

iTech

Knowledge Organisers

iTech: rTech EYFS

Course Evaluation Criteria

Reception: We would expect all children in reception to attain statements 1-5. If statements 6 or 7 are attained, those pupils are exceeding expectations.

- 1) Pupils know the difference between a photo and a video.
- 2) Pupils can vocally convey extreme emotions that may be found in a film.
- 3) Pupils know what a setting is in film.
- 4) Pupils understand the word plot means the story of a book, video or film.
- 5) Pupils can draw their own character.
- 6) Pupils can the three sections of a plot.
- 7) Pupils can create a character, setting and record sound as part of their plot.

Course Overview

Course overview: rTech is an introduction to the technology used to create film. Pupils will learn how to plot a film and create it using the app 'Toontastic'. Working in groups, pupils will work towards plotting a story arc consisting of three parts. Groups will have to create and design scenes and characters to complete their storylines.

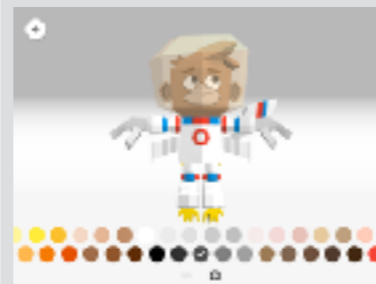
Learning objective for the course: Pupils will learn the difference between Video and Photography. They will learn how to create a plot, what a good plot is made up of and how to use a character and a setting to bring the plot to life.

Toontastic



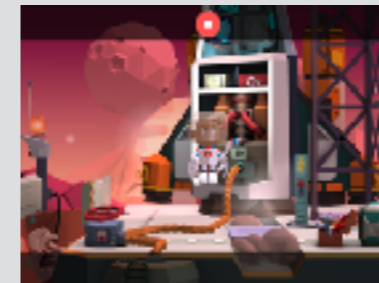
View the plot as three sections

Choose a setting for the story



Choose your characters

Record your scene with movement



Apps Used



Toontastic



Camera

PixieDust



Vocabulary Bank

Plot

The main points of a story, divided into different parts, e.g., Beginning, Middle, End.

Character

A person portrayed in the story.

Setting

The place the story is set in.

Design

To create your own version of a character or setting.

Video

Taking videos with movement shows you understand the difference between a photo and a video.

iTech: iInvent Lite Level 1

Course Evaluation Criteria

Y1: We would expect all children in Y1 to attain statements 1-4. If any of statements 5-10 are attained, those pupils are exceeding expectations.
Y2: We would expect all children in Y2 to attain statements 1-8. If statements 9 or 10 are attained, those pupils are exceeding expectations.

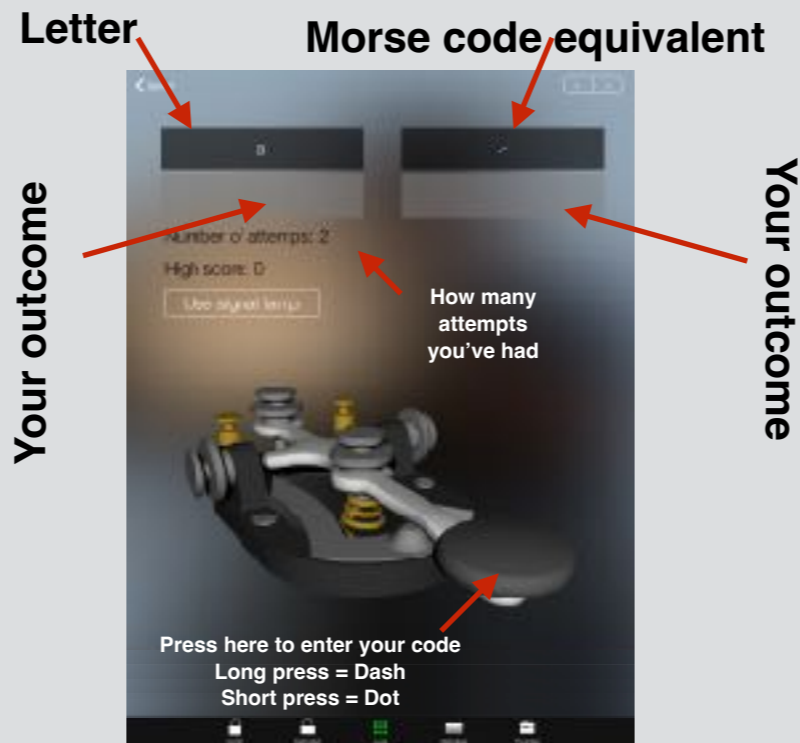
- 1) Pupils can spot visual differences between photos taken today and in the 1800s.
- 2) Pupils know that morse code is made from dots and dashes.
- 3) Pupils understand how telephones have evolved since they were first invented.
- 4) Pupils understand that television was originally in black and white, then moved to colour afterwards.
- 5) Pupils know that the first computers could only solve math problems and break codes.
- 6) Pupils can explain how to safely use technology in a classroom.
- 7) Pupils can give instructions on how to operate a piece of technology they have learnt about.
- 8) Pupils can give an advantage or disadvantage about the popularity of smartphones.
- 9) Pupils know the name of at least one inventor they have learnt about.
- 10) Pupils understand how a phonograph records and plays back sound.

