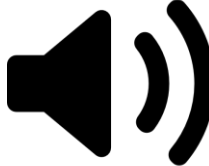
How can we combine sounds to improve our podcast?

A podcast can be improved by putting different sounds together. We can save it to make changes later or export it when it is finished.

How can we evaluate and improve a podcast?

We can listen carefully to a podcast to find what is good and what could be better. We can then make changes to make the podcast clearer and more interesting.

Key Vocabulary

audio		sound that is recorded or played on a digital device
podcast		a digital audio recording that we can listen on a device
speaker		output device that plays sound from a computer
sound		something that we can hear
record		to capture and save sound using a device



Y4 Computing – Data Logging

Key Concept – Data and Information



Essential Knowledge

How can computers collect information automatically?

Data loggers use sensors to collect information without someone recording it by hand. They can gather data over long periods of time. This helps make data collection quicker and more accurate.

How can we collect data over time?

Different sensors are designed to detect different types of information, such as temperature, light or sound. Each sensor collects data for a particular purpose. Choosing the correct sensor helps answer different questions. Data loggers can record this information on their own without being connected to a computer.

What do data loggers do when they collect information over time?

Data loggers collect information at different times, just like taking snapshots. We can use them on their own, then connect them to a computer to see and study the data.

How does changing the way data is shown help us understand it?

Data can be presented using tables, charts and graphs. Different ways of displaying information can make patterns easier to spot. Choosing the most suitable display helps communicate findings clearly.

How do I know if data be trusted?

Sometimes data may contain mistakes because of faulty equipment or unexpected events. Checking the results helps identify unusual values. Reliable data leads to more accurate conclusions.

How does data help people make decisions?

Data provides evidence that supports decision-making. Scientists, engineers and many other professionals use collected data to understand the world. Careful analysis helps people solve problems and improve ideas.

Aspirational Knowledge

Data helps us understand the world by revealing patterns and supporting evidence-based decisions. Digital technology allows information to be collected accurately and analysed efficiently.

Key Vocabulary

data	facts or information that can be collected and used
data logger	a digital device that collects and records data automatically
sensor	a device that detects and measures something
data set	a collection of related data
analyse	to examine information carefully to find patterns or answers



Y4 Computing – Data Logging

Key Concept – Data and Information



Key Knowledge

How can computers collect information automatically?

Data loggers use sensors to collect information without someone recording it by hand. They can gather data over long periods of time.

How can we collect data over time?

Different sensors are designed to detect different types of information, such as temperature, light or sound. Data loggers can record this information on their own without being connected to a computer.

What do data loggers do when they collect information over time?

Data loggers collect information at different times, just like taking snapshots. We can use them on their own, then connect them to a computer to see and study the data.

How does changing the way data is shown help us understand it?

Data can be presented using tables, charts and graphs. Different ways of displaying information can make patterns easier to spot. Choosing the most suitable display helps communicate findings clearly.

How do I know if data be trusted?

Sometimes data may contain mistakes because of faulty equipment or unexpected events. Checking the results helps identify unusual values.

How does data help people make decisions?

Data provides evidence that supports decision-making. Scientists, engineers and many other professionals use collected data to understand the world.

Key Vocabulary

data



facts or information that can be collected and used

data logger



a digital device that collects and records data automatically

sensor



a device that detects and measures something

data set



a collection of related data

analyse



to examine information carefully to find patterns or answers



Y4 Computing – Photo Editing

Key Concept – Creating Media



Essential Knowledge

How can the composition of digital images can be changed?

The composition of digital images can be changed by rotating or cropping them, helping to improve how the picture looks. Photographers use these skills to make images clearer, more balanced, and more effective.

How can colours be changed in digital images?

The colours of digital images can be changed using filters and effects. These can improve how an image looks for different purposes, and photographers choose suitable colours to make their pictures more effective.

How can cloning be used in photo editing?

Cloning can be used to change digital images by copying, removing, or hiding parts. This helps improve how a photo looks, and photographers use it to retouch images more carefully.

How can images be combined?

Images can be combined by selecting parts and using copy and paste within or between pictures. This helps create new images, but photographers think about when editing is appropriate and fair.

How can images combine for a purpose?

Images can be combined for a purpose by selecting and editing parts from different pictures. This helps create new images that look real or imaginary, using planning and careful choice of images.

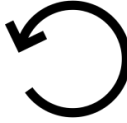
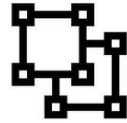
How can you evaluate how changes can improve an image?

Images can improve by reviewing and making changes, such as editing details or adding text. This helps make the final image clearer, more effective, and suitable for its purpose.

Aspirational Knowledge

Photo editing involves transforming digital images using tools such as cropping, rotating, recolouring, cloning and combining. It allows images to be enhanced, altered or created for specific purposes. Effective editing considers composition, colour and meaning, while recognising that changes can influence perception. Photo editing also raises ethical questions, as images can be manipulated to represent reality in different ways.

