Unit 1: Year 1: Computational Thinking with Cubetto
(For use with six Cubettos, boards, sets of blocks & Egypt maps)

By the end of the unit pupils will be able to: understand what an algorithm is, how it is implemented on devices, and that programmes execute by precise instructions. Pupils will also be able to create and debug a simple algorithm and use logical reasoning to predict the behaviour of simple programmes.

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6	Lesson 7	Lesson 8
NC Computing objectives	To control a digital device	To understand that programmes execute by precise instructions	To understand that programmes execute by precise instructions	To create a simple programme	To understand that programmes execute by precise instructions	To use logical reasoning to predict behaviour of simple programmes	To debug a simple algorithm	To create a simple programme
Outcomes	• I can identify different squares on the Primo map • I can say one fact about Ancient Egypt	• I can put instructions in the right order • I can follow instructions to make paper	• I can say what each block does • I can work with a partner to trade	• I can write a simple algorithm • I can play in a team	• I understand that an algorithm is a set of ordered instructions • I can use symbols to create words	• I can predict what a programme will do • I can investigate floating and sinking	• I can debug a simple algorithm • I can describe how to plant a seed	• I can create a simple algorithm • I can make a 3D model
Cross-curricula subject	Humanities	Art/Design	Humanities	PE	English	Science	Science	Art/Design
Computational thinking	Tinkering	Logic Tinkering	Logic Persevering	Algorithms Collaborating	Algorithms Creating	Logic Persevering	Algorithms Debugging	Algorithms Creating
Main activities	Cubetto's Discovery 1.Introduce Ancient Egypt and archaeology through video and images. Dig and discover objects buried in sand. 2.Meet Cubetto and the Egypt map. Identify the different squares and explore how to make Cubetto move using the board and blocks.	Cubetto's Papyrus 1.Order instructions to make paper, learning that a set of ordered instructions is called an algorithm. 2.Make paper just like Egyptians made papyrus and when it's dry, write a message and take home.	Cubetto's Trade 1.Work in small groups to find out the purpose of each block that controls Cubetto. When you have worked out each one, write a key for Cubetto. 2.Play a trading game in the hall/playground, working in pairs to end up with one of each of the four blocks.	Cubetto's Crocodiles 1.Explore how to get Cubetto to the crocodiles on the map, using as few blocks as possible. 2.Play 'Jump the Nile' in two large groups: one rides camels trying to avoid the other team of crocodiles and hippos.	Cubetto's Cartouche 1.Order instructions to make Cubetto move to the hieroglyphics square, exploring the function block. 2.Make a cartouche spelling out Cubetto, placing the symbols in the correct order, similar to an algorithm.	Cubetto's Nile 1.Predict where Cubetto will end up when following different algorithms. 2.Predict which items will float and which will sink, then experiment to find out and record the results.	Cubetto's Seeds 1.Debug the algorithm for growing seeds and test out different Cubetto algorithms to work out what's wrong. 2.Discuss why the soil near the Nile was called the 'Black Land', then follow the instructions for planting a seed.	Cubetto's Jewels 1.Discuss what could be found in a tomb and create algorithms to make Cubetto collect jewels on its way to the pyramid. 2.Use different materials to create and decorate jewels.
Challenge	Can you open up Cubetto and explore its parts?	Can you write or draw a set of instructions to get home from school?	Can you make Cubetto turn around?	Can you test out and evaluate someone else's algorithm?	Can you move Cubetto around the map to draw the letter C?	Can you put four random blocks in the board & predict where it will go?	Can you write a problem algorithm for someone else to debug?	Can you make your own map for Cubetto to explore?
Creative play	Create a sand scene with crayons, glue & sand.	Make up your own written language using symbols.	Role play trading along the Nile for animals and plants.	Make a crocodile or camel from an egg carton and paint it.	Write hieroglyphics on paper stuck to the wall.	Design and make an Egyptian mask.	Role play being a Pharaoh (a King) in Egypt.	Make Cubetto into a pyramid!
Resources (*provided* / needed)	Map of Africa Images of pyramids Sand boxes Objects & brushes.	Instructions to make paper Glue, water, paper bags, kitchen towel	*Direction cards* Drum beat music	Masking tape/cones Pieces of fabric/ ribbon in one colour	*Cubetto cartouche and key* Mixed up algorithms Cartouche template	Rubber, ball,feather Prepare algorithms Bowls and objects Float materials	Instructions Sunflower seeds Algorithms to debug Pictures	Pictures of tombs Shiny objects Craft materials Pyramid template
Assessment	Photos Verbal statements Observation	Papyrus paper Photos Verbal statements Observation	Trading Photos Verbal statements Observation	Algorithms Photos Verbal statements Observation	Cartouches Photos Verbal statements Observation	Algorithms, testing. Photos Verbal statements Observation	Seeds & algorithms Photos Verbal statements Observation	Pyramid templates Photos Verbal statements Observation