Computing at Cheadle Catholic Infants

By Jenny Kemal

Our Vision – *Love, Respect, Shine*

Computing is a subject that can inspire and motivate children. It is a vehicle for personal expression and communication and it can play an important part in a child's personal development. (Love)

Computing reflects the ever changing culture and society we live in and so the teaching and learning of computing enables children to better understand the world they live in, how to communicate online safely and respectfully. (Respect)

At Cheadle Catholic Infant School, we provide opportunities for all children to develop a love of computing as they engage in a variety of computing activities: programming, creating digital media, and representing and analysing data. (Shine)

The Main Strands of Computing

At the core of everything we teach, the three predominant areas of computing are a prime focus and the scheme we use is carefully designed to ensure this coverage.

It is vital that children develop the skills and knowledges related to these strands, becoming successful learners, confident individuals and responsible citizens.

Information Technology

Digital Literacy

Computer Science

EYFS allows children to explore a range of different technological experiences using a variety of tools. Children begin in the Nursery exploring types of everyday technology. They begin to explore the 3 main areas of computing through a range of cross curricular activities.

During the Reception year children become familiar with using the ipads and using a range of simple apps/programs to create digital images, videos, photos etc. At the end of the Reception year children are introduced to the beginning of their coding journey through the use of Beebots.

Online safety is introduced in the EYFS through a range of stories.

How is Computing Knowledge Sequenced in EYFS?

Cheadle Catholic Infant School Computing Overview 2022/23

Class	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	**Exploring ICT through role play e.g. telephones, cameras, keyboards etc.** Technology questionnaire (home) Technology hunt around school Different types of technology in role play areas for children to explore. Technology curiosity cube	**Data Handling- Leaf colour hunt- Pictogram** Children go for an autumn leaf hunt. Children collect different coloured leaves. Sort leaves into different criteria e.g. colour/size/shape Use 2Count to represent the amount of different types of leaves collected.	**Computational thinking- Story sequencing** Children to explore a range of familiar stories. Can they sequence pictures from these stories? What happened first? What comes next?	**Computer Science- Unplugged algorithms** Children to make tracks outdoors for cars to travel along (use vocab, forward, back, turn) Map out a large grid. Can children follow directions to get the car/toy to move from one square to another? Did it work? If not what went wrong?	**ICT- Mini Mash- 2Paint** Use 2paint programme to create a picture (e.g.garden) Learn to use tools on the paint programme to add and change effects.	**Exploring programmable toys- e.g. robots, remote control cars etc** Children to explore a range of programmable toys e.g. remote control cars, robots. Can the children work the toys What do the children notice about the toys and how they work?
Reception	**ICT- IPADS- explore age appropriate apps.** How to use an ipad- turn it on, open an app, close an app, turn off the ipad. Explore games on the interactive screen in continuous provision Explore apps on ipad during continuous provision.	**ICT-Mini Mash-2Paint** Use 2paint programme to create a picture (fireworks) Learn to use tools on the paint programme to add and change effects. Use the keyboard to add a label/caption to their picture	**ICT- Taking photos Mini Mash- Mash cams** Learn how to take a good photo (how to hold the ipad, steady hand, good focus) View photos Take photo of themselves/friend and turn it into a character in Mini Mash (Mash Cams) Children add text to the speech bubble for their character	**ICT- Mini Mash- Simple City** Children to use the Simply City program in Purple mash. Children to access different areas of the city. Children to explore the different activities. Can they complete the simple activities. E.g. create a garden and make the flowers grow.	**Computer Science- unplugged algorithms** Blindfold instructions Make own grid in the playground and guide a partner along it. Back to back drawing (instructions) Guide toy car along a grid Monster drawing following teachers instructions.	**Computer science- Beebots** Learn how to control a Bee bot Guide Bee bot to an end point on a marked out grid. Sequence instructions to show Bee bots journey Record Bee bot instructions using symbols.

