PRIMO

Cubetto in the City - Unit 1

Reception, Ages 4 to 5, UK National Curriculum

Subjects covered:

Maths [shape, money, number]

Materials required:

6x Cubettos

6x Boards

6x Sets of Blocks

6x City Maps

Resources provided:

Symmetrical squares

Cubetto coin template

Cubetto currency template

UK currency pictures

Bowling alley square

Famous Computer Programmers

Introduction

The Cubetto Playset is a Montessori inspired coding toy that allows children ages 3 to 6 to program a friendly wooden robot without screens and is powered by a programming language you can touch.

New technology can sometimes be overwhelming to understand and adopt. The activities contained in this guide were created by educators for educators.

We want to make it simple for you to integrate the Cubetto Playset and its tangible programming language into your teaching.

Development and learning in other key areas

Beyond coding

The collaborative nature of Cubetto makes it an extremely versatile tool for the classroom. Cubetto fosters learning in key development areas that go beyond programming.

Communication

Children practice listening through a range of stories and narratives in relation to Cubetto, accurately anticipating key events and responding with comments, questions or actions. They also develop their own narratives and explanations.

Dexterity

Children develop coordination in large and small movements around the playset. They negotiate the placement of obstacles around the world map and place blocks on our tangible interface.

Social-Emotional

Children become confident by trying new, open-ended activities that remove "wrong" outcomes, and easily encourage group work. The open nature of the maps allows them to choose the resources they need for their play session.

Mathematics

Children add and subtract blocks to a sequence. They solve problems, including doubling and halving to get Cubetto from A to B. They discuss size, shapes and patterns, distance, position, and time to solve problems.

Logical reasoning

The blocks allow children to create and debug simple programs with their hands. They use technology purposefully to create, organise, store, manipulate and retrieve meaningful sequences.

Introducing the Playset

Introducing Cubetto

Introduce Cubetto as a friendly robot that children can program. Children should be told that Cubetto cannot think for himself, and can only move as programmed by the child, just like any other machine. If in a group setting, sit children in a circle, and allow them to pass Cubetto around to one another, saying hello or acknowledging the presence of the object.

Doing so forms a bond with Cubetto, in the same way they would with a stuffed animal, or a toy, and solving problems through narratives later on is more engaging.

Introducing the Board

Introduce the Board as a remote control that children can use to send instructions to Cubetto.

Without the Board, there is no way of sending Cubetto his instructions.

It is important for children to understand Cubetto is only able to move with a human's command. This is not only empowering, but also key to understanding computing.

Encourage children to also explain what other objects in their homes and lives function within a similar paradigm. A television needs a human to change its channels for example, or a washing machine needs a human to select its settings.

These examples, like Cubetto, are machines that need human programming to do their job.

Introducing the Blocks

Introduce the Instruction Blocks as the directions Cubetto follows when inserted in the Board and sent by pressing the action button.

Different Blocks represent different instructions, and an unambiguous, distinct command. These Blocks are what make up Cubetto's hands on coding language, and are key in the learning of computational thinking.

When each block is inserted in the Board, a child should be encouraged to predict what Cubetto will execute before pressing the "Go" button.

This is key in understanding concepts like program design, and it helps develop abstraction.

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Unit 1 Overview

Reception

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By the end of the unit pupils will be able to:

- Understand what an algorithm is, how it is implemented on devices, and that programs 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 programs.

	Lesson 1	Lesson 2	Lesson 3	Lesson 4
NC Computing Objectives	To explore a digital device	To explore a digital device	To create a simple algorithm	To create a simple algorithm
Outcomes	• I can make a symmetrical pattern • I can make Cubetto move	• I can draw half of a symmetrical shape • I can talk about three blocks	• I can identify 1p & 2p coins • I can write a simple algorithm	• I can add the value of two coins • I can write a simple algorithm
EYFS Focus	ELG 12 (Shape, space and measure)	ELG 12 (Shape, space and measure)	ELG 11 (Number)	ELG 11 (Number)
Computational Thinking	Algorithms, Tinkering	Algorithms, Tinkering	Algorithms, Creating	Algorithms, Creating
Main Activities	Cubetto's City Symmetry 1. Find the symmetrical pictures on the City map and match two sides together. 2. Draw the other half of symmetrical buildings. 3. Make traffic light symmetrical patterns. 4. Use a line of symmetry outside to make symmetrical shapes with a partner. 5. Move Cubetto to a symmetrical shape on the map and get a sticker! 6. Explore the Primo map using a mirror and find symmetrical shapes. 7. Go on a symmetry hunt around the playground or school.		Cubetto's Shopping Spree 1. Cubetto is going shopping and has 1p. Work out what Cubetto can buy at the market. 2. Make coin rubbings of different coins using metallic crayons. 3. Sort coins into Cubetto's different purses. 4. Move Cubetto around the map to go shopping and work out how much he spent. 5. Role play buying and selling items for 1p. 6. Roll coins down a slope. Do they all roll? What happens? 7. Design new coins for Cubetto's currency with different pictures and symbols.	
Challenge	Can you open up Cubetto and the Board?	Can you make Cubetto turn around?	Can you work out what the cream block does?	Can you make Cubetto go backwards without the purple block?
Resources	Symmetrical squares, Paints and paper, Mini whiteboards, Rope, Green, orange & red counters, Mirrors & stickers, Camera		Cubetto coin template, Price tags, plastic fruit & veg, 1p & 2p coins, purses/ envelopes, Metallic crayons, Ramp/slope, Number lines, Role play props	
Assessment	Symmetrical images & hunt record, Matched pictures, Verbal statements, Photos, Observation		Coin rubbings & rolling, Algorithms, Verbal statements, Photos, Observation of role play	

