Curriculum Coherence – Year 4 Computing

Term 3	Spreadsheets Programming - LOGO

Values: respect, responsibility, co-operation, friendship, understanding

Previous Learning: Chn have programmed using block based code and created their own algorithms and created pictographs and graphs to represent data. They will have created animation using pivot animator

INTENT

KNOWLEDGE
Programming
-Formula Wizard and Formatting Cells
-Using the Timer and Spin Buttons
- Line Graphs
-Using a Spreadsheet for Budgeting
-Exploring Place Value with a Spreadsheet

KNOWLEDGE
Programming
-Chn will understand the language of Logo and input simple instructions into Logo.
- Use Logo to create a series of different 2D and rectilinear shapes (Maths Objective Link)
- Understand the 'repeat' function to create shapes efficiently.
- Use build procedures within Logo.
- Understand how to use the language of code and compare it to block code.

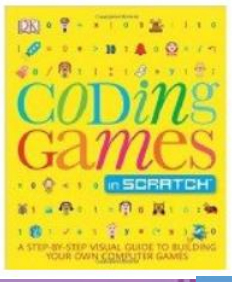
CORE VOCABULARY
Spreadsheets – average, columns, equals tool, move cell tool, spin tool, cells, random tool, spreadsheet, copy and paste, charts, formula wizard, rows

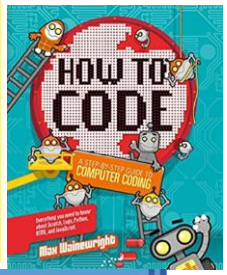
LOGO – RT, BK, LT, FD, REPEAT, PU

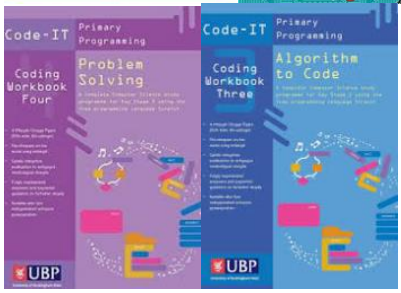
HIGH LEVEL VOCABULARLY
Spreadsheets - Advance mode, formula, timer

LOGO – SETPS, PD, SETPC

READING OPPORTUNITIES







IMPLEMENTATION

ACTIVITIES
Spreadsheets
Lesson 1 – All resources can be found on the main unit 4.3 page. From here, click on the icon to set a resource as a 2Do for your class
Lesson 2 - All resources can be found on the main unit 4.3 page. From here, click on the icon to set a resource as a 2Do for your class
Lesson 3 - All resources can be found on the main unit 4.3 page. From here, click on the icon to set a resource as a 2Do for your class
Lesson 4 - All resources can be found on the main unit 4.3 page. From here, click on the icon to set a resource as a 2Do for your class
Lesson 5 - All resources can be found on the main unit 4.3 page. From here, click on the icon to set a resource as a 2Do for your class

Creating an effective animation
Lesson 1 – I will **understand the language of LOGO** The chn will use LOGO, tinkering to learn the text based language of LOGO. Chn will follow simple instructions and code to program effectively.
Lesson 2 – I will create shapes in LOGO. The chn will learn how to program and create different shapes within LOGO experimenting with different angles.
Lesson 3 – I will **use the repeat function.** Chn will use the repeat function to efficiently create different shapes and predict the outcome from reading different code.
Lesson 4 – I will **use procedures.** The chn will experiment with different procedures within LOGO. Chn will create their own procedures to draw shapes.
Lesson 5/6 *– Chn will explore the Logoators Challenges applying their new skills from the unit.*

NC OBJECTIVES:

Pupils should be taught to:
♣ 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
♣ use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
♣ understand computer networks including the internet and the opportunities they offer for communication and collaboration
♣select, use and combine a variety of software

IMPACT

OUTCOMES
Spreadsheet
Children can use the number formatting tools within 2Calculate to appropriately format numbers.
Children can use the timer, random number and spin button tools.
Children can use a series of data in a spreadsheet to create a line graph.
Children can make practical use of a spreadsheet
Children can allocate values to images and use these to explore place value.

Spreadsheets
PUPILS will know
Hot to use the Formula Wizard and Formatting Cells
How to use the Timer and Spin Buttons
How to create Line Graphs
How to use a Spreadsheet for Budgeting
How to explore Place Value with a Spreadsheet

will be able to
- use the number formatting tools within 2Calculate to appropriately format numbers.
- use the timer, random number and spin button tools.
- use a series of data in a spreadsheet to create a line graph.

will understand
- How to format tools
- Use the timer, random number and spin button tools
- Use data in a spreadsheet

Creating an animation
PUPILS will know
- Common instructions in Logo and how to program them.
- How to change the colour of the pen and understand PU and PD commands
- How to write text using label commands

will be able to
- Write procedures using simple algorithms
- Fill shapes in different colours
- Draw arcs and shapes of different sizes

will understand
- The difference between block and text based code
- How to predict outcomes using code
- Efficient ways to code using different functions.

SKILLS

- **Logic** – to predict and analyse
- Make steps and rules for their algorithms
- **Evaluate** their own and others' code to help improve their design
- **Abstraction** – remove unnecessary detail to solve a problem
- **Patterns –** spotting patterns and similarities
- **Decomposition –** Breaking problems down into parts
- **Tinkering –** experimenting and playing
- **Creating –** design and make new patterns and designs

(including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

NEXT STEPS IN LEARNING

Chn will revisit coding and move into Java and Python coding.

ASSESSMENT OPPORTUNITIES:

Can they format numbers in 2Calculate?

Can they use the timer, random number and spin button tools correctly?

Can they combine tools to explore number?

Can they make graphs using the data?

Can they use the currency formatting tool?

Can they follow 2logo instructions to create shapes on paper or shapes in 2logo?

Can they use the repeat command to create shapes?

CHALLENGE: Spreadsheets - Children demonstrating greater depth will explore more complex functioning of the 2Calculate tools to create their own spreadsheets to explore number and interpret their own data.

LOGO - Children enjoy and challenge themselves to think about the 2Logo commands that they need in long steps of several commands at a time before executing the code to check the result.

SUPPORT: Spreadsheet - With support throughout, children will use 2Calculate and a limited data set to design a simple graph to solve a mathematical problem.

LOGO – Children can 'read' small 2Logo programs and predict the outcome using some logical reasoning although they might not always be correct.

Key Questions

How can we format numbers in 2Calculate?

What do the timer, random number and spin button tools do?

How can we combine tools to explore number?

Can we make graphs using the data?

How do use the currency formatting tool?

Can you follow 2logo instructions to create shapes on paper or shapes in 2logo?

How do you use the repeat command to create shapes?

PREPARATION FOR ADULTHOOD:

Chn will recognise common uses of information technology beyond school. For example, using spreadsheets to store data, format information and converting to graphs.
Chn will understand that instructions need to be followed systematically to achieve the desired outcome
Chn will know how to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

SMSC

Spiritual –By understanding how technology can be used to collect data and is it always needed. How information can be interpreted and what it tells us.
Moral – Using technologies to collect and gather information for specific purposes. What data should or should not be collected.
Social – Using data to discuss conclusions by collaboration and improving ways of working.
Cultural - Promoting an understanding of the history and wonder of technology. How was data collected around the world before computers were invented.

LINKS TO Curriculum Areas

Maths – Angles, Position and direction. 2D Shapes