

The Computing Curriculum at Brownlow Fold

The Learning Challenge

The Learning Challenge concept is built around the principle of greater **learner involvement** in their work. It requires deep thinking and encourages learners to work using a question as the starting point. In designing the curriculum, teachers and learners are using a **prime learning challenge**, expressed as a question, as the starting point. Using the information gained from pre learning tasks and our school context, a series of **subsidiary challenges** are then planned. Each subsidiary learning challenge is also expressed as a question. Importantly, the learning challenges need to make sense to the learners and be something that is within their immediate understanding.

Within each Learning Challenge unit of work, we always include a 'Green for Growth Challenge.' These challenges are designed to enable pupils to work at greater depth within a particular unit. Some of the characteristics of a child who is working at greater depth might include:

- Working independently
- Applying what they have learned in one area of a subject to other areas
- Applying their knowledge consistently, confidently and fluently
- Being able to explain what they have been doing to others, including teaching other children what they have learned.

Pre-learning tasks to ensure that our pupils are directly involved in the planning process. Well planned pre-learning tasks to help bring out what our pupils already know; what misconceptions they may have and what really interests them. Our teachers then take account of the outcomes from pre-learning tasks to plan the subsidiary learning challenges for each major area of study.

Empowered Learners

By adopting the 'Empowering Learning' skills, we recognise the impact that personal skills can have on the academic success and well-being of our children. They play a vital role in developing the ability of learners to enjoy and reflect on their learning across the curriculum. The six areas for personal development; Self-Management, Effective Partnership, Resourceful Thinkers, Reflective Learners, Independent Enquirers and Team Workers; form what we class as personal skills which are worked upon throughout a child's time at Brownlow Fold Primary School.

Self-Manager

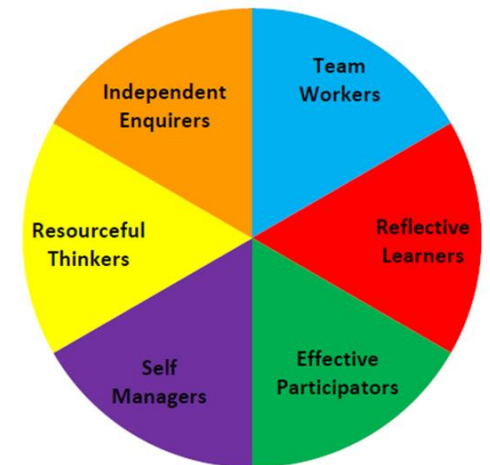
- Ability to organise themselves and work out goals and priorities
- Show personal responsibility, initiative, creativity and enterprise
- Anticipate, take and manage risks
- Commit themselves to learning and self-improvement
- Respond positively to change

Effective Participators

- Engage actively with issues that affect them and those around them.
- Play a full part in the life of the school
- Take responsible action to bring improvement for others as well as themselves
- Discuss issues of concern, seeking resolution
- Present a persuasive case for action
- Propose practical ways forward
- Try to influence others, negotiating and balancing diverse views

Resourceful Thinker

- Think creatively by generating and exploring relevant ideas, and making original connections
- Find links and see relationships



Reflective Learner	<ul style="list-style-type: none"> ▪ Explore and experiment with resources and materials ▪ Ask 'why', 'how' and 'what if' questions ▪ Apply imaginative thinking to solve a problem ▪ Try different ways to tackle a problem ▪ Work with others to find imaginative solutions and outcomes that are of value ▪ Evaluate their strengths and limitations as learners ▪ Review their work and act on outcomes ▪ Set themselves realistic goals and criteria for success ▪ Monitor their own performance and progress ▪ Invite feedback and deal positively with praise, setbacks and criticism. ▪ Make changes to improve their learning ▪ Communicate their learning in relevant ways to different audiences
Independent Enquirer	<ul style="list-style-type: none"> ▪ Gather, process and evaluate information in their investigations ▪ Plan what to do and how to go about it ▪ Draw conclusions and evaluate outcomes ▪ Take informed and well-reasoned decisions, recognising that other have different beliefs and attitudes ▪ Use range of techniques to collect and organise information
Team Worker	<ul style="list-style-type: none"> ▪ Work confidently with others, adapting to different contexts and taking responsibility for their own role ▪ Listen and take account of others' views ▪ Form collaborative relationships, resolving issues and reaching agreed outcomes ▪ Adapt behaviours to suit different roles and situations ▪ Show fairness and consideration towards others

Green for Growth Challenge

Can you create and perform a rap explaining how to use technology safely and responsibly?