	Lesson 5	Lesson 6	Lesson 7	Lesson 8
NC Computing Objectives	To create a simple algorithm	To create a simple algorithm	To predict the behaviour of simple programs	To predict the behaviour of simple programs
Outcomes	• I can identify 10p and 20p coins • I can use the backward block	• I can add the value of two coins • I can explain the backward block	• I can solve addition problems • I can use the random block	• I can solve addition problems • I can predict Cubetto's moves
EYFS Focus	ELG 11 (Number)	ELG 11 (Number)	ELG 11 Number – problem solving	ELG 11 Number – problem solving
Computational Thinking	Algorithms, Collaborating	Algorithms, Collaborating	Logic, Persevering	Logic, Persevering
Main Activities	Cubetto's Savings 1. Explore whether the bigger a coin is, the more it's worth with Cubetto. 2. Deliver Cubetto's savings by programming him to move to the bank. 3. Roll dice and find the matching coin in the purse. 4. Use the backward block to get to the taxi and pay for your journey. 5. Design new notes for Cubetto's currency. 6. Role play putting money into your savings at the bank. 7. Drop coins into a jar and your partner must guess how many coins are inside!		Cubetto's City Bowling 1. Go bowling with Cubetto! Try to knock over the pins and add up your score. 2. Count backwards by singing, "Five bowling pins sitting in the alley". 3. Program Cubetto using the random block to go bowling. 4. Make a bowling lane for Cubetto to travel along. 5. Place five bowling pins in a line on the map. Take photos of all the different ways you can do it. 6. Can your friend guess the random block's move? 7. Make a set of numbered bowling pins.	
Challenge	Can you move from the hospital to the taxi to get home?	Can you move from the school to the bank?	Can you work out what the blue block does?	Can you move from the bike to the bench without hitting the hydrant?
Resources	Cubetto currency template, UK currency pictures, Dice and coin pictures, 10p & 20p coins, Purses/envelopes, Number line, Role play props, Jars		Bowling alley square, Famous Computer Programmers, Plastic bottles with sand inside, Sponge balls, Recycled materials, Yoghurt drink bottles & stickers, Camera	
Assessment	Algorithms, Counting savings, Photos, Verbal statements, Observation of role play and jar counting		Bowling pins and counting, Algorithms using random block, Observation, Photos taken by children, Verbal statements	

Lesson 1: Cubetto's City Symmetry (1 of 2)

EYFS Focus: Maths - ELG 12(Shape, space & measure)

NC Objectives	Outcomes	Resources Needed	Prep Needed	Resources Provided	Key Vocabulary
To explore a digital device	• I can make a symmetrical pattern • I can make Cubetto move	• Paints and paper • Mini whiteboards • Rope • Green, orange & red counters • Mirrors & stickers • Camera	• Check batteries. • Cut out non-symmetrical squares and place at random on map.	• Symmetrical squares	• Same • Symmetrical • Middle

Computational thinking concept

Algorithms

Computational thinking approach

Tinkering

Teacher-led Introduction (introducing Board, Blocks and Cubetto – not the map just yet)

1. Fold a piece of paper in half in front of the children and paint a butterfly shape on one side.
2. Ask a volunteer to fold the paper over and press down gently. Ask: What do you think will happen?
3. Unfold the paper and hold up for pupils to see. Ask children to describe it. Ask: Are the two sides the same or different?
4. Explain that this butterfly is symmetrical. Symmetrical means both sides are exactly the same. If we cut it in half, both halves are the same!
5. Show the Primo map and explain that Cubetto is visiting the city today! Ask: What cities have you been to? Have you visited our capital city? What did you do there?
6. Match pupils' experiences to the map, naming different squares.
7. Ask: Can you see any pictures that are symmetrical – where if we cut it down the middle both parts would be the same? Collect pupils' ideas.
8. Explain that pupils will be making symmetrical patterns and exploring symmetry using Cubetto today.

Lesson 1: Cubetto's City Symmetry (2 of 2)

Activity 1: Finish the drawing

1. Look at the symmetrical picture from Cubetto's map.
2. Can you finish the picture by drawing the other side?
3. Remember: both sides must be the same!

Activity 2: Traffic lights

1. Take three of the counters: one green, orange and red.
2. Put them in a line. Use a mirror to make a symmetrical pattern.
3. Use three more counters to make a symmetrical pattern.
4. What other symmetrical patterns can you make?

Activity 3: Mirror play [outside]

1. Teacher to lay out rope – one for each pair.
2. One person stands one side of the rope and makes a shape.
3. Can you make the symmetrical shape on your side of the rope?

Activity 4: City symmetry [with symmetrical halves on map]

1. Choose a symmetrical half picture and place Cubetto on it.
2. Can you find the other half to make a symmetrical shape?
3. Make Cubetto move to find the other half and get a sticker when you reach it!

Activity 5: Mirror map

1. Use a mirror to explore the pictures on the Primo map.
2. Which pictures aren't symmetrical? How do you know?

Activity 6: Symmetry hunt [guided]

1. Move around the school or playground looking for symmetrical patterns and take photos.
2. You might find some on the walls, fences or railings, or on the ground!

Challenge

Can you open up Cubetto and the Board?

Plenary and Assessment

1. Show one half of your face (or another adult's!) on the board. Ask: Is my face symmetrical?
2. Hand out mirrors and ask children to explore whether their faces are symmetrical. Explain most people's faces aren't symmetrical!
3. Ask: How do we know if a shape is symmetrical? If we cut it down the middle, both sides are the same.
4. Show the map and ask children to share which shapes they think are and aren't symmetrical and their reasons.
5. Ask volunteers to share their symmetrical traffic light counter patterns and discuss.

