Computing – Year 5

Content

NC objectives - **areas of study**	End point of area of study	Vocabulary		
		Basic	Adventurous	Technical
1. Use technology safely,respectfully and responsibly; recognise acceptable and unacceptable behaviour; identify a range of ways to report concerns about content and contact-online representation Understand computer networks including the internet and the opportunities they offer for communication and collaboration-systems 2. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.-crumble software Use, sequence, select and repetition in programs; work with variables and various forms of input and output.-crumble software Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs-crumble software	1. Children will understand that what they put online stays online for a long time and can create an inaccurate representation of them. Children will understand how information is shared between systems and how this can help us to work together. (connect and communicate) 2. Children will explore the concept of selection in programming through the Crumble programming environment. Children will learn how to connect and program components (including motors and LEDs) (code) 3. Children will create a spreadsheet to plan an event using how to create and apply formula to multiple cells. They will create graphs from this data and answer questions. (create)	<u>Connect and communicate</u> Judgement, concern, support <u>code</u> Data, create, design, circuit, device, debugging, algorithms, create, motor, switch <u>create</u> spreadsheet, question	<u>Connect and communicate</u> Systems, data, network <u>Code</u> Crumble, input, output, selection <u>create</u> cell, calculate, evaluate, interpret, results,	<u>Connect and communicate</u> Online representation, collaboration <u>code</u> LED, components, infinite loop, condition <u>create</u> Formula, format, operations,

3. Design and create content on a range of programs that accomplish given goals including presenting data and information.-spreadsheet				

Knowledge

Substantive Knowledge

e-safety and systems-concepts- Communicate and Connect

How do we create an online representation?

How can we work together online?

Lesson 1

L.O: To know how to build a positive profile.

Vocab-reputation, profile, representation

- discuss meaning of 'reputation'.

-watch video national online safety.

-chn develop a perfect profile with a photo they want to use to represent them and write 5 posts they want to represent them online.

Lesson 2

L.O: To know that others can build a picture of who we are by searching online.

Vocab: representation, reputation, judgement

Disciplinary Knowledge

Working as a junior safeguarding officer e-safety-At the beginning of the lesson tell the children that we are learning how to keep ourselves safe within the context of the online world.

Reflect-reflect on what we put online and how it can create a representation of you.

Create-collaborate with others on a project online.

How long does information stay online for?

- chn search for information about a individual online and summarise info.
-chn learn that other people can build a picture of who we are by searching online.
-information about us can be used against in future jobs or roles so its important what we post online.

Lesson 3

L.O: To know how to report concerns about online bullying.

Vocab- concern, support

-discuss what to do if they see something that makes them upset.
-explain there are times we may not want to tell an adult. Share scenarios of when this may be the case.
- explain there are helpline services-phone numbers and websites.
-share info for childline, childnet, think u know and show websites.
-ensure chn know which part of website to go to for help.

Lesson 4

L.O: To understand how data is transferred across the internet.

Vocab-data, transfer,network

-chn understand data packets and their role in sending data across the internet.
-chn enact the process of a packet moving around the internet.
-apply principles of transferring data in packets to a variety of media.

Lesson 5

L.O: To understand how sharing information online can help people to work together.

Vocab- collaboration,

Could we live without the internet?

-show understanding of benefits and limitations of different technological solutions to a problem.
-find online content (text and images) and show to arrange them effectively.