Key Vocabulary

edit		to make changes to something to improve it
crop		to cut an image to focus on one smaller part
rotate		to turn an image
combine		to group images together to form one new image
effects		changes that make the image look different e.g. colour, light or dark



Y4 Computing – Photo Editing

Key Concept – Creating Media



Key Knowledge

How can we change a digital picture?

We can change a digital picture by turning it (rotate) or cutting parts out (crop). This helps the picture look better and easier to see.

How can we change the colours in a digital picture?

We can change the colours in a picture by using filters and effects. These help make the picture look different and more exciting.

How can we use cloning to change a picture?

We can use cloning by copying parts of a picture to cover or remove things we don't want. This helps make the picture look better.

How can we put pictures together?

We can put pictures together by copying and pasting parts from one picture into another. This helps us to make a new picture.

How can we join pictures together for a reason?

We can join pictures together by choosing parts and putting them into one new picture. This helps us make pictures that show real or made-up ideas.

How can we check if changes make a picture better?

We can look at our picture and make changes, like fixing parts or adding words. This helps the picture look clearer and better for what we want.

Key Vocabulary

edit



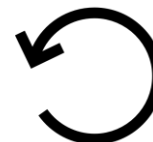
to change something to make it better

crop



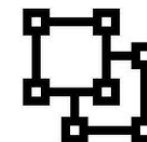
to cut a picture to make it smaller

rotate



to turn a picture

combine



to put things together

effects



changes that make the image look different e.g. colour, light or dark





Y4 Computing – Repetition in Games

Key Concept – Programming



Essential Knowledge

How can we use loops to repeat instructions in a program?

A count-controlled loop repeats a set of instruction several times. Repetition can be found in everyday tasks as well as computer programs. We can predict what a loop will do by following the instructions in order.

What are the different types of loops and when should we use them?

In programming, loops repeat instructions. Programmers choose the type of loop that best suits the task. Some programs can also run more than one process at the same time.

How can we use loops together to create a program?

A program can use two or more loops that run at the same time. Programmers can test and evaluate their loops to check if they work effectively and make changes if needed.

How can we change an infinite loop to create a different outcome?

An infinite loop repeats instructions until the program is stopped. We can change parts of a loop to make different actions happen and test the effect of those changes. Existing code can be reused with different sprites to create new actions.

How can we design a project that uses repetition effectively?

Repetition means using loops to make instructions happen more than once in a program. Programmers can choose useful parts from existing projects to help plan their own design.

How can we create and improve a project using repetition?

A project can be related by following a design and using repetition to repeat actions, they can refine algorithm and make changes to improve how the program works. Programmers then evaluate the steps they followed.

Key Vocabulary

programming

creating instructions that tells a computer what to do

loop

set of instructions that repeats in a program

code

instructions written to make a computer program work

repeat

to make an instruction or action happen again

sprite

object or character on screen that can be controlled using a code

Aspirational Knowledge

Skilled programmers use loops and repetition to make programs more efficient and avoid repeating the same code. They can choose, combine and modify different types of loops to create specific outcomes. Programmers test, evaluate and refine their algorithms to solve problems and make their programs work.



Y4 Computing – Repetition in Games

Key Concept – Programming



<u>Key Knowledge</u>		<u>Key Vocabulary</u>	
How can we use loops to repeat instructions in a program? A count-controlled loop repeats a set number of times. We can follow instructions to predict that will happen.		programming	 creating instructions that tells a computer what to do
What are the different types of loops and when should we use them? In programming, loops repeat instructions to make actions happen again. Some programs can use more than one loop at the same time.		loop	 set of instructions that repeats in a program
How can we use loops together to create a program? A program can use two or more loops at the same time to repeat actions. We can test the loops and make changes to help the program work correctly.		code	 instructions written to make a computer program work
How can we change an infinite loop to create a different outcome? An infinite loop repeats instructions until the program is stopped. We can change parts of a loop or reuse code with different sprites to make new actions happen.		repeat	 to make an instruction or action happen again
How can we design a project that uses repetition effectively? Repetition means using loops to make instructions happen more than once. Programmers can reuse useful parts of existing code to help create their own programs.		sprite	 object or character on screen that can be controlled using a code
How can we create and improve a project using repetition? A project can be created by following a design and using repetition to repeat actions. Programmers can improve their algorithm and evaluate their work to make the program better.			



Y4 Computing – Repetition in Shapes

Key Concept – Programming



Essential Knowledge

How do you programme a Screen Turtle?

Computers follow instructions exactly as they are written. Even a small mistake can change what the program does. Careful coding helps programs produce the correct result.

How do you programme letters?

Text-based programming uses typed commands instead of blocks. Programmers must write instructions carefully using the correct words and symbols. The computer follows the written code precisely.

What are patterns and repetitions?

A repeat loop carries out the same instructions several times. This reduces the amount of code needed and makes programs easier to read. Loops help programmers solve problems efficiently.

How do you use loops to create shapes?

Changing the number of repeats changes how many times instructions are carried out. Small changes to a loop can create different shapes or patterns. Testing helps programmers check their results.

