The 10 Lessons (on 20 Cards) Objectives & Maths Labels

Lesson 1: Cards 1, 2	**Draw a sprite in the Paint Editor** **Spatial Awareness:** Sprite's location **Code Skill:**Drag your own Sprite
Lesson 2: Cards 3, 4	**Make a Sprite Recite Times Tables** **Number:** Multiplication **Code Skill:** Use **join** to Concatenate
Lesson 3: Cards 5, 6	**Create a Nested Loop (rows/columns)** **Number:** Multiplication Pattern **Code Skill:** Code **True**=YES/ **False**=NO
Lesson 4: Cards 7, 8	**Create a Problem Solving Algorithm** **Number:** Order of Operations **Code Skill:** Duplicate a sprite's code
Lesson 5: Cards 9,10	**Get Creative with the sprite's pen** **Number:** Concept of *Random* Number **Code Skill:** The Colour Spectrum
Lesson 6: Cards 11,12	**Draw Horizontal/Vertical/ Parallel** **Spatial Awareness:** Orientation **Code Skill:** Repeat turning
Lesson 7: Cards 13,14	**Draw a Maze/ Play a Maze Game** **Algebra:** Algorithm to Draw a Maze **Code Skill:** Use Grid Coordinates
Lesson 8: Cards 15,16	**Draw and Name Types of Angles** **Spatial Awareness:** Angles **Code Skill:** Code for User Input
Lesson 9: Cards 17,18	**Drag a Sprite/ Draw with Keyboard** **Spatial Awareness:** Direction **Code Skill:** Code a double conditional
Lesson 10: Cards 19,20	**Draw and Measure Area of a Rectangle** **Shape:** Perpendicularity/ Area Algorithm **Code Skill:** Code to draw a Rectangle**

****Correlation task**. Draw a rectangle in a sum copy and replicate it on a grid in Scratch. Count squares inside the pencil drawn rectangle and code the algorithm to calculate it in Scratch.

Maths Labels Aligned to the Flip-Cards

NUMBER::	Cards: 3, 4, 5, 6, 7, 8, 9, 10
SPATIAL AWARENESS:	Cards 11, 12, 15, 16, 17, 18,
SHAPE:	Cards 19, 20
ALGEBRA:	Cards 2, 13, 14
LOGICAL REASONING:	Cards 7, 8
Scratch GRAPHIC EDITOR SKILLS:	Card: 1

COMPUTATIONAL THINKING CONCEPTS for 9-10 Year Olds using SCRATCH CODE

When it comes to Scratch, **Computational Thinking** can be described as the learning and development that takes place with Scratch. In their definition, the developers of Scratch see it as a set of concepts, practices and perspectives. The concepts can be listed as: **sequences, loops, parallelisms, events, conditionals, operators** and **data**. For 9-10 year olds all the computational thinking concepts can be identified with a colourful code block in one of the Scratch palettes. The concepts are listed showing where they are used during the lessons.

(Card Numbers in brackets)

Sequence **Move** (with a Variable 2,11, 18, 20),
change **Position** (with a Variable 11, 13, 20),
Report (with variable: 3, 4, 12),
Set Size (5),
User Input/ Output (8, 15, 16),
Code the **Pen to Draw** (9,10),
Set/Change Pen Color (9),
Set/Change Color Effect (10),

Loops **Pen** algorithm (inside a loop 13, 14),
Code **Sound** (12),
Set Layer (14),
Create and code a **Clone** (15),
Code a **Forever loop** (2, 9, 10, 14,17),
Repeat loop (4, 9, 10, 11, 12, with variable 15, 20),
Nested loops (6),

Parallelism **Flag click:** simultaneous events x2 (2, 17)

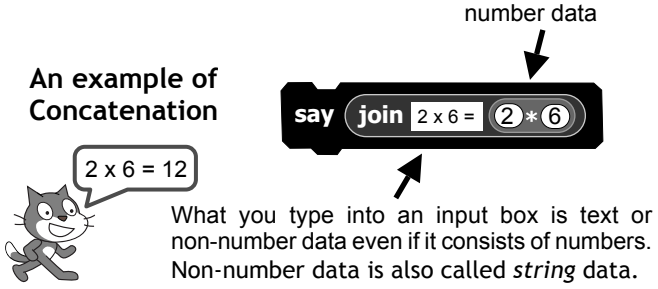
Events **Key press** (5, 11, 13, 14, 15,),
Sprite click (8, 20),
Send/Receive Broadcast (15, 16),

Conditionals **If/Then/Else** (2) If<touching sprite> (1, 14),
If <correct input> (8), If <mouse down?> (9),
If <touching color?> (14), **If/Then** (14,16,17)
If<Greater/ Equal/ Less, AND, OR> (16, 17)
Wait until (18)<touching sprite>(18)

Operators **Arithmetic** operators: +, -, x (4), **equality** (with variable: 6), **Combine operators** (7, 8), **pick random** (9, 10), **inequality** Greater/ Equal/ Less, AND, OR(16, 17),

Data **Variables:** Make, Set, Change (3, 4, 5, 6, 11, 12, match a Grid Size 13, 14 , 15, 16, 18, 20),
Set **Min & Max** (5, 6, 20) of slider variable
Concatenate* (4, 7, 8, 20),

An example of Concatenation



What you type into an input box is text or non-number data even if it consists of numbers. Non-number data is also called *string* data.