




Maths and Me: Junior Infants – Short-Term Plan, Unit 6: Shape (November: Weeks 3&4)

Strand(s) > Strand Unit(s)	Shape and Space > Shape			
Learning Outcome(s)	Through appropriately playful and engaging learning experiences children should be able to explore and recognise properties of 3-D and 2-D shapes.			
Lesson	Focus of Learning (with Elements)	CM	Learning Experiences	Assessment
1	Exploring 3-D Shapes: Identifies and recognises shapes in the environment (U&C); Explores and uses language to describe shape properties (C)		(D) Reason & Respond L1-4, 6-8 (C) Class discussion: Shapes All Around Us L1 (D) Think-Pair-Share L1-2, 6 (D) Notice & Wonder L2 (C) Geometric Solids L2 (C) Playing with Geometric Solids L2 (C) Maths Stations: Exploring and Sorting Shapes L3	Intuitive Assessment: responding to emerging misconceptions
2	3-D Shapes All Around Us: Discriminates between shapes, identifying when one shape is similar or different to another (R)		(C) Class discussion: Exploring 3-D Shapes L4 (C) Building with Shapes L4 (C) Game: Name that Shape! L5 (C) Game: Sensory ('Feely') Bag L5 (C) Constructing 3-D Shapes L5 (C) Introducing 2-D Shapes L6	Planned Interactions: responding to insights gleaned from children's responses to learning experiences
3	Sorting 3-D Shapes: Selects appropriate criteria for shape sorting (R); Identifies why an object or set of objects is different or does not belong to a familiar category (R); Explains how shapes have been sorted (R)		(C) Class discussion: 2-D Shapes All Around Us L6 (C) Exploring 2-D Shapes L6 (C) Hidden Shape L7 (C) Game: What Shape Is it, Mr Wolf? L7 (C) Maths stations: Exploring 2-D Shapes L8 (D) Shape Train L9 (C) Class discussion: Revising 3-D Shapes L9 (C) Sorting 2-D and 3-D Shapes L9 Print resources Pupil Book pages 32-35 Home/School Link Book pages 16-17 PCMs 2, 26-28	Assessment Events: information gathered from completion of the unit assessment in the Progress Assessment Booklet pages 13-14
4	Naming 3-D Shapes (1): Recognises and names common 3-D shapes in different orientation and sizes (U&C)			
5	Naming 3-D Shapes (2): Recognises and names common 3-D shapes in different orientation and sizes (U&C)			
6	Exploring 2-D Shapes: Recognises and names common 2-D shapes in different orientation and sizes (U&C)			
7	2-D Shapes All Around Us: Recognises and names common 2-D shapes in different orientation and sizes (U&C)			
8	Solving 2-D Shape Problems: Represents shapes in various ways (C); Explores shape properties and functions, and describes using everyday language (C)			
9	Sorting 2-D and 3-D Shapes: Sorts, compares and classifies 2-D and 3-D objects into logical categories according to their attributes. For example: non-geometrical properties such as colour, size and geometrical properties. (R); Solves problems involving 2-D shapes (A&PS)			
10	Review and Reflect: Reviews and reflects on learning (U&C)			

Key: Elements: (U&C) Understanding and Connecting; (C) Communicating; (R) Reasoning; (A&PS) Applying and Problem-Solving. **CM:** **Cuntas Míosúil:** please tick when you have completed the focus of learning. **Learning Experiences:** (C) concrete activity; (D) digital activity; (P) activity based on printed materials, followed by lesson numbers.

Additional information for planning

 Progression Continua	See 'Junior Infants <i>Maths and Me</i> Progression Continua Overview' for a detailed breakdown of how all progression continua are covered.
 Maths Language	See 'Junior Infants <i>Maths and Me</i> Maths Language Overview', individual lesson plans and Unit 6 Maths Language Cards.
 Equipment	See 'Junior Infants Maths Equipment Overview' and individual lesson plans.
Inclusive Practices	<ul style="list-style-type: none"> ● See Let's Strengthen and Let's Deepen suggestions throughout lesson plans. ● See Unit 6 Let's Strengthen Suggestions for Teachers. (These address the Common Misconceptions and Difficulties listed below.) ● See Unit 6 Let's Strengthen PCM. ● See Unit 6 Let's Deepen PCM.
Integration	See individual lesson plans.

