



By the end of Reception, pupils will know and be able to:

- recognise that a range of technology is used in places such as homes and schools
- select and use technology for particular purposes.

By the end of year 1 pupils will know and be able to:

Autumn

Logging On and Paint

- use technology purposefully to create, organise, store, manipulate and retrieve digital content in the context of using a computer program to make a painting.
 - select a colour, paint with the selected colour, change to a different colour.
 - select a brush, paint with the selected brush, change to a different brush.
 - use the shape tools to create a shape, format the colour of a shape, fill an area with a colour.
 - undo an action, undo several actions, redo an action that has been undone.
 - select the text tool.
 - write a word or sentence.
 - format the colour and font of the text.
 - use different brushes.
 - use different colours.
 - use shapes and the fill tool.
 - add and format text.
 - use undo to correct mistakes.

Beebots and Beebot apps

- recognise how to organise algorithms (instructions) to reach a specified outcome (dancing Bee Bots)
 - write an algorithm.
 - program a Beebot,
 - use instructions to make an algorithm that makes my Bee Bot move
 - explain mistakes in my algorithm
 - identify solutions to correct my algorithm

Spring

Scratch Jr

- learn all the features of Scratch Jr and the different things you can create
- recognise the features of Scratch Jr and their potential to create
- use the features of Scratch Jr to create
- describe the features of Scratch Jr and their ability to create
- explain the features of Scratch Jr and their ability to create

Navigating Websites

- navigate websites
- have control using a mouse or touchpad
- recognise key features of a website e.g. home page
- give opinions on positive and negatives of different websites
- use a mouse
- explain where the home button is on a website
- explore different features of a website

Summer

Computers All Around Us

- give a simple definition of what a computer is.
- sort computers from other machines
- recognise the different types of computers at school and help to make a record of how many computers are in the building.
- understand that computers are a huge part of our lives now.
- know various different uses of computers in school, at home and at work.
- recognise icons on the computer screen which help us to do things.
- understand a basic idea of what the internet is.
- know that our devices need to connect to the internet so that we can use it.
- complete a simple computer quiz.
- understand that we need to be careful about how we behave and what information we share online.

E-Book creation

- design and create an ebook, using pictures, writing and sound.
- share their writing and ideas with the rest of the class.
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E-Safety

Know how to be safe online

Know how to be safe online with adverts

Know how to be safe online with pop ups

Know how to be safe online with chat facility

By the end of year 2 pupils will know and be able to:

Autumn

Logging On and Paint

- use a computer software program to recreate art.
- change the colour and size of the dots.
- insert lines that are different sizes into my work.
- fill areas with different colours.
- draw lines and fill spaces with colour to recreate a piece of art.
- produce at least 3 different shapes using a computer program.
- rotate, resize and colour shapes.
- arrange different shapes to recreate a piece of art.
- produce lighter and darker shades of a colour.
- match colours to particular moods and emotions.
- make two versions of a piece of art using different shades.
- combine the styles of at least two artists to create my own artwork.
- recall and use computer skills to produce my own piece of artwork.
- review the work of others and offer suggestions for improvement.

Beebots

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- recognise algorithms and creating and debugging
- identify algorithms and creating and debugging
- describe and explain algorithms and creating and debugging

Spring

Creating Animation

- explore puppet pals
- create a storyboard
- retell a story
- create an animation

Computer Explorers

- identify a variety of ways of doing research on the internet..
- find a variety of information and present it in PicCollage.
- identify and utilise ways of finding further information on the internet.
- use commands in Google Maps
- find a variety of different travel times and locations in Google Maps
- compare different travel times to locations, using Google Maps.
- research information using google.
- present the information that they find in a digital mind map.
- identify ways in which they can ensure the information they have found is trustworthy.
- create a simple online quiz
- use a mind map program on a website
- reflect on ways that they created a more user friendly quiz.
- experience a google expedition to another city.
- create their own expedition using various google tools.
- identify how tools like these can help people in the workplace, in education or at home.
- take part in an exploratory geocache treasure hunt/ Pokémon Go adventure.
- use directions and GPS to help them solve the treasure hunt clues.
- create a Pokémon go game themselves, or create a treasure hunt for their friends around school.

Summer

Coding Apps

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- create algorithms to solve problems
- use IF statements
- create algorithms to move around lightbot
- use repeat loops (Procedure 1)
- create algorithms to solve problems.
- put a series of instructions together to create a program.