Lesson 2: Cubetto's City Symmetry (1 of 2)

EYFS Focus: Maths - ELG 12 (Shape, space & measure)

NC Objectives	Outcomes	Resources Needed	Prep Needed	Resources Provided	Key Vocabulary
To explore a digital device	• I can draw half of a symmetrical shape • I can talk about three blocks	• Paints and paper • Mini whiteboards • Rope • Green, orange & red counters • Mirrors & stickers • Camera	• Check batteries. • Cut out non-symmetrical squares and place at random on map.	• Symmetrical squares	• Same • Symmetrical • Whole • Middle

Computational thinking concept

Algorithms

Computational thinking approach

Tinkering

Teacher-led Introduction

1. Hold together two halves of the traffic light picture and ask: Is this picture symmetrical? How do you know?
2. Stick one half of the picture to the whiteboard and ask a volunteer to try to draw the same the other side to make it whole – it's tricky!
3. Ask: Is Cubetto symmetrical? Discuss.
4. Draw one half of a square (Cubetto) on the board and ask pupils to copy it on their whiteboards.
5. Ask: Can you finish this picture to make a whole Cubetto? So, is Cubetto symmetrical? How do you know?
6. Place one half of the hospital square on the corresponding square on the map.
7. Ask a pupil to pick another half picture without looking, hold it up and ask the class: Does this make it a whole?
8. Ask volunteers to pick out halves at random until they find the matching hospital half.
9. Ask: Is this picture symmetrical? Place Cubetto on the hospital square.
10. Ask: Can you make Cubetto move to another symmetrical picture?
11. Explore trying out different blocks with pupils' suggestions and recap the block functions.

Lesson 2: Cubetto's City Symmetry (2 of 2)

Activity 1: Finish the drawing

1. Look at the symmetrical picture from Cubetto's map.
2. Can you finish the picture by drawing the other side?
3. Remember: both sides must be the same!

Activity 2: Traffic lights

1. Take three of the counters: one green, orange and red.
2. Put them in a line. Use a mirror to make a symmetrical pattern.
3. Use three more counters to make a symmetrical pattern.
4. What other symmetrical patterns can you make?

Activity 3: Mirror play [outside]

1. Teacher to lay out rope – one for each pair.
2. One person stands one side of the rope and makes a shape.
3. Can you make the symmetrical shape on your side of the rope?

Activity 4: City symmetry [with symmetrical halves on map]

1. Choose a symmetrical half picture and place Cubetto on it.
2. Can you find the other half to make a symmetrical shape?
3. Make Cubetto move to find the other half and get a sticker when you reach it!

Activity 5: Mirror map

1. Use a mirror to explore the pictures on the Primo map.
2. Which pictures aren't symmetrical? How do you know?

Activity 6: Symmetry hunt [guided]

1. Move around the school or playground looking for symmetrical patterns and take photos.
2. You might find some on the walls, fences or railings, or on the ground!

Challenge

Can you make Cubetto turn around?

Plenary and Assessment

1. Lay out all the City Map picture halves at random, face down, in the middle of the class sat in a circle.
2. Ask volunteers to come up and select two cards at random, show the cards to the class and say if they make a symmetrical shape.
3. Repeat at speed, trying to find all the matching pictures.
4. Ask pupils to choose one half of a picture to their whiteboard and draw the other half, then show it to each other.
5. Take blocks at random and ask: What does this block do?

Lesson 3: Cubetto's Shopping Spree (page 1 of 2)

EYFS Focus: Maths – ELG 11 (Number)

NC Objectives	Outcomes	Resources Needed	Prep Needed	Resources Provided	Key Vocabulary
To create a simple algorithm	• I can identify 1p & 2p coins • I can write a simple algorithm	• Price tags • 1p & 2p coins • Fruit & veg • Purses/envelopes • Metallic crayons • Ramp/slope • Role play props	• Check batteries. • Label price tags with 1p–5p and stick to fruit and veg. • Copy Cubetto coin template.	• Cubetto coin template	• Market • Customer • 1p and 2p coins • Shopping

Computational thinking concept

Algorithms

Computational thinking approach

Creating

Teacher-led Introduction

1. Show Minecraft video of building a market stall: www.youtube.com/watch?v=oGW9yaNCe2Y and ask: Do you play Minecraft?
2. Explain that older children can build amazing worlds using Minecraft! Tell the children that by learning about computers using Cubetto, they can play games like this even quicker and better when they're older, and could even work with computers for a job!
3. Ask: Can you find the market stall on Cubetto's map? Do you go to a market? What do you buy?
4. Explain that Cubetto needs to do a food shop at the market and needs the pupils' help.
5. Display the price-tagged fruit and veg and ask for two volunteers to come to the front. Give out roles of customer and stall owner.
6. Hand the customer two 1p coins in a purse and ask: What coins do you have? Show class and ask: How much money do you have?
7. Tell the customer to look at the fruit and veg and ask the stall owner what they would like and how much this is, then hand over coins.
8. Explain that they will be using 1p and 2p coins today to go shopping with Cubetto.

Lesson 3: Cubetto's Shopping Spree (page 2 of 2)

Activity 1: Coin rubbing

1. Stick a coin to the back of a piece of paper and turn it over.
2. Rub over the coin using a metallic crayon.
3. What do you see? Which coin have you drawn?

Activity 2: Sorting coins

1. Take a pile of mixed 1p & 2p coins and two purses.
2. Can you sort the coins into the two purses for Cubetto?

Activity 3: Going shopping [guided]

1. Teacher to place fruit & veg with prices and coins on top of Cubetto.
2. Starting at the taxi, can you use the blocks to make Cubetto move to the market?
3. At the market, buy a piece of fruit/veg for Cubetto and leave the right coins behind on the square.

Activity 4: Role play

1. Work in a pair and role play buying and selling fruit and vegetables at the market.
2. How much money did you spend in total?

Activity 5: Coin rolling

1. Set up the slope on the floor and take different coins.
2. Which do you think will roll down the ramp?
3. Try rolling the coins down the ramp one at a time.

Activity 6: Cubetto's currency

1. Design new coins for Cubetto!
2. What pictures do we have on our coins?
3. Who or what would be on Cubetto's new coins?

Challenge

Can you work out what the cream block does?