Prime Learning Challenge

Year 4 Digital Citizenship: Online Safety

Can you use technology safely, respectfully and responsibly, and recognise what is acceptable and unacceptable behaviour?

Big Question

Small Questions

Which help to answer the big question.

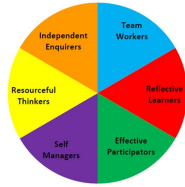


Online relationships Can you describe strategies for safe and fun experiences in a range of online social environments? Can you give examples of how to be respectful to others online?	Self-image and Identity Can you explain how your online identity can be different to the identity you present in 'real life'? Can you describe the right decisions about how you interact with others and how others perceive you?	Online reputation Can you describe how others can find out information about yourself by looking online? Can you explain ways that some of the information about yourself online could have been created, copied or shared by others?	Online bullying Can you identify some online technologies where bullying might take place? Can you describe ways people can be bullied through a range of media (e.g. image, video, text, chat)?
Online bullying Can you explain why you need to think carefully about how content you post might affect others, their feelings and how it may affect their reputation?	Health, wellbeing and lifestyle Can you explain how using technology can distract you from other things you might do or should be doing?	Health, wellbeing and lifestyle Can you identify times or situations when you might need to limit the amount of time you use technology? Can you suggest strategies to help you limit this time?	

Digital Citizenship: Online Safety Key Vocabulary

AI (artificial intelligence)	Augmented Reality	digital personality	hacking / Trojans	firewalls
Captcha	'Cloud' computing	screen-grab	blogging & vlogging	fake news

Empowered Learner Links



Self Manager

- I enjoy challenges, especially open-ended or deeper-thinking ones.
- I can prioritise the most important things that need doing first.
- I welcome opportunities to take on added responsibility for a range of things.
- I am a good organiser of time.
- I am not put off by changes that may occur to normal routine

Growth Mindset Links



Cross-Curricular Writing Opportunities



- Create an e-safety poster

Text



Glossary

Augmented reality - a technology that superimposes a computer-generated image on a user's view of the real world, thus providing a composite view.

Firewalls - a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.

Captcha - an acronym that stands for Completely Automated Public Turing Test to Tell Computers and Humans Apart.

Trojans - any malware which misleads users of its true intent. The term is derived from the Ancient Greek story of the deceptive 'Trojan Horse' which led to the fall of the city of Troy.

Cloud computing - a type of computing that relies on shared computing resources rather than having local servers or personal devices to handle applications.

Screen-grab - an image that you create by capturing and copying part or all of a television or computer display at a particular moment.



Useful APPs, websites or resources

- Ceop- Play Like Share,
- Kidsmart
- Education for a Connected World
- ThinkUKnow: Play Like & Share
- PurpleMash Unit4.2
- childnet.com



Photo/Picture



Violence - Game contains depictions of violence



Discrimination - Game contains depictions of, or material which may encourage, discrimination



Sex - Game depicts nudity and/or sexual behaviour or sexual references



Drugs - Game refers to or depicts the use of drugs



Fear - Game may be frightening or scary for young children



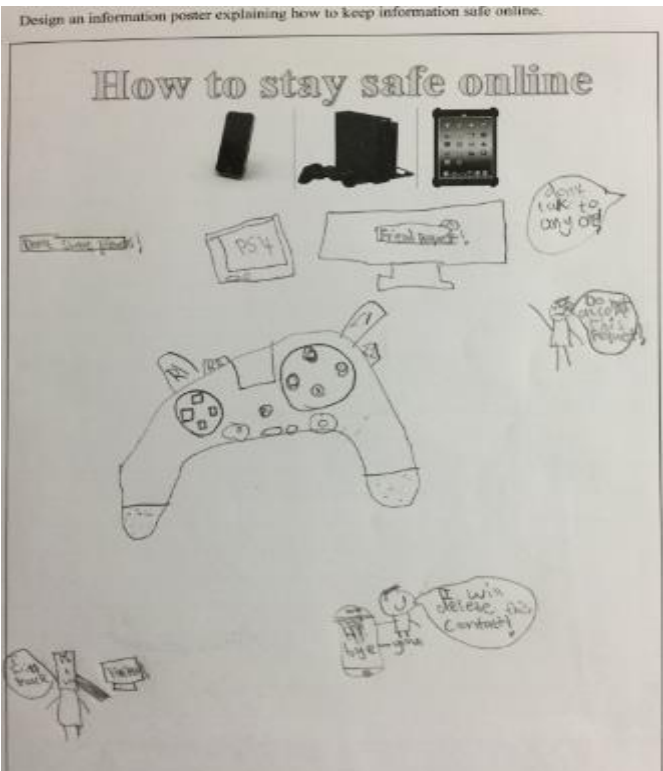
Bad Language - Game contains bad language