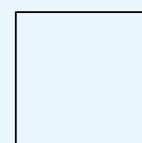
Background and rationale

- At the Junior Infant level, the children first engage with 3-D shapes as they are the shapes that are most familiar to them (boxes, balls, tubes, etc.).
- The children will need plenty of practical, hands-on experience of these shapes in their 'real format' (e.g. cereal boxes, toilet rolls, cans).
- The children's experience of concrete shapes also extends to the play areas and other informal settings to reinforce the idea that shapes are in our everyday lives. This enriched experience lays a solid foundation for later understanding of shape, spatial awareness, and transformation.
- Learning the names of the shapes comes later; the initial focus is on acquiring the language to describe the shapes (pointy, round, etc.).
- While engaging with 3-D shapes, the children are also informally discovering 2-D shapes (there is a square on the cube; a circle at the bottom of the cylinder).

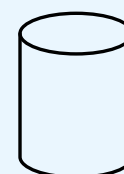
The theme of this unit is **Shapes in Our World**.

Common misconceptions and difficulties

- The children may have a mental image of one orientation of a 2-D shape.
- The children may fail to recognise a shape when its orientation changes, and may focus on size and colour instead. (Getting plenty of hands-on experience with shapes and seeing them in different orientations will mitigate this misconception.)
- The children may have a mental image of one orientation of a 3-D shape, e.g. a cylinder.
- The children may not fully realise the link between 3-D shapes and 2-D shapes. (Engaging with 3-D shapes at first will lead the children to a better understanding of this link.)
- The children may use the name of a common object to name a shape (e.g. 'ball' instead of 'sphere').
- The children may confuse and/or misname 2-D and 3-D shapes, generally and specifically (e.g. confuse circle and sphere, as the drawn representation of a sphere is a circle; confuse cube with cuboid, as they sound similar; confuse cylinder with sphere, as they both start with a soft 'c' sound).



2-D shape: square



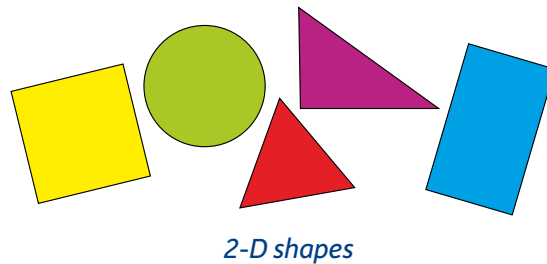
3-D shape: cylinder

- The children may confuse key language (e.g. sides).
- The children may miscount the number of sides in a shape. (For a child to be able to visualise shapes, they must have ample experience of manipulating the physical representations. Therefore, experiences with concrete materials and equipment are vital and should be enabled as much and as often as possible.)

The Unit 6 Let's Strengthen Suggestions for Teachers address the common misconceptions and difficulties listed above.

Mathematical models and representations

- Geometric solids
- 2-D shapes
- Geoboards



Teaching tip

A 2-D Shapes manipulative printable is available to support this unit. Click on the resources icon on the *Maths and Me* book cover on edcolearning.ie.

Day 1, Lesson 1

Exploring 3-D Shapes

Focus of learning (with Elements)

- Identifies and recognises shapes in the environment (U&C)
- Explores and uses language to describe shape properties (C)

Learning experiences

- D** Animation: At the Supermarket **MAM Routine: Reason & Respond**
- C** Class discussion: Shapes All Around Us
- C** Concrete activity: Exploring Items from the Class Shop
MAM Routine: Reason & Respond
- C** Drawing activity: Exploring Objects **MAM Routine: Think-Pair-Share**
- D** Video: 3-D Shapes All Around Us **MAM Routine: Reason & Respond**

Equipment

- Items from the class shop: cuboids (boxes), spheres (tennis balls, golf balls, ping pong balls), cylinders (tubes), cubes

Maths language

- round, curves, curved, straight, corners, flat, sharp, pointy, lines, sides, cube*, cylinder*, cuboid*, sphere*
(*To be used at your discretion, depending on the prior knowledge of your class and their ability level)

Teaching tip

Try to ensure that there is a good representation of different 3-D shapes, e.g. for cylinders, include some that are squat and others that are slender. The children could also bring in items from home, reinforcing the idea that shapes are all around us.