Key Stage 1 introduces children to a wide range of different technological experiences using a variety of tools. Knowledge and skills progression documents give a clear overview of how skills will be built up through each key stage and a clear 'end goal' for teachers by the end of each year group. Learning objectives have also been clearly set out for every lesson within each half term.

The overlaps between units serve to deepen understanding of computational concepts and provide opportunities for pupils to apply and extend understanding and make links in their knowledge and capabilities.

For example, there is a strong link between the learning objectives related to online safety and many of the online safety lessons aligning with RSE/PSHE objectives.

How is Computing Knowledge Sequenced in KS1?

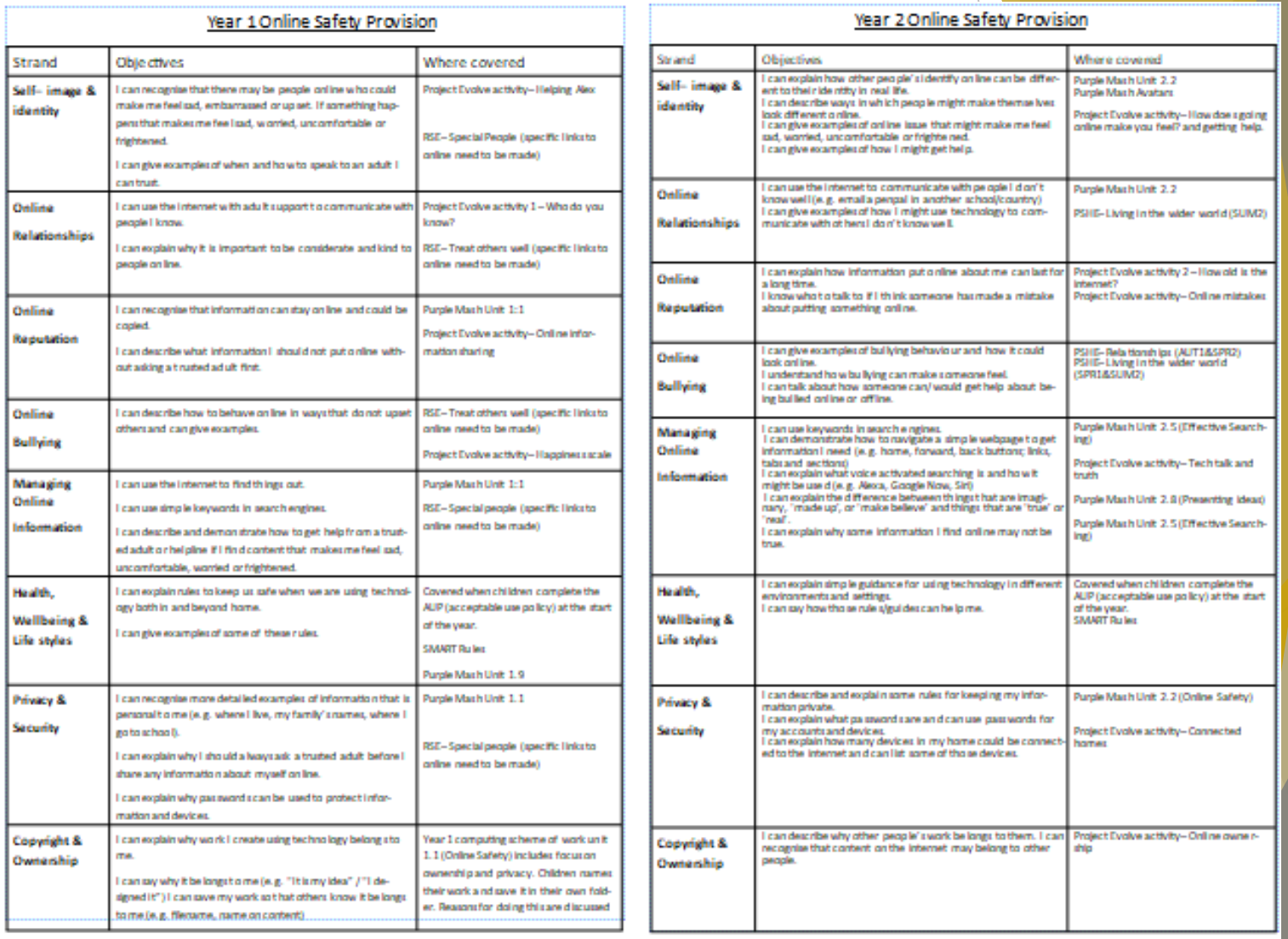
Year 1	**PM Unit 1.1 Exploring Purple Mash and Online Safety (4wks)** Log in safely Create own avatar Learn to save work in my folde	**PM Unit 1.4 Lego Builders (3wks)** To compare the effects of adhering strictly to instructions to completing tasks	**PM Unit 1.6 Animated Story Books (5wks)** To introduce e-books and the 2Create a Story tool.	**PM Unit 1.7 Coding (6wks)** To understand what instructions are and predict what might happen when they are	**PM Unit 1.3 Pictograms (3wks)** To understand that data can be represented in picture format. To contribute to a class	**PM Unit 1.9 Technology Outside School (2wks)** To walk around the local community and find examples of where technology is used.
	Explore the tools in PM **PM Unit 1.2 Grouping and sorting (2wks)** To sort items using a range of criteria. To sort items on the computer using the 'Grouping' activities in Purple Mash.	without complete instructions. To follow and create simple instructions on the computer. To consider how the order of instructions affects the result. **PM Unit 1.5 Maze Explorers (3wks)** To understand the functionality of the direction keys. To understand how to create and debug a set of instructions (algorithm). To use the additional direction keys as part of an algorithm. To understand how to change and extend the algorithm list. To create a longer algorithm for an activity **Beebots**	To add animation to a story. To add sound to a story, including voice recording and music the children have composed. To work on a more complex story, including adding backgrounds and copying and pasting pages. To share e-books on a class display board.	followed. To use code to make a computer program. To understand what object and actions are. To understand what an event is. To use an event to control an object. To begin to understand how code executes when a program is run.	pictogram. To use a pictogram to record the results of an experiment. **PM Unit 1.8 Spreadsheets (3wks)** To know what a spreadsheet program looks like. To locate 2Calculate in Purple Mash. To enter data into spreadsheet cells. To use 2Calculate image tools to add clipart to cells. To use 2Calculate control tools: lock, move cell, speak and count.	To record examples of technology outside school