Possible equipment to be used

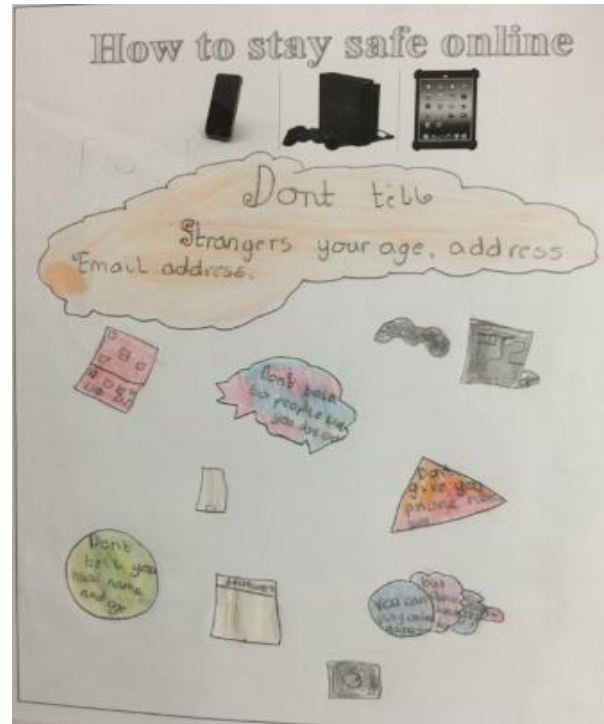
- Laptops
- iPads
- Videos
- Book – But I read it on the internet by Toni Buzzeo
- Drip feed info to parents via school's social media
- Awareness of popular apps such as Roblox, Tik Tok, friend trackers in snapchat, WhatsApp

Assessment Criterion

Emerging



Expected



Exceeding



Enrichment opportunities

- Display Internet Safety Posters around school.
- Post Internet Safety Posters onto Twitter for parents to read.
- E-Safety Day

Home Learning/Parental Links

- Ensure that age restrictions are in place on all electronics.
- Talk to parents about how to stay safe on the internet.

Green for Growth Challenge

Can you independently use Purple Mash to create an informative non-fiction leaflet based on a topic we have studied?

Prime Learning Challenge

Year 4 Digital Literacy

Can you use a variety of digital devices to design and create a range of programs, systems and content that accomplish given goals?

Big Question

Multimedia

Can you select appropriate tools to add emphasis and effect to your work?

Multimedia

Can you extend the use of multimedia packages to include importing images, hyperlinks and the use of sounds recorded independently?

Spreadsheets

Can you change the look of a spreadsheet by using different formats, e.g. text styles, colour, number format including date, row and column heights?

Spreadsheets

Can you decide on the most appropriate form of graph for a data set giving reasons for your choice?

Small Questions

Which help to answer the big question.

Animation

Can you effectively plan for an animation or film and use your plan purposefully?

Animation

Can you take a series of pictures to form a short film clip / animation / eBook?

Animation

Can you edit video, animation or music footage by cropping clips?



Digital Literacy Key Vocabulary

Animation	Flip book	Frame	Background	Hyperlink
Stop Motion	Video Clip	Spreadsheet	Cropping	eBook

Empowered Learner Links



Resourceful Thinker

- I can ask questions to check my understanding.
- I am tenacious when things get difficult.
- I can sort and classify information and check it for accuracy.
- I can draw inference and make deductions from a range of sources.
- I can give alternative solutions or explanations.

Growth Mindset Links



Cross-Curricular Writing Opportunities



- Create an information leaflet about looking after your teeth.

Text



Glossary

Data

Data is just information. You can present it in tables, charts or graphs. It may be figures, text, images, audio or video.

Hyperlink

Simply a link, a hyperlink is a reference to data that the user can follow by clicking or tapping. A hyperlink points to a whole document or to a specific element within a document.