-reflect on challenges of collaborating online. **Lesson 6** **L.O: To understand and evaluate different ways of working online.** Vocab-collaboration, - understand they can build on someone elses work and make it do more than it did originally. -understand remixing and how it is a different approach to collaboration. -understand why it can be good to share their work for others to see and acknowledge that not all work is shared in this way.	
Programming-Selection in physical computing (crumble)-concepts-code **How can I program output devices?** **Lesson 1** **L.O:To know how to control a simple circuit connected to a computer.** Vocab-repetition, LED, circuit - understand how electrical components are connected. -modify programs that control an LED. -Understand repetition, specifically infinite loops. **Lesson 2** **L.O: To know how to write a program that includes count-controlled loops.** Vocab- component, count controlled loops, program, crumble. What could we **not** program a robot to do that a human can? - understand how more than one component can be connected to a Crumble controller. -understand how count-controlled loops can be used in programs. -create algorithm to make light flash -test algorithm and debug **Lesson 3**	**Working as a computer programmer-** Why is what we have learned today important to our understanding of using technology? **Problem solving**- testing algorithms, identifying and bugs and debugging throughout. Explore how to connect a motor, switches to create a circuit and write an algorithm for it. **Design** –create a program including output devices. **Evaluate-**test algorithms and program and suggest strengths and improvements. **Evaluate** -evaluate programs against the original brief.

L.O: To understand and explain that a loop can stop when a condition is met. Vocab-input, output, conditions - explain what conditions are and know they can only be true or false. -understand loops are used to repeatedly carry out actions, and when these actions will stop. -modify programs that use an input as a condition to stop a loop. **Lesson 4** **L.O: To understand and explain that a loop can be used to repeatedly check whether a condition has been met.** Vocab-infinite loop, selection Can we program something to help in the classroom? - chn understand how conditions and actions are used in selection. -chn understand how they are using selection in their algorithms by identifying conditions and actions. -chn understand why repetition is required when using selection. **Lesson 5** **L.O: To design a physical project that includes selection.** Vocab- selection, project - chn understand selection by applying to real life examples. -chn plan their project by drawing --chn explain how their project will achieve requirements of the task. E.g. carousel, house to light up. **Lesson 6** **L.O: To create a program that controls a physical computing project.** Vocab- program, algorithm - chn write and test algorithm based on previous design. -evaluate algorithm	
Spreadsheet- concepts- create **What is a formula?** **Lesson 1**	**Working as a computer scientist/accountant**- Why is what we have learned today important to our understanding of using technology to design and input data?

L.O: To know how to enter data into a spreadsheet. Vocab-spreadsheet, data - understand what a spreadsheet is. -collect data and create into a table. -use headings from a table to enter data into a spreadsheet. **Lesson 2** **L.O: To understand and apply an appropriate format to a cell.** Vocab- format, cell Can we learn about people from collecting data? - chn recognise data items and that there are different types of data items. -chn recognise different data formats. -chn create and apply formatting to a data set. **Lesson 3** **L.O: To understand how to construct formula.** Vocab-formula, calculate -chn understand which data items can be used within a calculation in a spreadsheet. -chn construct and use formulas. -chn understand that the outputs are reliant on the data that has been input when using formula. **Lesson 4** **L.O: To know how to apply formulas to data.** Vocab-formula, cells, data - chn complete addition, subtraction, multiplication and division calculations in formulas. -chn apply formulas to a range of cells and use duplicate function to apply formula to multiple cells. -chn apply appropriate formulas to a large data set. **Lesson 5** **L.O: To know how to create a spreadsheet to plan an event.**	**Design**- create formulas to work out totals and a spreadsheet to represent data. **Evaluate-** use spreadsheet to create a graph and evaluate the data that has been represented.

Vocab- data, organise, questions - chn make choices about their event and explain why data should be organised. -chn create an organised spreadsheet to plan their event and use formulas to calculate totals. -summarise data collected to determine if they have answered a given question. **<u>Lesson 6</u>** **<u>L.O: To know and choose suitable ways to present data.</u>** Vocab- interpret, results - use their spreadsheet to create a chart. -use a chart to show the answer to questions. -know when to use a table or a chart.	

Concepts

Connect and communicate	Code	Create

ASSESSMENT

KNOW MORE, REMEMBER MORE, DO MORE...

In this unit of learning, progress has been made when a learner knows more. This 'distance travelled' from the starting point is evidenced through them remembering more and doing more: in books, low stakes quizzes, retrieval, use of mind maps, answering the big question and being able to feel more confident about this unit.