Why is it important to break down codes?

Large problems are easier to solve when divided into smaller parts. Each step can be planned before writing the code. This approach helps create accurate and organised programs.

How do you create a programme with a count-controlled loop?

Using count-controlled loops removes unnecessary repeated instructions. Efficient programs are easier to understand, edit and debug. Programmers use repetition to solve many different types of problems.

Aspirational Knowledge

Programmers use loops to make games, apps, animations and to control robots and traffic lights. Understanding how to spot patterns and turn them into code helps people solve problems efficiently and create programs that could be used in the real world. These skills are used by people who design video games, build technology for space exploration and develop software that millions of people use every day.

Key Vocabulary

program	a complete set of instructions that tells a computer what to do to accomplish a task
loop	a control structure that repeats a block of code while a condition is true
command	a single instruction given to a computer or program to perform a specific action
code	the actual written instructions that make up a program
value	a piece of data stored or used by a program



Y4 Computing – Repetition in Shapes

Key Concept – Programming



Key Knowledge

How do you programme a Screen Turtle?

Computers follow instructions exactly as they are written. Even a small mistake can change what the program does.

How do you programme letters?

Text-based programming uses typed commands instead of blocks. Programmers must write instructions carefully using the correct words and symbols.

What are patterns and repetitions?

A repeat loop carries out the same instructions several times. This reduces the amount of code needed and makes programs easier to read.

How do you use loops to create shapes?

Changing the number of repeats changes how many times instructions are carried out. Small changes to a loop can create different shapes or patterns.

Why is it important to break down codes?

Large problems are easier to solve when divided into smaller parts. Each step can be planned before writing the code. This approach helps create organised programs.

How can you create a programme with a loop?

Using loops removes unnecessary repeated instructions. Programmers use repetition to solve many different types of problems.

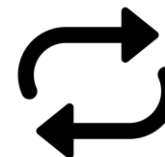
Key Vocabulary

program



a set of instructions that tells a computer what to do

loop



when a computer does the same thing again and again

command



a short instruction that tells the computer to do something

code



special words we use to talk to computers

value



a piece of information, like a number or a word



Y4 Computing – The Internet

Key Concept – Computing Systems and Networks



Essential Knowledge

How do networks physically connect to other networks?

Small networks can be linked together to create much larger networks. These connections allow computers to communicate over long distances. Together, they form the internet.

What makes up the internet?

The internet is made of many connected networks and devices. Information travels between them so people can communicate and share data. No single computer controls the entire internet.

How can websites be shared via the World Wide Web (WWW)?

Websites are stored on computers called web servers. The World Wide Web allows people to find and view these websites through a web browser. Each website has its own address.

Where does the information on the World Wide Web come from?

People create and publish websites for others to use. New content is added every day, making the web constantly change. The internet allows this information to be shared quickly around the world.

How is the content of the WWW is created by people?

Anyone with the right tools can create and publish a website. People share information, ideas and services for many different reasons. This means websites can have different purposes and audiences.

How do we know if something we read online is trustworthy?

Not all information on the internet is correct or reliable. It is important to check who created the information and whether it is supported by other trusted sources. Thinking critically helps us stay safe and well informed online.

Aspirational Knowledge

The internet is a global network made up of many interconnected networks that link computers and digital devices across the world. The content on websites is protected by copyright, which gives ownership rights to the person who created it. Understanding how networks connect, how websites are hosted and accessed, and how to stay safe and respectful online is essential for confident and secure internet use.

Key Vocabulary

network	a group of computers connected to share information
internet	a network that connects computers worldwide to share information
website	a collection of web pages accessed on the internet
router	a device that sends data between networks and devices
server	a computer that stores and provides data to other computers



Y4 Computing – The Internet

Key Concept – Computing Systems and Networks



Key Knowledge

How do networks connect to other networks?

Small networks can be linked together to create much larger networks. These connections allow computers to communicate over long distances. Together, they form the internet.

What makes up the internet?

The internet is made of many connected networks and devices. Information travels between them so people can communicate and share data. No single computer controls the entire internet.

How can websites be shared via the World Wide Web (WWW)?

Websites are stored on computers called web servers. The World Wide Web allows people to find and view these websites through a web browser. Each website has its own address.

Where does the information on the World Wide Web come from?

People create and publish websites for others to use. New content is added every day, making the web constantly change. The internet allows this information to be shared quickly around the world.

How is the content of the WWW is created by people?

Anyone with the right tools can create and publish a website. People share information, ideas and services for many different reasons. This means websites can have different purposes and audiences.

How can we tell if information we find online is true or false?

Not all information on the internet is correct or reliable. It is important to check who created the information and whether it is supported by other trusted sources. Thinking critically helps us stay safe and well informed online.

Key Vocabulary

network



a group of computers connected to share information

internet



a network that connects computers worldwide to share information

website



a collection of web pages accessed on the internet

router



a device that sends data between networks and devices

server



a computer that stores and provides data to other computers