Plenary and Assessment

1. Put a selection of 1p and 2p coins in a purse and ask volunteers to pull one out at random, show the class and name its value.
2. Show a piece of fruit/veg and ask: What coins would I need to buy this?
3. Ask volunteers to share their sorted coins and discuss which ones rolled down the slope. Ask: Did you guess correctly?

Lesson 4: Cubetto's Shopping Spree (page 1 of 2)

EYFS Focus: Maths – ELG 11 (Number)

NC Objectives	Outcomes	Resources Needed	Prep Needed	Resources Provided	Key Vocabulary
To create a simple algorithm	• I can add the value of two coins • I can write a simple algorithm	• Price tags • 1p & 2p coins • Fruit & veg • Purses/envelopes • Metallic crayons • Ramp/slope • Number lines • Role play props	• Check batteries. • Hide large coin pictures around classroom. • Label price tags with 1p–5p and stick to fruit and veg. • Copy Cubetto coin template.	• Cubetto coin template	• 1p and 2p coins • Total • Add • Shopping

Computational thinking concept

Algorithms

Computational thinking approach

Creating

Teacher-led Introduction

1. Show first minute of Money Song: www.youtube.com/watch?v=dFzAU3u06Ps and ask: Which coins did you see?
2. Explain that Cubetto dropped his wallet and lost some of his coins in the classroom! Ask children to hunt for the 1p and 2p coins hidden around the room.
3. Ask two pupils to stand at the front holding 1p coins. Ask: How much do they have in total? How could we work this out?
4. Model identifying the two coins as 1p, then using the number line to add another 1 and finding the answer = 2p.
5. Ask two pupils holding different coins to stand up and ask: How can we work out the total? Collect ideas and support pupils to add up.
6. Ask: If Cubetto wanted to buy a banana for 2p, which coins would he need? Repeat for other fruit and veg.
7. Place the banana on the market square and Cubetto on the taxi. Ask: How could we move Cubetto to get to the market?
8. Collect ideas and test out suggestions.

Lesson 4: Cubetto's Shopping Spree (page 1 of 2)

Activity 1: Coin rubbing

1. Stick a coin to the back of a piece of paper and turn it over.
2. Rub over the coin using a metallic crayon.
3. What do you see? Which coin have you drawn?

Activity 2: Sorting coins

1. Take a pile of mixed 1p & 2p coins and two purses.
2. Can you sort the coins into the two purses for Cubetto?

Activity 3: Going shopping [guided]

1. Teacher to place fruit & veg with prices and coins on top of Cubetto.
2. Starting at the taxi, can you use the blocks to make Cubetto move to the market?
3. At the market, buy a piece of fruit/veg for Cubetto and leave the right coins behind on the square.

Activity 4: Role play

1. Work in a pair and role play buying and selling fruit and vegetables at the market.
2. How much money did you spend in total?

Activity 5: Coin rolling

1. Set up the slope on the floor and take different coins.
2. Which do you think will roll down the ramp?
3. Try rolling the coins down the ramp one at a time.

Activity 6: Cubetto's currency

1. Design new coins for Cubetto!
2. What pictures do we have on our coins?
3. Who or what would be on Cubetto's new coins?

Challenge

Can you make Cubetto go backwards without the purple block?

Plenary and Assessment

1. Ask volunteers to pick two coins at random and tell the class how much money they have in total.
2. Show two fruits at random and ask the class to write on their whiteboards how much money they would need in total to buy them.
3. Ask pupils to share their algorithms for making Cubetto get to the market.

Lesson 5: Cubetto's Savings (page 1 of 2)

EYFS Focus: Maths – ELG 11 (Number)

NC Objectives	Outcomes	Resources Needed	Prep Needed	Resources Provided	Key Vocabulary
To create a simple algorithm	• I can identify 10p and 20p coins • I can use the backward block	• Dice • Coin pictures • 10p & 20p coins • Purses/envelopes • Number line • Role play props • Jars	• Check batteries. • Stick 1p, 2p, 10p & 20p coins on sides of the dice. • Copy note templates.	• Cubetto currency template • UK currency pictures	• Saving • Money • Bank • 10p & 20p coins

Computational thinking concept

Algorithms

Computational thinking approach

Collaborating

Teacher-led Introduction

1. Read or show 'An Earthworm a Day' book: www.youtube.com/watch?v=u4DJ9LNm78g and ask: What did Baby do?
2. Explain that Baby saved an earthworm to make sure all the mole family always had enough.
3. Ask: What else could we save? Collect children's ideas and introduce saving money. Explain that saving is a way of building up your money – you have to wait and not buy small things so you can buy something big, like a holiday or car!
4. Explain that Cubetto needs their help saving. Ask: What do you think Cubetto is saving up to buy? Collect ideas and choose one.
5. Ask children to point to the bank on the map and explain that this is where Cubetto needs to take the money he collects today – the bank keeps your money safe for you until you're ready to spend it.

Lesson 5: Cubetto's Savings (page 2 of 2)

Activity 1: Banking money

1. Pick any square to start from and choose three coins to place on top of Cubetto.
2. Can you make Cubetto move to the bank?
3. Put your savings on the bank square when you arrive.

Activity 2: Dice coins

1. Take a purse with coins in and work in a small group.
2. Take it in turns to roll the dice and name the coin that shows.
3. Find the matching coin in the purse and keep it.
4. The winner is the person with the most money at the end!

Activity 3: Backwards taxi

1. Cubetto has a flat tyre and needs to get a taxi! Put 20p on top.
2. Place Cubetto on the bike and program him to get to the taxi square.
3. Can you use the backward block? Leave the coin on the taxi.

Activity 4: New notes!

1. Design new notes for Cubetto to spend.
2. What pictures do we have on our notes?
3. What pictures would Cubetto have on his new money?

Activity 5: Role play

1. Work in pairs, role playing giving money into the bank.
2. Each person takes turn being the customer and the banker.
3. How much money did you save in the bank?