Spreadsheet

A file made of rows and columns that help sort data, arrange data easily, and calculate numerical data. What makes a spreadsheet software program unique is its ability to calculate values using mathematical formulas and the data in cells.

Cropping

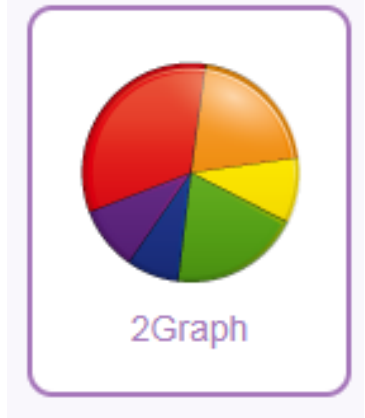
To remove parts of a digital image or physical photo to retain a smaller section of the original. Cropping a digital image is performed by a function in every image or photo editing program. It does not reduce the resolution; it removes part of the image.



Useful APPs, websites or resources

- Purple Mash – 2graph and 2Question
- Search engines – kidtopia, Kiddle, Kidzsearch, KidRex, Teach the Children Well, GoGooligans
- Touch Typing – Purplemash Unit3.4
- Spreadsheets - PurpleMash Unit4.3
- Writing for Audiences - PurpleMash Unit4.4
- Green screen / Animation - PurpleMash Unit4.6Appropriate SICT's STEM project loan box
- Movie-maker

Photo/Picture



Possible equipment to be used



- Purple Mash
- Laptops
- iPads
- Microsoft packages / School Blog
- Book creator / Photostory / iMovie / Garageband / Move Creator

Assessment Criterion

Emerging



Expected



Exceeding



Enrichment opportunities

- Display the information leaflets in the classroom.
- Visit into the school community garden to find different plants and animals. Use these to sort and classify then to produce branching databases.

Home Learning/Parental Links

- Practise typing skills; changing the font style, size and colour.
- Practise copying and inserting images.
- Use Purple Mash at home.

Green for Growth Challenge

Can you use and apply your skills to create a picture and write instructions for a friend to follow?

Prime Learning Challenge

Year 4 Computer Science

Can you design, write and debug programs, and work with variables and various forms of input and output, with a focus on looping?

Big Question

Small Questions

Which help to answer the big question.

Can you explain that a loop is used to repeat a set of instructions?	Can you explain why it is important to use 'loops' in particular places in your sequence?	Can you independently select and sequence a code to make your own program?	Can you detect and debug errors in algorithms and programs, and use sequence and loops (repetition) in programs confidently?
Can you demonstrate the loop or repeat command in all programming environments, e.g. 2Simple, 2Logo, 2Code, ScratchJr, Kodu, Kodable and Scratch)?	Can you transfer your coding skills between different types of software?		



Computer Science Key Vocabulary

algorithm	coding	loop	debug	input
output	program	repetition	sequence	command

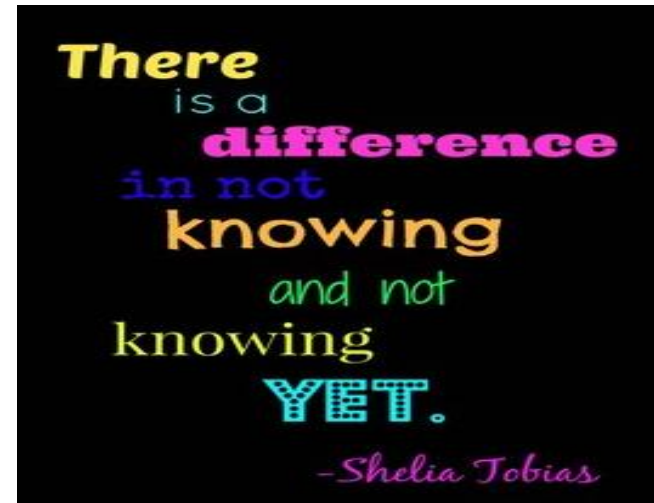
Empowered Learner Links



Team Worker

- I am happy to take on a specific allocated role in a group.
- I respect and tolerate the values and beliefs of others within a joint activity.
- I can communicate capably as a team member so as to convince others of my point of view.
- I can keep focused on a task and avoid distractions.
- I understand that others may have an opinion that is different to mine.