How is Computing Knowledge Sequenced in KS1?

Year 2	**Logging in and saving work on PM (2wks)** **PM Unit 2.1 Coding(5wks)** To understand what an algorithm is. To create a computer program using an algorithm. To create a program using a given design. To understand the collision detection event. To understand that algorithms follow a	**PM Unit 2.2 Online Safety (3wks)** To know how to refine searches using the Search tool. To use digital technology to share work on Purple Mash to communicate and connect with others locally. To have some knowledge and understanding about	**PM Unit 2.4 Questioning (5wks)** To learn about data handling tools that can give more information than pictograms. To use yes/no questions to separate information. To construct a binary tree to identify items. To use 2Question (a binary tree database)	**PM Unit 2.6 Creating Pictures (5wks)** To learn the functions of the 2Paint a Picture tool. To learn about and recreate the Impressionist style of art (Monet, Degas, Renoir). To recreate Pointillist art and look at the work of pointillist artists such as Seurat.	**PM Unit 2.7 Making Music(3wks)** To make music digitally using 2Sequence. To explore, edit and combine sounds using 2Sequence. To edit and refine composed music. To think about how music can be used to express feelings and create tunes which depict feelings. To upload a sound from a	**PM Unit 2.3 Spreadsheets (4wks)** To use 2Calculate image, lock, move cell, speak and count tools to make a counting machine. To learn how to copy and paste in 2Calculate. To use the totalling tools. To use a spreadsheet for money calculations. To use the 2Calculate equals tool to check calculations.
	sequence. To design an algorithm that follows a timed sequence. To understand that different objects have different properties. To understand what different events do in code. To understand the function of buttons in a program. To understand and debug simple programs	sharing more globally on the Internet. To introduce Email as a communication tool using 2Respond simulations. To understand how we should talk to others in an online situation. To open and send simple online communications in the form of email. To understand that information put online leaves a digital footprint or trail. To identify the steps that can be taken to keep personal data and hardware secure. **PM Unit 2.5 Effective Searching (3wks)** To understand the terminology associated with searching. To gain a better understanding of searching on the Internet. To create a leaflet to help someone search for information on the Internet.	to answer questions. To use a database to answer more complex search questions. To use the Search tool to find information.	To learn about the work of Piet Mondrian and recreate the style using the lines template. To learn about the work of William Morris and recreate the style using the patterns template. To explore surrealism an eCollage.	bank of sounds into the Sounds section. To record and upload environmental sounds into Purple Mash. To use these sounds to create tunes in 2Sequence **PM Unit 2.8 Presenting Ideas (3wks)** To explore how a story can be presented in different ways. To make a quiz about a story or class topic. To make a fact file on a non-fiction topic. To make a presentation to the class.	To use 2Calculate to collect data and produce a graph.