Course Overview

Course overview: iInvent focuses on how technology has progressed through the 19th and 21st centuries. This course aims to give pupils a better understanding of the technology they use every day, both at home and in school. This course will cover how to use technology safely and responsibly, as well as how to explain their uses to others.

Learning Outcome for the course: During iInvent pupils will learn about six different types of technology which will be: camera, phonograph, telegraph, television, telephone and the computer. Pupils will learn about the history of the invention and how it has changed from the date of its invention to now, both in appearance and in its capabilities. Pupils will also look at why some of these inventions have become obsolete. Pupils will look at the advantages each invention brought at the time of its invention, and up to the present if it is still used.

Morse Code



Apps used



Morse Code



Inventioneers

Strip Design



Camera



iMovie

Vocabulary Bank

Technology

Something invented to solve a problem.

Camera

Invented in 1816 to capture images.

Phonograph

The first way to record your voice.

Morse code

Invented in 1844 - uses dots and dashes to send quick messages.

Telegraph

Invented in 1840 to send messages along a wire.

Television

Invented in 1926 to view shows.

Computer

Invented in 1830 - an electronic device that uses logic.

ENIAC

Electronic Numerical Integrator & Computer, the first computer.

Telephone

Invented in 1876 to send voices and speak to people far away.

Operator

Someone who sends or receives morse code/ telegrams.

iTech: iFilm Lite Level 2

Course Evaluation Criteria

Y2: We would expect all children in Y2 to attain statements 1-5. If statements 6 or 7 are attained, those pupils are exceeding expectations.

- 1) Pupils know all stories consist of a beginning, middle and an end.
- 2) Pupils can name three camera angles.
- 3) Pupils understand why a storyboard is used before filming.
- 4) Pupils will be able to plan their own short storyline.
- 5) Pupils know what a theme is in regards to film.
- 6) Pupils can name parts of a 5-point story arc.
- 7) Pupils are able to record their voice into their film, while keeping to a clear story.

Course Overview

Course overview: Pupils will focus specifically on the technology that surrounds the film industry and is used to create both animated and live-action films. Pupils will use the app Toontastic to digitally plan and create an animated film and Scratch Jr as a method of storyboarding, before filming a live-action trailer using the app iMovie.

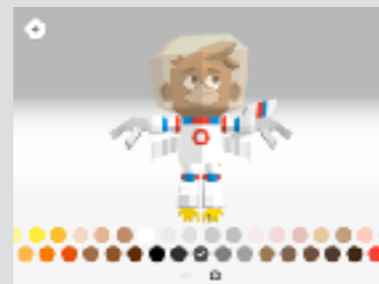
Learning Outcome for the course: Throughout the course pupils will learn about the equipment used on a film set and begin to recognise their uses on sight. They will learn about different camera angles and the names for the shots they take. Pupils will use Scratch Jr as a method of storyboarding as well as learning how to use two new apps within this course, Toontastic and iMovie. While using those two apps pupils will put storyline and arc knowledge together with their new camera angles to create interesting cartoons and movie trailers.

Toontastic



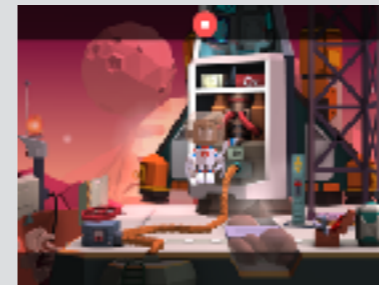
View the plot as three sections

Choose a setting for the story



Design your characters

Record your scene with movement and sounds



Apps Used



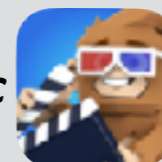
Strip Design

Camera



iMovie

Toontastic



Vocabulary Bank

Film

A story or event recorded on camera.