Growth Mindset Links

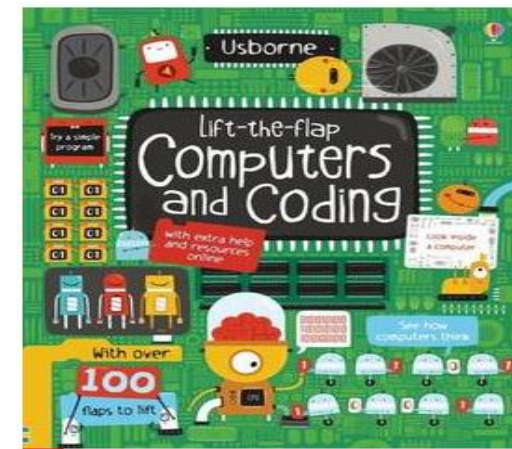


Cross-Curricular Writing Opportunities



- Writing directions

Text



Glossary

List of Logo Instructions

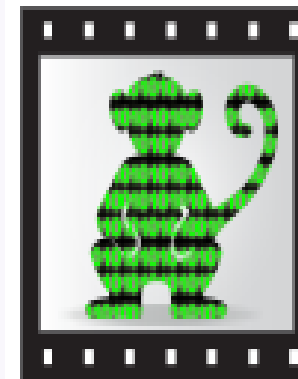
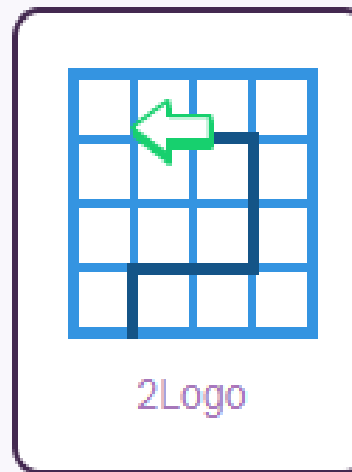
Instruction	Description	Example
BK	Move backwards a distance of units	BK 50 – Move the turtle back 50 units
FD	Move forward a distance of units	FD 50 – Move the turtle forward 50 units
LT	Turn left a given number of degrees	LT 90 – Turn the turtle 90° to the left
RT	Turn right a given number of degrees	RT 45 – Turn the turtle 45° to the right
REPEAT	Repeat a set of instructions a number of times	REPEAT 4[FD 10 RT 90] – This will draw a square
SETPC	Set pen colour to	SETPC 1 – Pen colour is BLUE

Useful APPs, websites or resources

- Scratch
- Gibbon Level purple mash
- PurpleMash Unit4.1 -2Code – lessons plans
- LOGO - PurpleMash Unit4.5
- Online and Ipad – Daisy Dinosaur and Kodable
- For KS2 Reference - BBC Computing



Photo/Picture

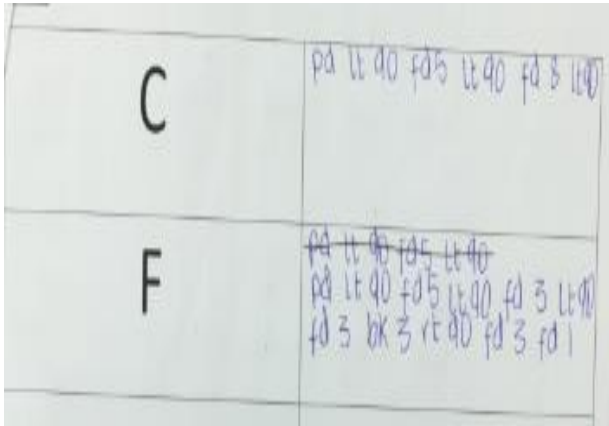


Possible equipment to be used

- iPads
- Laptops
- Floor robots
- Board games
- Hand held games
- Logo

Assessment Criterion

Emerging



Expected

<u>Starter</u>	
C	pd lt 90 fd 5 lt 90 fd 3 lt 90 fd 5
F	Bk 5 fd 5 right 90 fd 5 Bk 5 rt 90 fd 3 left 90 fd 5
S	rt 90 fd 3 bk 3 rt 90 fd 4 lt 90 fd 3 rt 90 fd 3 rt 90 fd 3
<u>Moving On</u>	
M	Bk 5 fd 5 right 90 rt 45 fd 6 lt 90 fd 5 rt 45 rt 90 fd 4
W	pd rt 135 fd 5 lt 90 fd 5 rt 90 fd 5 lt 90 fd 5 pu
O	pd fd 5 rt 90 fd 5 rt 90 fd 5 rt 90 fd 5 pu

Exceeding

Date: 11/06/19
ICT
Learning Focus: To use the Repeat function in Logo to create shapes.
Steps to Success:

- Children can follow Logo code to predict the outcome.
- Children can create shapes using the Repeat function.
- Children can find the most efficient way to draw shapes.