Online Safety progression?

- Online safety is of upmost important at Cheadle Catholic Infant school. In this ever changing online world we want children to know how to keep themselves safe online and how to be kind and respectful users of the internet.
- In EYFS we introduce children to online safety through a range of stories, to discuss important online safety messages.
- In KS1 each computing lesson starts with an online safety question or discussion to ensure children are covering important topics/messages regularly.
- We follow an Online safety curriculum which links to 'Education for a connected world' and uses resources from 'Project Evolve'



Year 1 Online Safety Provision

Strand	Objectives	Where covered
Self- image & identity	I can recognise that there may be people online who could make me feel sad, embarrassed or upset. If something happens that makes me feel sad, worried, uncomfortable or frightened. I can give examples of when and how to speak to an adult I can trust.	Project Evolve activity– Helping Alex RSE– Special People (specific links to online need to be made)
Online Relationships	I can use the internet with adult support to communicate with people I know. I can explain why it is important to be considerate and kind to people on line.	Project Evolve activity 1 – Who do you know? RSE– Treat others well (specific links to online need to be made)
Online Reputation	I can recognise that information can stay on line and could be copied. I can describe what information I should not put online without asking a trusted adult first.	Purple Mash Unit 1:1 Project Evolve activity– Online information sharing
Online Bullying	I can describe how to behave on line in ways that do not upset others and can give examples.	RSE– Treat others well (specific links to online need to be made) Project Evolve activity– Happiness scale
Managing Online Information	I can use the internet to find things out. I can use simple keywords in search engines. I can describe and demonstrate how to get help from a trusted adult or helpline if I find content that makes me feel sad, uncomfortable, worried or frightened.	Purple Mash Unit 1:1 RSE– Special people (specific links to online need to be made)
Health, Wellbeing & Life styles	I can explain rules to keep us safe when we are using technology both in and beyond home. I can give examples of some of these rules.	Covered when children complete the AUP (acceptable use policy) at the start of the year. SMART Rules Purple Mash Unit 1.9
Privacy & Security	I can recognise more detailed examples of information that is personal to me (e.g. where I live, my family's names, where I go to school). I can explain why I should always ask a trusted adult before I share any information about myself online. I can explain why password can be used to protect information and devices.	Purple Mash Unit 1.1 RSE– Special people (specific links to online need to be made)
Copyright & Ownership	I can explain why work I create using technology belongs to me. I can say why it belongs to me (e.g. "It is my idea" / "I designed it") I can save my work so that others know it belongs to me (e.g. filename, name on content).	Year 1 computing scheme of work unit 1.1 (Online Safety) includes focus on ownership and privacy. Children names their work and save it in their own folder. Reasons for doing this are discussed