Camera angles

The placement of your camera to capture someone, something or an object.

Long shot

A camera shot involving the whole person.

Medium shot

A camera shot involving half of the person.

Close-up shot

A camera shot involving just a specific part of a person, animal or object.

3-point arc

Beginning, Middle & End.

Landscape

A camera shot that captures scenery or background.

Group shot

A camera shot including multiple people.

Arc

The way a plot is made.

Plot

What happens in the story.

Storyboard

A map of what is going to happen. Can include pictures, lines and description.

5-point arc

Setup, Conflict, Challenge, Climax & Resolution.

iTech: iControl - Taught 2020 - 2021

Course Evaluation Criteria

Y3: We would expect all children in Y3 to attain statements 1-4. If any of statements 5-10 are attained, those pupils are exceeding expectations.

Y4: We would expect all children in Y4 to attain statements 1-5. If any of statements 6-10 are attained, those pupils are exceeding expectations.

Y5: We would expect all children in Y5 to attain statements 1-7. If any of statements 8-10 are attained, those pupils are exceeding expectations.

Y6: We would expect all children in Y6 to attain statements 1-8. If statements 9 or 10 are attained, those pupils are exceeding expectations.

- 1) Pupils can name industries where robotics have helped increase productivity.
- 2) Pupils know that Java and Blockly are programming languages.
- 3) Pupils can look at simple code and explain what it will do.
- 4) Pupils are able to code a simple presentation guide path.
- 5) Pupils can identify errors in their code after it has failed.
- 6) Pupils are able to fix their code after it has failed without assistance.
- 7) Pupils can explain why certain robots have functions when given their job role.
- 8) Pupils know that pitch, roll and yaw are words that describe movement.
- 9) Pupils will be able to use conditionals as part of their code.
- 10) Pupils can define and use the speak function within their code.

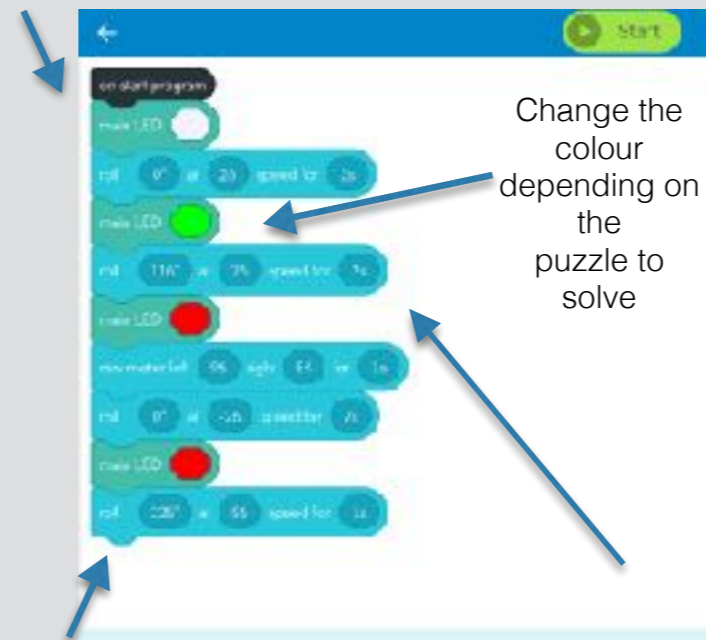
Course Overview

Course overview: Pupils will build upon their coding knowledge gained during Level 1 iProgram and learn how to control both simulated and external systems. Pupils will use computational thinking to plan, create and write a program to run an external device. This will involve writing code within the language Blockly, stringing code together to make algorithms, solving and debugging any issues, and coding to achieve the goals set out by the instructor. At the end of the half term pupils will have the opportunity to test their code on a physical object.

Learning outcome for the course: During this course pupils will learn to code an external device. They will have to learn that external factors can affect how their program runs, e.g., uneven flooring and compensate for this in their programming. Pupils will learn how robotics are used within industry and design a robot to fit certain specifications. Pupils must learn to use conditionals to be able to complete a physical maze built within the classroom and designed by the instructor. As they are coding on an external device, pupils will also have to debug in real time and fix their code during their race time if it doesn't work. During the course pupils will learn about how the Sphero moves and begin to understand Pitch, Yaw and Roll axes.

