



Year 1: Computational Thinking with Cubetto
Unit 1: Lesson 3: Cubetto's Symmetry

- 6 Cubettos and 6 Boards
- 6 City Maps
- 6 Sets of Blocks (with 19 blocks in each)

Cross-curricular area:
Maths

NC Objectives

To create a simple algorithm

Preparation Needed

- Check batteries.
- Prepare symmetrical shapes on board that can be pulled apart to show line of symmetry.
- Label a large dice with words for children to do the opposite of.

Key Vocabulary

Symmetrical
 Halves
 Same
 Opposite

Challenge

Can you make Cubetto turn left without using the left block?

Outcomes

- I can recognise symmetrical shapes
- I can use the negation block

Teacher-led introduction

1. Ask children to stand up and face the person next to them. Ask one to do a movement (no speaking) and the other one must do the same. Swap roles and repeat.
2. Sit down and show a square. Draw a line down it as if cutting it in half and explain that a square is **symmetrical**.
3. Introduce symmetry as two **halves** that are exactly the **same**.
4. Show a circle and ask: Is this shape symmetrical? How do you know?
5. Model 'cutting' it in half to see if it looks the same on both sides. Repeat with other shapes, asking pupils to come to the front and draw a cutting line on the board.
6. Show a paper shape and model cutting one of the prepared shapes in half. Ask: Is this shape symmetrical? How do you know?
7. Ask pupils to stand up again in their pairs. Tell one person to do a movement, but this time their partner has to do the **opposite**.
8. Ask: What does opposite mean? Ask children to stand up and do the opposite of what you do: jump/squat, go left/go right etc.
9. Show Cubetto's face and ask: How do you think Cubetto feels? What would Cubetto's face look like if he felt the opposite? Draw on IWB.

Guided activity

1. Ask pupils to choose four symmetrical shapes from the selection and cut them in half carefully.
2. Place the different halves on squares around the map. Ask pupils to choose one shape that they want to put together.
3. Place Cubetto on one half of the chosen shape and stick the shape to one side. Explain that they will keep the shape if they can get it!
4. Tell children to write an algorithm to collect the other half.
5. When collected, stick the two halves together onto Cubetto to make a whole shape. Repeat until all shapes have been collected.
6. Show the negation block (cream) and give children time to work out its function. Ask: Can you use the negation block in your algorithm?

Independent activity

1. Work in a pair with a mirror.
2. Look at the map. Which shapes or pictures do you think are symmetrical? Are the traffic lights symmetrical? Is the bridge or the bench?
3. Use the mirror to explore the map.
4. Which of the pictures isn't symmetrical? Why?
5. Explore the classroom for things that are symmetrical. How many things can you find? Is your face symmetrical?

Computational Thinking

Concept Algorithms	Approach Creating
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Resources Provided

Resources Needed

- Mirrors & a large dice (plenary)
- Paper shapes to cut in half (most symmetrical with a couple not)
- Sticky tack and scissors



Creative Play

Make an opposites picture: divide your paper in half and paint one side, then fold!

Plenary and assessment

1. Ask pupils to share their algorithms for collecting the symmetrical shapes. Ask: Did you find a shape that isn't symmetrical?
2. Ask: How do we know when a shape is symmetrical? Which pictures on the map are symmetrical? Why?
3. Roll the labelled dice and ask children to do the opposite of whatever it lands on.
4. Show algorithm including negation block and ask: Where do you think Cubetto will move? Demonstrate and discuss.