Year 2 Online Safety Provision

Strand	Objectives	Where covered
Self- image & identity	I can explain how other people's identity online can be different to their identity in real life. I can describe ways in which people might make themselves look different online. I can give examples of online issue that might make me feel sad, worried, uncomfortable or frightened. I can give examples of how I might get help.	Purple Mash Unit 2.2 Purple Mash Avatars Project Evolve activity– How does going online make you feel? and getting help.
Online Relationships	I can use the internet to communicate with people I don't know well (e.g. email a penpal in another school/country) I can give examples of how I might use technology to communicate with others I don't know well.	Purple Mash Unit 2.2 PSHE– Living in the wider world (SUM2)
Online Reputation	I can explain how information put online about me can last for a long time. I know what to talk to if I think someone has made a mistake about putting something online.	Project Evolve activity 2 – How old is the internet? Project Evolve activity– Online mistakes
Online Bullying	I can give examples of bullying behaviour and how it could look online. I understand how bullying can make someone feel. I can talk about how someone can/would get help about being bullied online or offline.	PSHE– Relationships (AUT1&SPR2) PSHE– Living in the wider world (SPR1&SUM2)
Managing Online Information	I can use keywords in search engines. I can demonstrate how to navigate a simple webpage to get information I need (e.g. home, forward, back buttons; links, tabs and sections) I can explain what voice activated searching is and how it might be used (e.g. Alexa, Google Now, Siri) I can explain the difference between things that are imaginary, 'made up', or 'make believe' and things that are 'true' or 'real'. I can explain why some information I find online may not be true.	Purple Mash Unit 2.5 (Effective Searching) Project Evolve activity– Tech talk and truth Purple Mash Unit 2.8 (Presenting ideas) Purple Mash Unit 2.5 (Effective Searching)
Health, Wellbeing & Life styles	I can explain simple guidance for using technology in different environments and settings. I can say how those rules/guides can help me.	Covered when children complete the AUP (acceptable use policy) at the start of the year. SMART Rules
Privacy & Security	I can describe and explain some rules for keeping my information private. I can explain what password are and can use passwords for my accounts and devices. I can explain how many devices in my home could be connected to the internet and can list some of those devices.	Purple Mash Unit 2.2 (Online Safety) Project Evolve activity– Connected homes
Copyright & Ownership	I can describe why other people's work belongs to them. I can recognise that content on the internet may belong to other people.	Project Evolve activity– Online ownership

Vocabulary

Computing Key Vocabulary		
EYFS	Year 1	Year 2
order, first, next, problem, solution instruction, forwards, backwards, turn, clear, go, direction, button paint, tools, change, pictogram, count, information	action, algorithm, debugging, command, input instruction, algorithm, computer, program, debug, direction, arrow, rewind, forwards, backwards, debug, left, right sort, criteria, collate, pictogram, arrow, cursor, cell, column, delete, move, count tool	sequence, run, debug, event, error, predict action, algorithm, background, collision, debug, event, design, predict, run, sequence, test, timer copy, paste, columns, cells, lock, row, spreadsheet, question, data, collate, binary tree, database, presentation, node, narrative

How can we make computing accessible to children with SEND at our school?

How can we make sure everyone reaches their full potential?

Strategy 1- Repeated learning

- Schemes of work overlap so children are revisiting work from previous years.
- SMART rules- children are reminded of SMART rules regularly.
- Quizzing- to remember previously taught learning/vocab/online safety