Sphero

Conditional

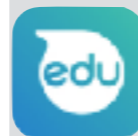


Change the colour depending on the puzzle to solve

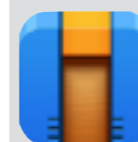
Control the Direction, Speed and Duration of each movement

Debug the instructions and put them in the right order

Apps Used



SpheroEdu



Cargo Bot

A.L.E.X.



Vocabulary Bank

Robotics

The study of robots and how they work.

Robotics Industry

The research and production of robots.

External Device

A separate device used to control another.

Pitch

Refers to the up and down motion of travel. Like nodding your head.

Yaw

Refers to how far left or right the robot is facing. Like shaking your head.

Roll

Refers to the rotation direction of the robot. Like putting an ear on your shoulder.

Efficiency

Achieving a goal with as little input as possible. Can refer to the power of the robot, or the way we set out our instructions.

Gyroscope

Used by the robot to determine which direction it's facing.

Motor

Generates the power for the robot to move.

Ballast

A small weight used by the robot to determine which direction is down.

Accelerate

To begin to move more quickly.

Microprocessor

A small type of computer used in robotics.

Conditionals

An 'If' or 'When' statement. Determines when the next set of instructions can be started.

Interpret

The way the robot understands our instructions. If our instructions are not clear, the robot may do something unexpected.

iTech: iCSI - Evidence Trace - Taught 2021 - 2022

Course Evaluation Criteria

Y3: We would expect all children in Y3 to attain statements 1-4. If any of statements 5-8 are attained, those pupils are exceeding expectations.

Y4: We would expect all children in Y4 to attain statements 1-5. If any of statements 6-8 are attained, those pupils are exceeding expectations.

Y5: We would expect all children in Y5 to attain statements 1-6. If any of statements 7-8 are attained, those pupils are exceeding expectations.

Y6: We would expect all children in Y6 to attain statements 1-7. If statement 8 is attained, those pupils are exceeding expectations.

- 1) Pupils can add additional cells to projects in Strip designer to get a desired layout.
- 2) Pupils know what a database is and why they are used.
- 3) Pupils know that filters aid in searching a database.
- 4) Pupils can create a digital mind map.
- 5) Pupils know how to make a keynote presentation.
- 6) Pupils can screenshot and copy across work from other apps into their keynote.
- 7) Pupils understand what an EvoFit is and how it's used.
- 8) Pupils understand associated memory.

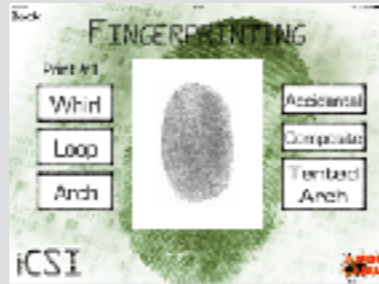
Course Overview

Course overview: iTech is all about exploring how technology can be used in the wider world. Over this course, pupils will look at how technology is used by the police and associated organisations, like CSI teams. Pupils will learn what skills and characteristics benefit this line of work and examine the skills they use every day in school to see if they are transferable.

During iCSI, pupils will solve a crime using technology available to them. Pupils will take fingerprints, create photo fits, crack codes and hack digital devices. They will also use a mind mapping tool to store all their data digitally, this will be added to as more information comes to light. Pupils will need to be thorough whilst they carry out their investigation. Science and Maths skills are put to the test in a real-life scenario...who will solve the crime?

Learning outcome for the course: Throughout iTech Level 2 iCSI pupils will learn how technology is used within police departments and links teams to help them solve crimes. Pupils will know how fingerprints are taken, and how they can be used. They will take samples of their own fingerprints and analyse a fingerprint database to see if they can match their prints. Pupils will learn about evidence logging databases, Photo Fit IDs, GPS tags and how to present information.

iCSI App



The fingerprinting feature helps us identify what type of fingerprints there are.

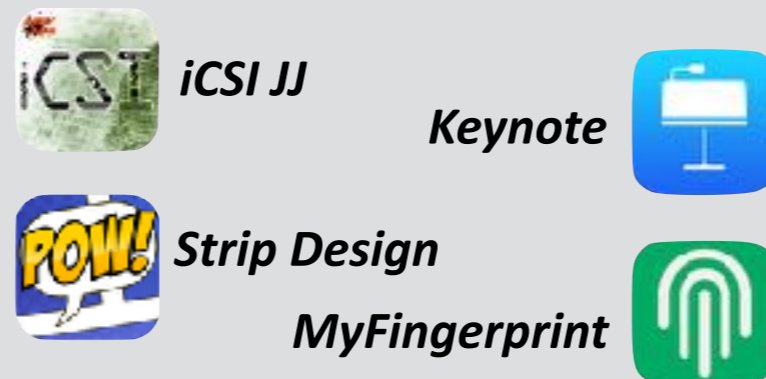
The phone evidence feature allows us access to the victims phone data in the case.