Activity 6: Coin drop

1. Work in pairs with your backs to one another.
2. One takes some coins and drops them in the jar slowly, one at a time.
3. Your partner must listen and guess how many coins are in the jar!
4. Were you right? Have a look and swap roles.

Challenge

Can you move from the hospital to the taxi to get home?

Plenary and Assessment

1. Play snap with the 10p and 20p coin pictures mixed up lying face down. Ask pupils to turn pictures over two at a time and if they match, they can keep them.
2. Ask: Who has 20p in total? Discuss which coins they have.
3. Ask: What colour is the backward block? What did you use the backward block to do today?
4. Ask volunteers to share their algorithms moving to the taxi.

Lesson 6: Cubetto's Savings (page 1 of 2)

EYFS Focus: Maths – ELG 11 (Number)

NC Objectives	Outcomes	Resources Needed	Prep Needed	Resources Provided	Key Vocabulary
To create a simple algorithm	• I can add the value of two coins • I can explain the backward block	• Dice • Coin pictures • 10p & 20p coins • Purses/envelopes • Number line • Role play props • Jars	• Check batteries. • Stick 1p, 2p, 10p & 20p coins on sides of the dice. • Copy currency templates.	• Cubetto currency template • UK currency pictures	• Saving • Money • Bank • 10p & 20p coins

Computational thinking concept

Algorithms

Computational thinking approach

Collaborating

Teacher-led Introduction

1. Show the 1p, 2p, 10p and 20p coins and pass around for exploration and discussion.
2. Ask: Which coin can buy you more things? 20p. Ask: Which coin can't buy you very much? 1p.
3. Tell pupils to look at the numbers on the coins carefully. Ask pupils to hold up the 10 etc.
4. Mix up the coins on the board and ask pupils to order their coins from the smallest number up to the biggest number.
5. Address any mistakes by explaining that big coins don't always mean they can buy you more things! The coins with the biggest number are sometimes small!
6. Show the 1p and the 20p and ask: Which coin is bigger? Which coin can buy you more things?
7. Ask a volunteer to put the coins on the board in order from smallest number to biggest.

Lesson 6: Cubetto's Savings (page 2 of 2)

Activity 1: Banking money (guided)

1. Pick any square to start from and choose three coins to place on top of Cubetto.
2. Can you make Cubetto move to the bank?
3. Put your savings on the bank square when you arrive.

Activity 2: Dice coins

1. Take a purse with coins in and work in a small group.
2. Take it in turns to roll the dice and name the coin that shows.
3. Find the matching coin in the purse and keep it.
4. The winner is the person with the most money at the end!

Activity 3: Backwards taxi

1. Cubetto has a flat tyre and needs to get a taxi! Put 20p on top.
2. Place Cubetto on the bike and program him to get to the taxi square.
3. Can you use the backward block? Leave the coin on the taxi.

Activity 4: New notes!

1. Design new notes for Cubetto to spend.
2. What pictures do we have on our notes?
3. What pictures would Cubetto have on his new money?

Activity 5: Role play

1. Work in pairs, role playing giving money into the bank.
2. Each person takes turn being the customer and the banker.
3. How much money did you save in the bank?

Activity 6: Coin drop

1. Work in pairs with your backs to one another.
2. One takes some coins and drops them in the jar slowly, one at a time.
3. Your partner must listen and guess how many coins are in the jar!
4. Were you right? Have a look and swap roles.

Challenge

Can you move from the school to the bank?

Plenary and Assessment

1. Ask: What does the purple block do? Ask pupils to turn to their partners to tell each other, then share.
2. Show two 10p coins and a number line/square and ask: How much money does Cubetto have in total?
3. Model adding the two numbers together and finding the answer.
4. Ask pupils to share their new coins and notes for Cubetto's currency and explain why they chose those pictures.

Lesson 7: Cubetto's City Bowling (page 1 of 2)

EYFS Focus: Maths – ELG 11 (Number)

NC Objectives	Outcomes	Resources Needed	Prep Needed	Resources Provided	Key Vocabulary
To predict the behaviour of simple programs	• I can solve addition problems • I can use the random block	• Plastic bottles with sand inside • Sponge balls • Recycled materials • Yoghurt drink bottles & stickers • Camera	• Check batteries. • Label the bottles with the number 1 to make 'bowling pins'. • Laminate bowling square to place on map.	• Bowling alley square	• Bowling • Pins • Score • Add

Computational thinking concept

Logic

Computational thinking approach

Persevering

Teacher-led Introduction

1. Tell the children that Cubetto has a few days off work and wants to have some fun – he's going bowling! Ask: Where have you been bowling before? What is bowling?
2. Show the Sponge Bob bowling game video: www.youtube.com/watch?v=TLtl3rkv--4 and ask: Why is the character sad at first?
3. Explain that the aim is to knock down all the bowling pins: the more you knock down, the higher your score.
4. Show the labelled bowling pins and ask children to identify the number on each.
5. Place the bowling square on one side of the map and the pins on the other, two at front and three behind. Ask volunteers to stand on the bowling alley and try knocking them down using the ball.
6. Ask: What is your score? Model adding up the numbers on the bottles.
7. Tell the children that it's now Cubetto's turn! Explain that they will program Cubetto to knock down the pins and add up his score.

Lesson 7: Cubetto's City Bowling (page 2 of 2)

Activity 1: Five bowling pins [guided]

1. Count backwards from 5 to 0 as a group.
2. Sing, "Five bowling pins sitting in the alley" together!

Activity 2: Go bowling! [guided]

1. What does the black block do?
2. Place Cubetto on the bowling alley and the pins in front.
3. Program Cubetto to knock down as many of the pins as possible using the random block.
4. What is your score?

Activity 3: Bowling alley

1. Make a bowling alley from recycled materials: it needs sides and a back.
2. Draw the lines for the ball to follow and decorate!