Scratch Jnr 2

- explain that coding means giving instructions to a computer to make things happen.
- open Scratch Jr on an iPad / tablet and add and delete characters and backgrounds.
- make a character move by using a start block and movement blocks.
- make characters move at different speeds
- code a program which makes the sun set and disappear.
- add a background to my program and change scenes when the sun has set.
- add text to the background of a program.
- use repeat blocks to make characters do actions a few times.
- use sound a movement code blocks to make characters look like they are dancing.
- use a bump block to make another character move.
- use repeat end blocks to make a program keep on working unless I press stop
- use speech code blocks to make different characters say different things.
- add message blocks so that characters speak and reply to each other

E-Safety

Finding Treasure Safely

- apply their awareness and developing knowledge of safety and rules and healthy lifestyle skills to on and offline situations.
- use appropriate vocabulary and clear sentences to write their own account.

Design and Fill a Treasure Chest

- show respect for others both on and offline.
- exhibit a growing awareness through their interactions both on and offline of the behaviours which lead to positive relationships and mutual respect.
- appreciate the range of ICT available in and outside of school and will use it responsibly.
- work independently or cooperatively considering a variety of factors to produce a model for a specific purpose.

Song and Dance

- internalise the message of safer internet use and its applications.
- express their ideas and emotions through singing and dancing.
- perform to an audience.

Internet Safety Poster

- recognise and manage risk and have the ability to make safer choices.
- communicate any concerns they may have while using the internet to a responsible adult.
- produce a list of clear instructions supported by pictures and illustrations.

By the end of year 3 pupils will know and be able to:

Autumn

Introduction to Scratch

- add and delete sprites and backgrounds from the library.
- paint my own sprites and backgrounds.
- grow and shrink sprites.
- rename sprites.
- make each sprite move when a key is pressed.
- make sprites bounce off the edge of the screen.
- use forever blocks to keep sprites moving once a button has been pressed.
- use the INFORMATION feature of sprites to set them off at different angles.
- use the right mouse button to duplicate code.
- use the INFORMATION feature of each sprite to change the speed at which they move.
- use a motion block to make the shark sprite chase another sprite around the screen.
- find a way to make the shark stay a little way behind the sprite it is chasing: so it looks like it is following the sprite.
- add PEN UP, PEN DOWN AND CLEAR script blocks and make a different key make each one happen.
- set the pen to a larger size and a different colour.
- add a sequence of scripts which make a sprite draw a 4 sided shape when its key is pressed.
- use a LOOKS block to make the shark sprite change its costume to the closed mouth costume when it touches the sprite which it is chasing.
- make the shark sprite change back to its original costume when it starts chasing the other sprite again.
- PAINT a new sprite and add text to write instructions.
- make a second button costume for my sprite and change the costume to the instructions when it is clicked.
- make it change back again after 10 seconds.

Coding

- learn to drag and drop

Spring

Introduction to Kudo

- experiment with and explore a new piece of software to make a landscape and add objects and characters to it.
- use a story board to plan ideas for a world or game I would like to create.
- code objects to do a variety of different actions.
- create a world with a mixture of different landscapes.
- add objects, creatures and robots to my world.
- code objects to move.
- code objects and characters to react to each other when they come close to one another.

E Book Creation

- create a front cover for my book
- use PowerPoint to insert text and images.
- create an eBook
- add writing and images to PowerPoint.
- add animations to a PowerPoint
- explain what a Slide Show is.
- give constructive feedback.

Summer

Pivot animator

- understand that animations are produced by viewing a sequence of frames in order and that the brain perceives this as a moving image.
- become acquainted with Pivot Stick Figure Animator and to produce a first animation
- understand that animations are smoother if they have more frames with smaller movements
- learn how to add and animate multiple stick men
- learn how to import a background and to make the character appear to interact with it
- learn how to add and animate different figure types (including animals)
- tell a story through their animation
- learn how to produce and animate their own stick figure
- learn how to create an image in one program and use it as a background in Pivot Stick Figure Animator
- complete an assessment task within set parameters

Scratch – Music

- spot opportunities for repeat loops.
- add sprites from the MUSIC category.
- add musical notes to sprites.
- choose a set of notes to make a tune for each instrument sprite.
- simplify my code by using repeat loops.
- use the PLAY NOTE code block to make a tune.
- use different beat lengths to change my tune.
- use repeat loops to make my tunes longer.
- explore the notes in the PLAY NOTE blocks to make the tune Frere Jacques using a list of notes.
- change the lengths of the notes to make the tune sound right.
- look for patterns in my notes and use repeat loops to use less code.
- explore the notes in the PLAY NOTE blocks to make the tune Frere Jacques using a list of notes.
- change the lengths of the notes to make the tune sound right.
- look for patterns in my notes and use repeat loops to use less code.
- use repeat loops to make a few instrument sprites play a tune when the GREEN FLAG is pressed.