Warm-up

D Animation: At the Supermarket
MAM Routine: Reason & Respond

Play the animation, in which Mia and her dad are doing their grocery shopping. Items of various shapes and sizes pass by on the supermarket conveyor belt. The children see 'real world' 3-D shapes. Invite them to watch out for things they would like to buy in a supermarket.

Encourage the children to respond to the questions posed in the animation, such as:

- What do you notice about this shape?
- Do you think this shape can roll?
- Does this shape have corners?

You could also ask/say:

- What do you see in the animation? (Supply the term 'conveyor belt'.)
- What is on the conveyor belt? (Groceries/shopping)
- What is Mia's dad buying today?
- Name each item on the conveyor belt.



Let's strengthen

Model the maths language. Ask:

- Can you see something that is pointy/round/curved? (*You are supplying the language.*)
- What shape is the orange? (round ... like a ball)
- What else can we say about this shape (the orange)? (It can roll.)
- Could I stack the oranges up and make a big tower? Why not?
- What is this on the belt? (chocolate orange/tube of sweets)

Continue eliciting the following language: *round, curves, curved, straight, corners, sharp*. Tell the children to watch out for Monty jumping up when he sees a cuboid (a box of dog biscuits)!

Let's deepen

Use the 3-D shape names if you assess that your class is ready for them.

Main event

C Class discussion: Shapes All Around Us

Tell the children to put on their Maths Eyes and to look around the classroom and outside the window. Ask/say:

- Let's use our new words to talk about what we see.
- Can you see anything that is straight (e.g. a table)/round/sharp/pointy?
- Can you see anything that has corners/curves? (You are supplying the language.)
- What can you tell me about this shape? (The children supply the language.)

Let's deepen

Can the children work in pairs to make up riddles about shapes inside and outside the classroom?

For example:

- I can see a shape that is flat on top but has round/curved legs. Do you know what it is? (a table)

C Concrete activity: Exploring Items from the Class Shop MAM Routine: Reason & Respond

Distribute an item from the class shop to each child.

Ask:

- Who can tell me about their object (e.g. a box)? (Encourage the children to use the language they have been learning.)
- Does anyone else have a shape like this? Is your shape the same, or is it a bit different?
- Can you tell me about your shape (e.g. cuboid)?

- Does the round shape/sphere have any corners?
- Could you stack these boxes?
- Could you stack these round shapes/spheres? Why not?

C Drawing activity: Exploring Objects

MAM Routine: Think-Pair-Share

On a sheet of paper, each child draws around the base of their item from the class shop. They are not expected to have sufficient fine motor skills to be able to accurately draw around the shape, but this activity allows them to further explore the properties of shapes. For example, a child might say: 'I can't draw around this ball. It keeps moving.' You might ask: 'What shape would be easier to draw around?' Some children might know the name of the 2-D shape, circle. Some might notice that they have drawn a circle around their cylinder.

Using Think-Pair-Share, ask

- Would it be easier to work with a partner?
- How could they help? (They could hold the object.)

Let's strengthen

Use the class activity as an opportunity to reinforce the maths language with EAL children/ children with learning difficulties.

D Video: 3-D Shapes All Around Us

MAM Routine: Reason & Respond

Play the video, which shows examples of 3-D shapes in the world around us. Ask the children to name the shapes as they appear.

Optional consolidation and extension possibilities



Music Listen to a song that names the five main 3-D shapes: edco.ie/huwj

Home/School Links Book Page 16 can be completed any time after this lesson.

Find the Shapes Play the video (above) again, with no sound. Can the children name the 3-D shapes? Can they find any of the shapes in the classroom? Examples: cube – dice; cylinder – pencil case; cuboid – box of crayons; sphere – ball.