Activity 4: Arrays

1. Work in pairs to place five bowling pins on the map next to each other, one in each square.
2. Take a photo.
3. How else can you arrange the bowling pins next to each other?

Activity 5: Random

1. Make an algorithm using the random block.
2. Ask a friend to watch Cubetto move and tell you what the random block made Cubetto do.

Activity 6: Pin craft

1. Take five small yoghurt drink bottles and five stickers.
2. Write numbers 1-5 on the stickers and stick to each bottle.
3. Make five bowling pins for your alley!

Challenge

Can you work out what the blue block does?

Plenary and Assessment

1. Ask volunteers to share their photos of the bowling pin arrays on Cubetto's map. Ask: Did anyone do it differently? How many ways did you find?
2. Ask: How did you use the random block today? What happened? Ask pairs to share how they worked together.
3. Ask volunteers to share their bowling scores and make a class tally.

Lesson 8: Cubetto's City Bowling (page 1 of 2)

EYFS Focus: Maths – ELG 11 (Number)

NC Objectives	Outcomes	Resources Needed	Prep Needed	Resources Provided	Key Vocabulary
To predict the behaviour of simple programs	• I can solve addition problems • I can predict Cubetto's moves	• Plastic bottles with sand inside • Sponge balls • Recycled materials • Yoghurt drink bottles & stickers	• Check batteries. • Label the bottles with the number 1 to make 'bowling pins'. • Laminate bowling square to place on map. • Prepared algorithm to go bowling for children to predict.	• Bowling alley square • Famous Computer Programmers	• Predicting • Test • Algorithm

Computational thinking concept

Logic

Computational thinking approach

Persevering

Teacher-led Introduction

1. Play 'Sink or Float?' with the class: http://pbskids.org/rogers/sink.html. Before volunteers test each object, ask the class: Do you think this will sink or float? Why?
2. Explain that when pupils guessed whether the object would sink or float, they were predicting. Introduce prediction as a way of guessing what will happen using what they already know.
3. Ask: If I drop this ball, what do you predict will happen? Collect ideas and drop the ball to test out their predictions.
4. Discuss other things children can predict (e.g. what happens next in a story or what the weather might be like tomorrow).
5. Place Cubetto on the bowling alley with the pins on the map. Show the algorithm and ask: What do you predict will happen?
6. Name each block and ask pupils to mark where on the map Cubetto will move to.
7. Test out children's predictions and discuss.

Lesson 8: Cubetto's City Bowling (page 2 of 2)

Activity 1: Five bowling pins [guided]

1. Count backwards from 5 to 0 as a group.
2. Sing, "Five bowling pins sitting in the alley" together!

Activity 2: Go bowling! [guided]

1. What does the black block do?
2. Place Cubetto on the bowling alley and the pins in front.
3. Program Cubetto to knock down as many of the pins as possible using the random block.
4. What is your score?

Activity 3: Bowling alley

1. Make a bowling alley from recycled materials: it needs sides and a back.
2. Draw the lines for the ball to follow and decorate!

Activity 4: Arrays

1. Work in pairs to place five bowling pins on the map next to each other, one in each square.
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1. Take five small yoghurt drink bottles and five stickers.
2. Write numbers 1-5 on the stickers and stick to each bottle.
3. Make five bowling pins for your alley!

Challenge

Can you work out what the blue block does?