Look at the instructions below. What shape do you think the instructions will make?

INSTRUCTION	PREDICTION	SHAPE MADE
REPEAT 4 [FD 5 RT 90]		
REPEAT 3 [FD 6 RT 120]		
REPEAT 6 [FD 6 RT 60]		
REPEAT 10 [FD 2 RT 36]		
REPEAT 36 [FD 1 RT 10]		

EXTENSION - Use the Repeat function to find the most effective way to draw these letters:

LETTER	INSTRUCTION
B	RP [PD FD 7 RT 90 RT 16
D	

Enrichment opportunities

- Play board games to determine how games with rules result in strategies and linking to algorithms.

Home Learning/Parental Links

- Practise Gibbon level at home on purple Mash.
- Practise using logo at home through Purple Mash.

Green for Growth Challenge

Can you jointly carry out research to find out about Samuel Crompton and showcase your findings through a group presentation?

Prime Learning Challenge Year 4 Information Technology

Can you explain what it means to be 'discerning' when evaluating digital content and what it means to save work to the 'Cloud'?

Big Question

Small Questions

Which help to answer the big question.



Can you describe strategies for keeping your personal information private, depending on the context?	Can you identify different file extensions, knowing which ones attribute to different ICT products, and identify domain name types?	Can you describe how you can search for information within a wide group of technologies (e.g. social media, image sites, video sites)?	Can you identify the most relevant results from a search engine – not just 'sponsored' links?
When searching on the internet for content to use, can you explain why you need to consider who owns it and whether you have the right to reuse it?	Can you explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true?	Can you explain what it means to save work locally, to a network or into the 'Cloud'?	Can you carry out research to find out how the World Wide Web began and by whom?

Information Technology Key Vocabulary

domain	sponsored links	World Wide Web	the 'Cloud'	hardware
platforms	digital content	file extension	copyright	ownership

Glossary

The 'Cloud'

This refers to saving data to an off-site storage system maintained by a third party. Instead of storing information to your computer's hard drive or other local storage device, you save it to a remote database.

Sponsored links

A paid advertisement in the form of a hypertext link that shows up on search results pages. The ads are typically for products and services that are generally or very specifically related to the keywords in the search query.

Platforms

In personal computing, a platform is the basic hardware (computer) and software (operating system) on which software applications can be run.

Domain

A domain, in the context of networking, refers to any group of users, workstations, devices, printers, computers and database servers that share different types of data via network resources.

Copyright and Ownership

Copyright is a legal term describing ownership of control of the rights to the use and distribution of certain works of creative expression, including books, video, movies, music and computer programs.

Useful APPs, websites or resources

- Search engines
- For KS2 Reference - BBC Computing
- CS without a computer – Unplugged Activities
- Effective Searching- Purplemash Unit4.7
- Hardware - Purplemash Unit4.8
- How does the internet work? <http://www.bbc.co.uk/guides/z3tbgk7>
- What is the World Wide Web? <http://www.bbc.co.uk/guides/z2nbgk7>



Photo/Picture



Possible equipment to be used

- Laptop / I-pads
- Images from the internet
- PurpleMash templates
- Search engines
- Different file extensions
- Books about the WWW
- Books about Sir Tim Berners-Lee

Assessment Criterion		
Emerging	Expected	Exceeding

<p>Enrichment opportunities</p> <ul style="list-style-type: none"> • Children can read books, websites and watch film clips about the historical computing pioneers and the growth of the WWW • Invite existing practitioners, whose field of work is in technology, into school – Primary Futures link • Trip to Bolton SICT for a half day of interactive technological learning 	<p>Home Learning/Parental Links</p> <ul style="list-style-type: none"> • To research historical computing pioneers and their achievements • Applying the technological learning to other curriculum areas • Homework tasks linked to the study of Sir Tim Berners-Lee and/or encouraging selective use of search engines when researching • Reading comprehension-based homework tasks that focus on pivotal computing pioneers
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Photographic evidence of the curriculum in action at Brownlow Fold