Day 2, Lesson 2

3-D Shapes All Around Us

Focus of learning (with Elements)

- Discriminates between shapes, identifying when one shape is similar or different to another (R)

Learning experiences

- D** Digital activity: At the Playground **MAM Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond**
- C** Concrete activity: Geometric Solids
- C** Concrete activities: Playing with Geometric Solids
- P** Pupil's Book page 32: 3-D Shapes All Around Us

Equipment

- Geometric solids: cubes, cuboids, spheres and cylinders only. (Shapes of the same type should all be the same size and colour.)

Maths language

- There is no new maths language in this lesson.

Warm-up

- D** **Digital activity: At the Playground**
MAM Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond

Display the poster and, using Think-Pair-Share, click to play or ask:

- What do you notice?
- What do you wonder?

Record the children's responses to both questions on the board.

Then, click to play or ask:

- Do you see anything sharp or pointy in the picture? Where?
- Do you see anything round or with curves?
- Can anyone remember any shape names? (cylinder, sphere, cube, cuboid)
- Can you see any cylinders? How do you know they are cylinders?

- Can you see any spheres? What do they look like?
- Who is swinging on a sphere?
- Who is stepping on a cylinder?
- What shapes is the train made of?
- Can you name the shape that Monty is chasing?
- Can you see two blue cubes?

Let's deepen

Ask:

- What is the difference between the cylinder and the cube (the sphere and the cylinder; the cylinder and the cuboid; the cube and the cuboid)?

You are looking for the difference in properties, e.g. 'It is pointy at the sides' (not the difference in size or colour).

Main event

- C** **Concrete activity: Geometric Solids**

Distribute a set of geometric solids to each child. The children explore the shapes and their properties. Ask:



- Are any of these shapes the same?
- Do some of the shapes have corners/sharp edges/straight edges?
- Is one shape a bit like one of the other shapes? (cube and cuboid)
- What is the difference between those two shapes?
- What is the difference between the cylinder and the sphere?
- How are these two shapes the same? (The cylinder and sphere can both roll.)
- Are these two shapes the *exact* same?

Assess whether some children know the names of 2-D shapes and can say, for example:

- This shape/cube has a square on this side.

Let's deepen

Ask:

- Is this shape (cube) a good shape for a dice? Would a round shape (sphere/ball) work better?
- Is this shape (cuboid) a good shape for a box of crayons? Would a sphere/ball work better?
- What shape would work for a ball?
- What shape is a toilet roll? (cylinder)
- Why is that a good shape for a toilet roll?

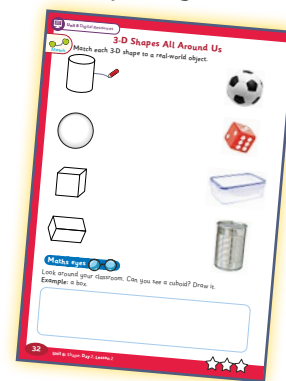
C Concrete activities: Playing with Geometric Solids

Take Away Shapes: In groups, Child A takes away a shape (or you could do this) while the other players have their eyes closed. The players describe (or name) the shape that was taken away. Play the game four times (or ensure that each shape got a 'chance' to be described).

Ask the Banker: In groups, Child A is the banker and is in charge of all of the group's shapes. In turn, the

other players each ask for a shape by describing it, and the banker figures out which shape to give them.

P Pupil's Book page 32: 3-D Shapes All Around Us



Optional consolidation and extension possibilities

Bubbles (Integration with PE and Science) Bring a bubble kit (or perhaps a giant bubble kit) to the PE hall or outside. Explore the shape the bubble makes first when it comes out of the wand. This is a great way for the children to remember spheres (just think bubbles!).

Let's deepen

From a science perspective, the children might notice how some surfaces are good for holding the bubbles, while other surfaces cause the bubble to burst.