Plenary and Assessment

1. Ask volunteers to share their bowling alleys and pins they have made with the class, explaining how they made them.
2. Ask: What did you predict today? Were you correct?
3. Explain that people who work with computers for their job use predicting to work out what might happen – it's a very useful skill!
4. Show images of Computer Programmers and ask: What do you think these people do for a job?
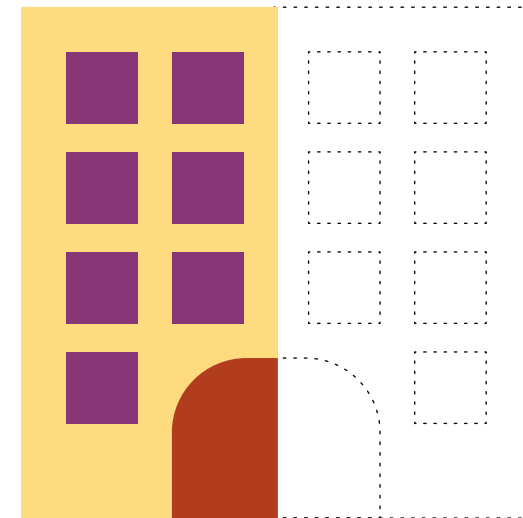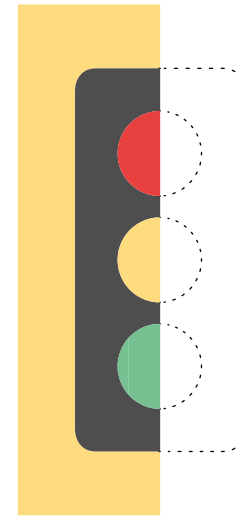