E-Safety

FullFilm video of safety online

By the end of year 4 pupils will know and be able to:

Autumn

Scratch Drawing Project

- recognise the pen tool
- explore different drawing algorithms
- recognise that reordering an algorithm changes its outcome.
- understand how to clear the screen so that the instruction is in an algorithm
- look at the rule in which to create regular shapes
- put multiple shapes together in one algorithm to create a picture.
- instruct a sprite to move and draw a picture.

Creating Art Using MS Word

- INSERT, RESIZE, ROTATE, COPY AND PASTE using the right mouse button and COLOUR shapes using MS Word.
- set the paper size, orientation and page margins.
- insert, resize and copy / paste shapes to begin a picture.
- add a triangle, colour it, give it soft edges and reflect it.
- insert a star shape, give it a glow effect and shrink it.
- use the right mouse button to copy and paste my objects and then resize them, if needed.
- add hills and trees using the FREEFORM drawing tool.
- make a longboat bow using the FREEFORM drawing tool.
- flip my bow horizontally to make the stern of my longboat.
- use the CTRL key and mouse to select a group of objects.
- use the Group option to treat a group of objects as one object.
- finish my picture using all the skills demonstrated over the half term.

Spring

Network explores

- give a simple definition of what a computer network is.
- name different parts of a network and understand what jobs they perform in the running of a big computer network.
- understand that the internet is simply a network of networks which connects computers together all around the world.
- understand that our home and school networks require a router to join them to the internet.
- understand that data on the internet will always try to travel along the fastest route and that the fastest route isn't always the shortest route.
- complete short knowledge quiz about this unit. Use for Assessment of Learning and understanding

Coding with Kudo

- sketch out a label a basic plan for a maze runner game.
- plan the aim and way to win the game.
- add walls to a terrain and set their heights.
- use a variety of brush sizes and textures to create an interesting world
- add objects / characters to my world.
- change object settings, such as size, height and speed.
- code a mini game on Kodu using a variety of coding options.
- write a clear set of helpful instructions.
- finish off the look of my game – tidying up the landscape and features to make it look as professional as possible.
- add improvements to my game

Summer

Scratch Chatbots

- give simple definitions for Artificial Intelligence and chatbots.
- consider some of the pros and cons of Artificial Intelligence and chatbots.
- make a flow chart algorithm which can be used to code a chatbot.
- add a backdrop and at least one sprite to be used in a quiz.
- use SAY blocks to introduce and explain a quiz.
- code a sprite to ask the player's name and use it in a reply.
- make a sequence of code which:
 - Asks a question.
 - Says "well done" before moving on to the next question if the correct answer is given.
 - Say "try again" and repeats the question if they give the wrong answer.
- duplicate working code and adjust it to code new questions and answers.
- test and debug my duplicated code.
- change my sprite's costumes and the backdrop when a question is answered correctly or incorrectly and then change them back again afterwards.

I-Movie project

- describe how to use the internet safely, respectfully and responsibly.
- explain what copyright is.
- plan a film on e-safety
- create a storyboard
- write a film script
- use an iPad to film scenes from a film.
- edit my film
- create a piece of music for a soundtrack.

E-Safety

An internet that we trust

- describe and recognise some methods used to encourage people to buy things online.
- give examples of when and why it is important to understand the motive behind online content.
- use questions to help decide what can and cannot be trusted online.

By the end of year 5 pupils will know and be able to:

Autumn

Scratch Paddle Board Game

- change the background in scratch
- programme my ball to move continuously
- programme my paddle to move with the mouse.
- create an algorithm to set the ball bouncing off the paddle
- programme the ball to stop
- add scores to my game
- create variable to my game

Sketch Up

- try out new software and try out the tool bars.
- use the tools in sketch u to create a house.
- use sketch up to create more detailed houses.
- use a tape measure tool to create more accurate drawings
- design the inside of a house.
- design my own house or interior.