Strategy 2- Collaborative learning

- Group work
- Paired work- mixed ability
- Whole class collaboration

Strategy 3- Recording in different ways

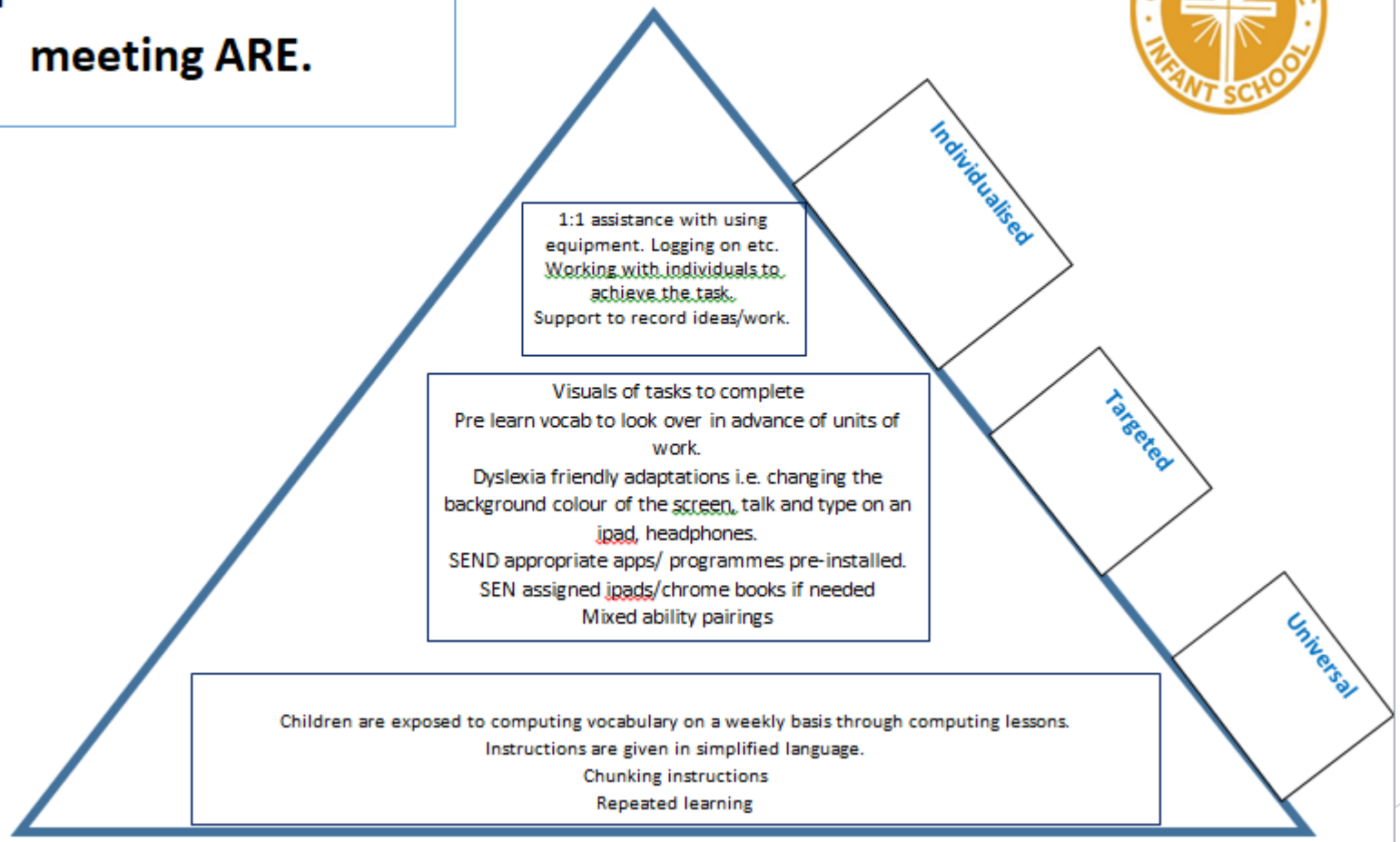
- ipad work
- Purple Mash 2do
- Photographs
- Photographs with scribed pupil voice

Strategy 4- Duration of activities

- Lessons are broken down into short, concise activities
- Information is presented in small chunks

Computing:

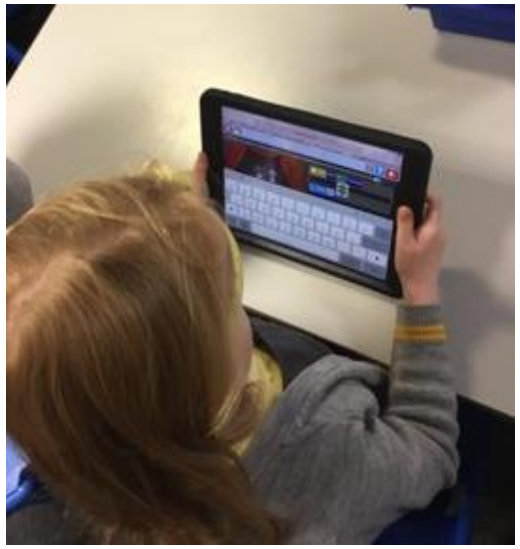
Support for children not meeting ARE.



What does a computing lesson look like at our school?

1. Can you still? Recall previous learning through quiz, discussion, Online safety question/scenario.
2. Introduce new learning- Including new vocab (My turn, your turn)
3. Paired work, group work, whole class collaboration
4. Recording new learning in a range of ways.
5. Mini plenaries

Computing at our school



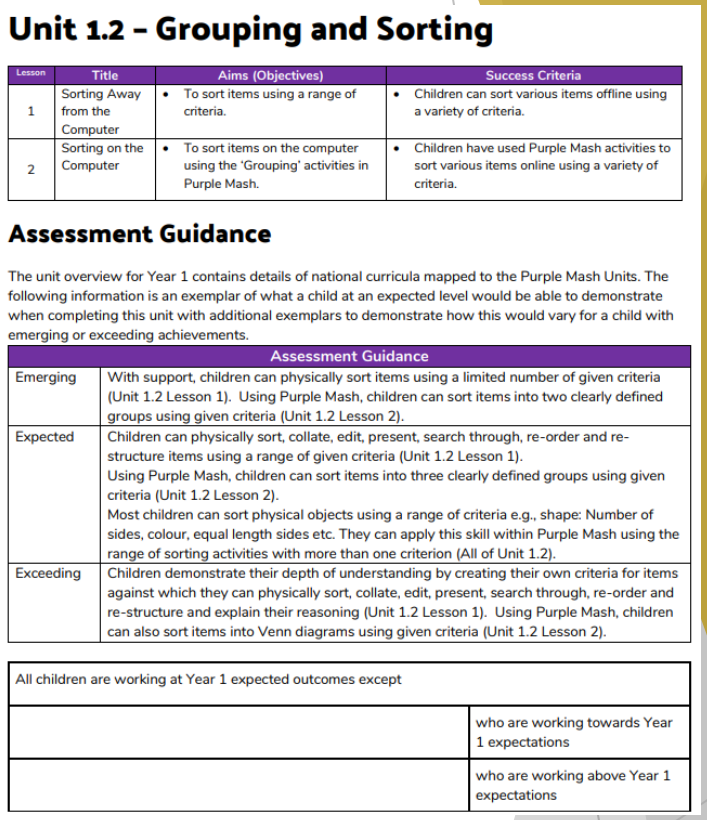
Measuring Progress

In KS1 assessment sheets are completed by the class teacher at the end of each unit. Teachers also complete an assessment sheet at the end of each term to highlight children that are on track to meet computing objectives.

This data enables changes to be applied where patterns emerge in specific learning areas or with specific learning objectives.

Class evidence books

To supplement these books, during pupil voice discussions, children have been asked to talk me through their learning journey and children are able to share with me their online portfolios of work.



Unit 1.2 – Grouping and Sorting

Lesson	Title	Aims (Objectives)	Success Criteria
1	Sorting Away from the Computer	• To sort items using a range of criteria.	• Children can sort various items offline using a variety of criteria.
2	Sorting on the Computer	• To sort items on the computer using the 'Grouping' activities in Purple Mash.	• Children have used Purple Mash activities to sort various items online using a variety of criteria.