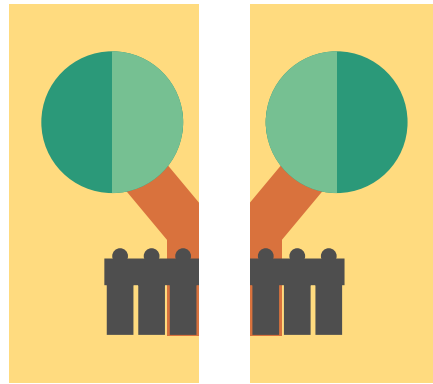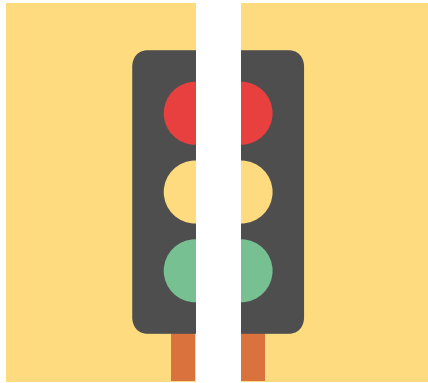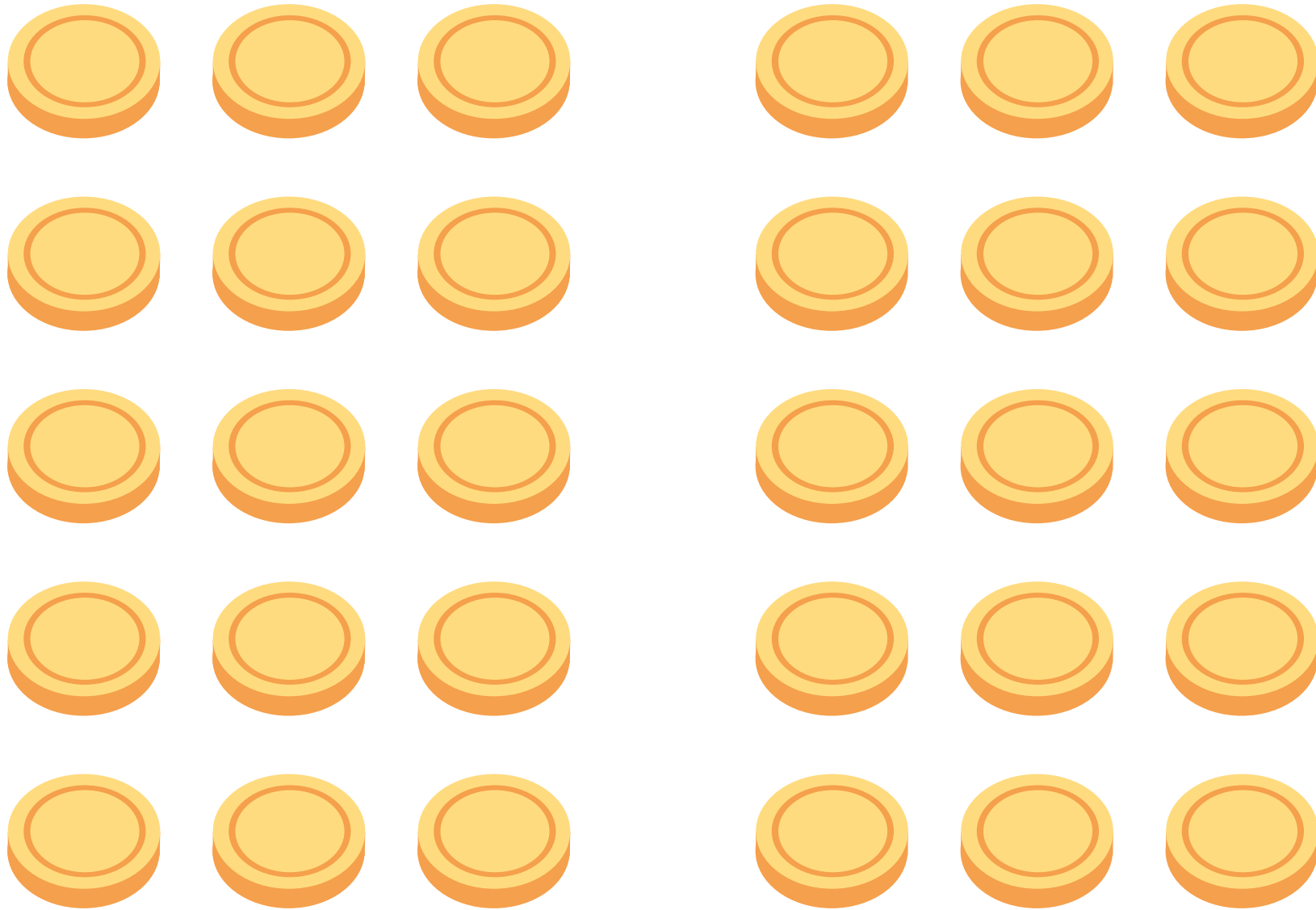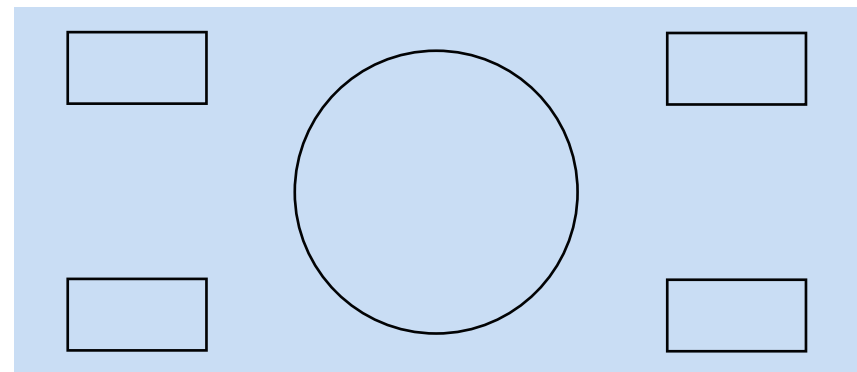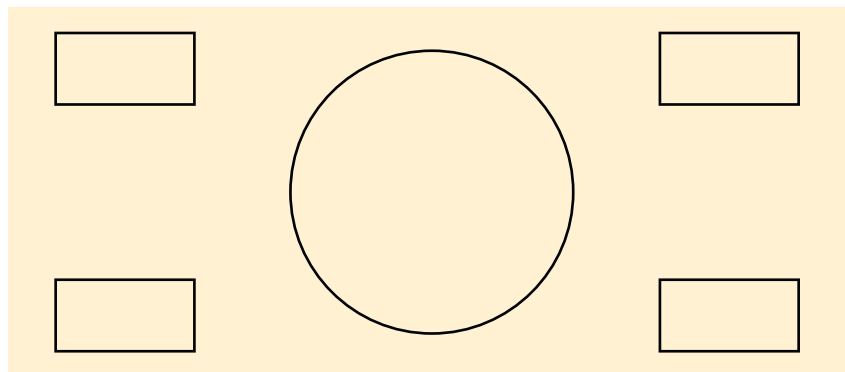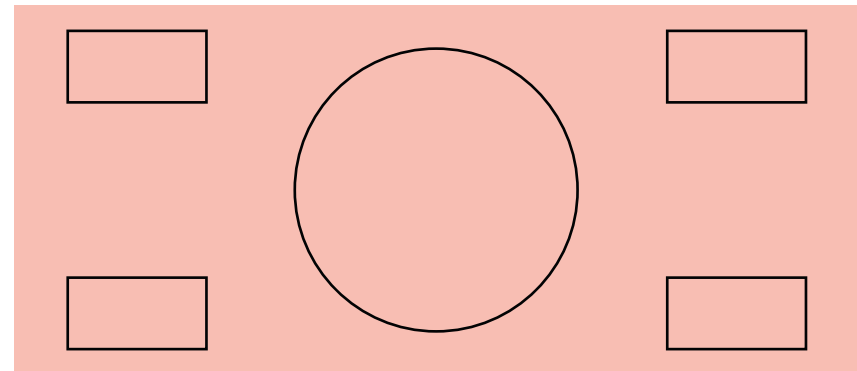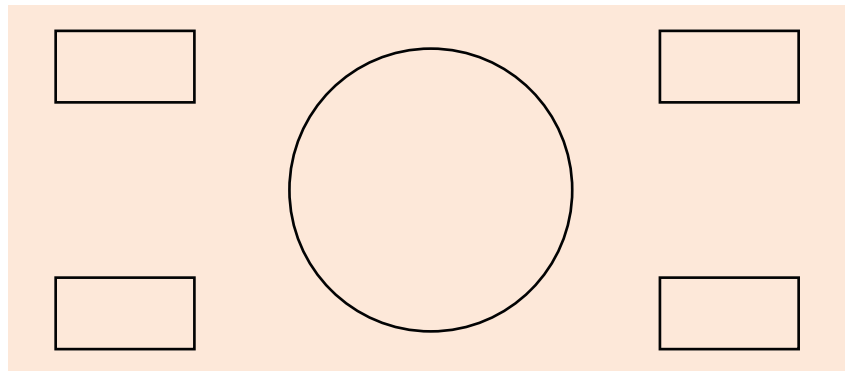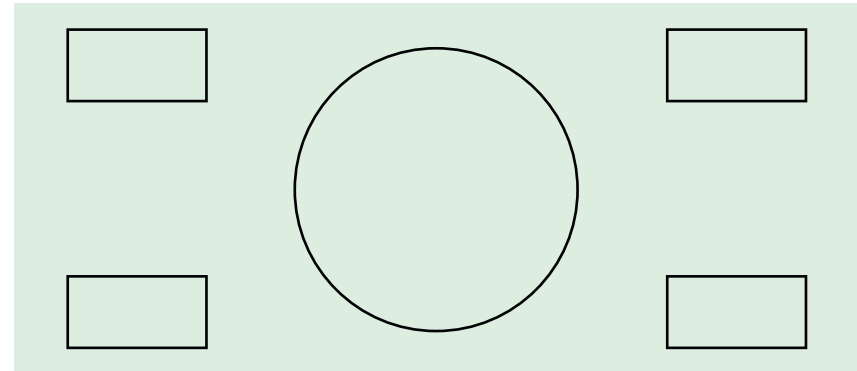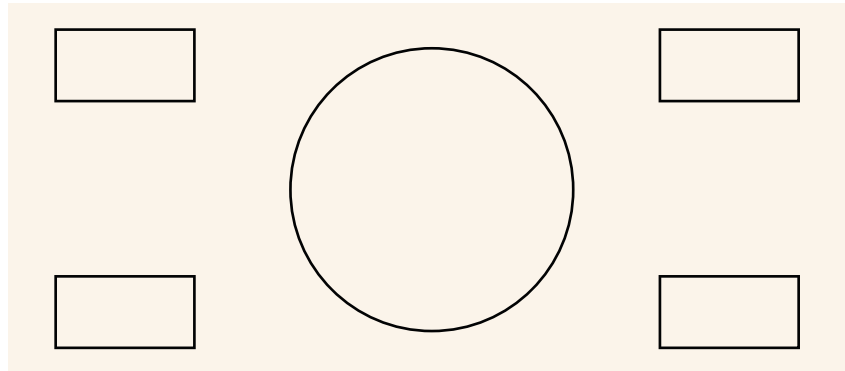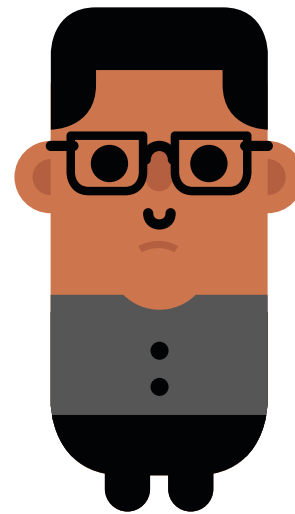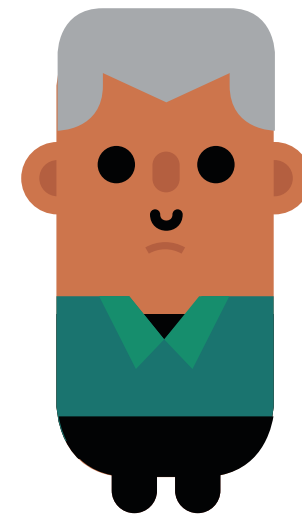
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