Spring

Cloud Computing

- explain in simple terms what cloud computing is and to be able to give at least one good and bad side of cloud computing.
- change the paper size to A3.
- insert shapes and text boxes and resize them.
- insert text into shapes.
- change font styles, colours and sizes.
- colour fill and colour the outlines of text boxes and shapes.
- use the Wrap Text option to place shapes in front of text so that shapes can “float on top of the page” and not move with the text on the page.
- use the Undo button
- create a poster about cloud computing using shapes and text boxes.
- upload your own poster to a Cloud Storage account.
- create a QR code for your poster.

Kudo Racing Game

- program a character in Kodu
- describe what the different tools do.
- use trial and error methods to solve fortress defence
- design a race track
- program a character to move.
- program a character to win.
- personalise my game
- add additional challenges, objects and obstacles to my game
- edit world settings to create more interest.
- add computerised opponents
- make modifications and improve my game
- give constructive feedback and opinions.

Summer

Databases

- identify cells using rows and columns.
- type text and numbers into cells.
- use the SUM function to add numbers together.
- use the SUM function to perform further calculations.
- use the fill tool to copy formulas correctly.
- insert a bar or column graph.
- format aspects of a bar or column graph.
- sort data appropriately.
- use formulas to calculate totals and averages.
- sort data by different criteria.
- add extra data, including inserting rows or columns.
- edit existing data and be aware of the results.
- create a formula to solve a specific calculation (using figures and cell references).
- replicate formulas over several cells.
- check calculations for errors.
- interpret data and make comparisons.
- select and add items from a given list.
- calculate totals based on price and quantity of items.
- calculate a running total.
- calculate an amount remaining from a budget.
- plan the requirements for a new spreadsheet.
- make decisions on formatting to improve the appearance.
- think of original ideas for using a spreadsheet.
- create a range of suitable formulas for a purpose.

Scratch Lapse Time Animation

- use the GLIDE TO command to make sprites move around the stage.
- make sprites glide at different speeds.
- add turns to the glide blocks to make the sprite face in different directions
- use BROADCAST MESSAGE and RECEIVE MESSAGE coding blocks to make a chain of events happen.
- use multiple COSTUME changes to create stop motion animation.
- add backgrounds and create / add sprites for my Scratch animation.
- begin to code my animated scene I can add backgrounds and create / add sprites for my Scratch animation.
- begin to code my animated scene
- code my flower sprites to grow.
- add reset keys to all my sprites.
- use the DUPLICATE function to copy one finished sprite.
- code my animated scene.
- use CHANGE COSTUME, GLIDE TO and BROADCAST MESSAGES in my scene.

E-Safety

An internet that we trust

- describe and recognise some methods used to encourage people to buy things online.
- give examples of when and why it is important to understand the motive behind online content.
- use questions to help decide what can and cannot be trusted online.

By the end of year 6 pupils will know and be able to:

Autumn

Scratch Pacman Game

- create a background
- program my ball to move
- create a rule to prevent a ball moving through walls
- explain what the coordinates mean in scratch
- use variables to create a score
- explain what a variable is.
- use a loop to make something work continuously
- explain how to make points decrease
- use backgrounds to create additional levels.
- explain what needs changing to work on a second level

Creating an advert or e-safety

- think critically about how video is used to promote a cause
- storyboard an effective advert for a cause
- work collaboratively to shoot suitable original footage and source additional content, acknowledging intellectual property rights
- work collaboratively to edit the assembled content to make an effective advert.
- recognise
- identify
- describe
- explain

Spring

Dragon's Den

- pitch for Dragon's den a game that you have designed
- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output.
- e logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.
- select, use and combine a variety of software (including internet services) on a range of digital services to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Summer

Social Media and E-Safety

- work with a group to make a definition of what social media is.
- work with a group to give opinions, backed by arguments to support or / and oppose social media.
- use the Internet to research information about social media.
- use key words to search for information and then check results for relevant information.
- set up a PowerPoint presentation – using a photo for a background, making a cover slide and choosing fonts and colours to goof effect.
- follow a series of challenges to present information in a PowerPoint presentation.
- upload my PowerPoint presentation to a cloud storage folder and create a QR code to share it with my parents / guardians.

Year Book Creation

- manage or contribute to large collaborative projects, facilitated using online tools
- write and review content
- source digital media while demonstrating safe, respectful and responsible use
- design and produce a high-quality print document.

E-Safety

Play Like Sam

- identify signs of manipulative, pressurising or threatening behaviour online.
- respond safely if they think someone is trying to manipulate, pressure or threaten them.
- understand their rights online, and respect those of others.
- take measures to control their privacy and digital footprint.
- get help from an appropriate source if they need it.