Assessment Guidance

The unit overview for Year 1 contains details of national curricula mapped to the Purple Mash Units. The following information is an exemplar of what a child at an expected level would be able to demonstrate when completing this unit with additional exemplars to demonstrate how this would vary for a child with emerging or exceeding achievements.

Assessment Guidance	
Emerging	With support, children can physically sort items using a limited number of given criteria (Unit 1.2 Lesson 1). Using Purple Mash, children can sort items into two clearly defined groups using given criteria (Unit 1.2 Lesson 2).
Expected	Children can physically sort, collate, edit, present, search through, re-order and re-structure items using a range of given criteria (Unit 1.2 Lesson 1). Using Purple Mash, children can sort items into three clearly defined groups using given criteria (Unit 1.2 Lesson 2). Most children can sort physical objects using a range of criteria e.g., shape: Number of sides, colour, equal length sides etc. They can apply this skill within Purple Mash using the range of sorting activities with more than one criterion (All of Unit 1.2).
Exceeding	Children demonstrate their depth of understanding by creating their own criteria for items against which they can physically sort, collate, edit, present, search through, re-order and re-structure and explain their reasoning (Unit 1.2 Lesson 1). Using Purple Mash, children can also sort items into Venn diagrams using given criteria (Unit 1.2 Lesson 2).

All children are working at Year 1 expected outcomes except	
	who are working towards Year 1 expectations
	who are working above Year 1 expectations

Pupil Voice

What is computing?

- You learn about using the ipads- Austin (Rec)
- You do different activities on the ipads like making pictures.- Heidi (Year 1)
- You learn about using technology and how to stay safe online- Benjamin (Year 2)

What do you like about computing?

- You get to use the ipads- Isabella (Rec)
- You get to try new things and do them again at home on Purple mash if you enjoy it- Miya (Year 1)
- It's really fun- Lilah (Year 2)
- It's not too tricky like other things we learn at school- Benjamin (Year 2)
- If you make a mistake you can try again and it's good because you can change things easily- Mallory (Year 2)

What have you been learning about in computing?

- How to make pictures on the ipads- Isabella (Rec)
- How to look after the ipads- Fionn (Rec)
- How to keep safe online- Oliver (Year 1)
- How to follow instructions- Miya (Year 1)
- We learnt about emailing- Ben (Year 2)
- We learnt how to search for facts about animals using a search bar- Mallory (Year 2)

What can you tell me about how to stay safe online?

- If you see something that scares you flip the ipad over and get a trusted adult- Lilah (Year 2)
- If you get a bad message tell your mum and dad- Ethan (Year 1)
- Don't replay to an email if it's someone you don't know even if they say they will give you some money- Benjamin- (Year 2)
- If something bad comes up on a video or game, tell an adult straight away- Miya (Year 1)

Subject evaluation

- How do I find out about what's going well and what needs to improve?

- Subject leader days (once a term)
- Regular book looks
- Learning walks
- Classroom observations
- Pupil voice

Strengths

Hardware and software: The hardware provision within school has greatly improved and set the foundation for quality teaching and learning. Purple mash has helped to guide lesson planning and progression.

Schemes of work: Clear coverage across each unit. Carefully planned to ensure the development of skills.

Progression for assessment: Vocabulary and objectives are clear for staff to form judgements. Assessment procedures are in place to aid this process.

Engaging lessons: These are driven by a quality scheme of work and high-quality teaching and learning. Subject leader is easily accessible for guidance and planning surgeries.

Regular subject monitoring: To ensure open dialogue between subject leaders and class teachers. Pupil voice is pivotal in computing monitoring.

Next Steps

1. Evidencing- ensuring all class evidence books are up to date and show examples of children's learning and pupil voice.

2. Analysis of data to be used to inform next steps at the end of the year.

3. To assess the impact of the new online safety curriculum.

4. Monitor hardware to ensure it is working well.