The access terminal feature allows us access to the victims hard drive data and emails in the case.



Apps Used



Vocabulary Bank

CSI

CSI stands for crime scene investigation.

Database

A database is where lots of information is stored online.

EvoFit

An EvoFit is a computer generated image of a suspect.

Eyewitness

An eyewitness is someone who has seen the crime and can report their testimony to police.

Reconstruction

A reconstruction is a fake version of a real case.

Reliability

Reliability means how much we can trust a source.

Patent Fingerprint

A Patent fingerprint is one that can be seen by the naked eye.

Latent Fingerprint

A latent fingerprint needs to be uncovered using dusting or UV light.

Evidence

Evidence gives us the facts of the crime.

Mind Map

A mind map is a collection of information gathered together.

iTech: iCSI - Cold Case

Course Evaluation Criteria

Y3: We would expect all children in Y3 to attain statements 1-4. If any of statements 5-8 are attained, those pupils are exceeding expectations.

Y4: We would expect all children in Y4 to attain statements 1-5. If any of statements 6-8 are attained, those pupils are exceeding expectations.

Y5: We would expect all children in Y5 to attain statements 1-6. If any of statements 7-8 are attained, those pupils are exceeding expectations.

Y6: We would expect all children in Y6 to attain statements 1-7. If statement 8 is attained, those pupils are exceeding expectations.

- 1) Pupils know what defines a cold case.
- 2) Pupils know what skills are needed to become a CSI investigator.
- 3) Pupils understand what cookies are and how they are used.
- 4) Pupils can create a digital mind map.
- 5) Pupils understand the difference between digital and physical evidence.
- 6) Pupils understand what GPS stands for and how it works.
- 7) Pupils can explain the safest ways to store passwords.
- 8) Pupils can choose appropriate data to support an argument.

Course Overview

Course overview: iTech is all about exploring how technology can be used in the wider world. Over this course, pupils will look at how technology is used in positive, negative and sometimes illegal ways. Pupils learn about the people who stop cybercrime and what skills / characteristics benefit this line of work. They will examine the skills they use every day in school to see if they are transferable. During iCSI Cold Case the pupils will be introduced to a bank robbery with link to cybercrime. The case presented to them has heavy ties with internet safety and will draw attention to what they give away about themselves every day.

Learning outcome for the course: Throughout iTech Level 3 iCSI pupils will learn how technology is used within the police, cyber units and other specialist departments to help them solve crimes. Pupils will understand the collaboration within technological departments is key. Pupils will understand how Cookies are used, what an IP address is, GPS tracking, click bait, phishing emails/pop ups and facial recognition software. With strong ties to the Teaching online safety in schools (Jan 2023) non-statutory guidance, pupils will leave this course with a strong understanding of how what they do online can directly affect them and their digital safety.

iCSI App



The GPS feature allows us to input coordinates of significant locations relating to the crime.

The mind-map feature allows us to keep track of both the physical and digital evidence.



The judgement feature allows us to select our suspect and explain the evidence that supports our claim.

Vocabulary Bank

CSI

CSI stands for crime scene investigation.

Cold Case

A cold case is an unsolved criminal investigation.

GPS

GPS stands for Global Positioning System. Satellites send messages to digital devices to locate them.

Cyber Security

Cyber Security is the role protection on devices or networks to prevent cyber attacks.

Phishing

Phishing emails are emails designed to 'bait' the reader into clicking a link that may compromise them.

Cyber Criminal

Someone who commits crimes relating to digital devices or networks.

Physical Evidence

Physical evidence is evidence we can physically see.

Digital Evidence

Digital evidence is evidence that is on digital devices or networks.

Password

A password is a word that is used as a digital key to restrict digital access.

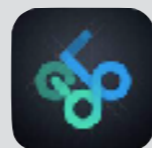
Cookies

A cookie is a file that contains information on where in the world you were when you visited the site and what you look at while you were on it.

Apps Used



iCSI JJ



Logo Foundry

iTech: iCSI - Cyber Security - In Progress