Day 3, Lesson 3

Sorting 3-D Shapes

Focus of learning (with Elements)

- Selects appropriate criteria for shape sorting (R)
- Identifies why an object or set of objects is different or does not belong to a familiar category (R)
- Explains how shapes have been sorted (R)

Learning experiences

- D** Digital activity: Odd One Out
MAM Routine: Reason & Respond
- D** Toolkit: Sorting Circles *MAM Routine: Reason & Respond*
- C** Maths Stations: Exploring and Sorting Shapes
- P** Pupil's Book page 33: Sorting 3-D Shapes

Equipment

- Jigsaw puzzles
- Shape sorter
- Geometric solids: cubes, cuboids, spheres and cylinders only
- Items from the class shop

Maths language

- There is no new maths language in this lesson.

Warm-up

D Digital activity: Odd One Out
MAM Routine: Reason & Respond

Play the multiple-choice activity, in which the children are shown sets of shapes, with one shape in each set that does not belong, e.g. a set of yellow

cubes with one yellow sphere. Invite the children to take turns to select the correct answer.

Ask:

- Which shape does not belong? Why?



D Toolkit: Sorting Circles

MAM Routine: Reason & Respond

This is an opportunity to revise and assess the children's understanding of sorting using multiple criteria as there are several different ways of sorting the shapes. You are also assessing their recognition of individual shapes and the language associated with these shapes.



Open the Manipulatives e-Toolkit and select the Sorting Circles tool. Using the selection of shapes, click and drag to create sets of shapes (e.g. a large cube, a small cube, a cylinder and a cuboid).

Ask:

- How will we sort the shapes? Where will we start? (They might decide to sort the shapes by size, or by property, e.g. 'all of the pointy shapes'.)

Main event

C Maths Stations: Exploring and Sorting Shapes

Group 1: Jigsaw puzzles

Doing a jigsaw puzzle is an excellent opportunity to use the language of shape. For example:

- Which piece will fit here?
- Is there a round part?
- I need a piece with a corner on it.

Group 2: Shape sorter

Ask:

- Which type of shape will fit into this hole?
- Describe the shape and the hole it must go into.

Groups 3 and 4: Geometric solids

Ask the children to sort the geometric solids into four sets (the four different 3-D shapes). They explain the criteria they have used to sort the shapes.

Let's strengthen

For additional support with sorting 3-D shapes, see Unit 4 Let's Strengthen PCM.

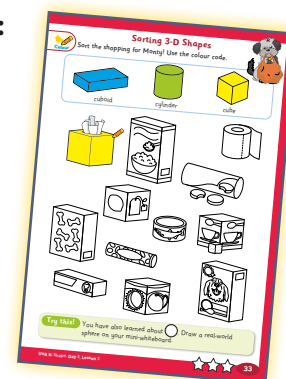
Ask:

- Are there other ways you could sort the shapes? They might sort the shapes into ones that have corners, ones that can roll, and ones that can stack.

Group 5: Items from the class shop

Ask the children to decide on one set of criteria to sort the items (e.g. all the ones with corners) and to explain their chosen criteria. When they have completed this task, they decide on a different set of criteria to sort the items.

P Pupil's Book page 33: Sorting 3-D Shapes



Optional consolidation and extension possibilities

Poem Read the following poem aloud:

3-D Shapes

A sphere is like a bouncy ball.
A cuboid is like a building tall.
A cylinder is like beans in a tin,
A cube is like a dice you spin.
3-D shapes are here and there.
3-D shapes are everywhere!

For integration with phonics, you could leave out the last word of each line and ask the children to complete the poem.

D Sort the Recycling Play the interactive sorting activity, in which a group of 3-D shapes (empty containers) needs to be sorted for recycling.



Naming 3-D Shapes (1)

Focus of learning (with Elements)

- Recognises and names common 3-D shapes in different orientation and sizes (U&C)

Learning experiences

- C** Class discussion: Exploring 3-D Shapes
- D** Digital activity: What Am I?
MAM Routine: Reason & Respond
- C** Concrete activity: Building with Shapes

Equipment

- Large geometric solids – cube, cuboid, cylinder and sphere – labelled by name on your Maths Table
- Items from the class shop, including a cube tissue box and/or a chocolate orange box
- Building blocks
- Interlocking cubes
- An orange

Maths language

- circle (informal use), square (informal use), bigger, smaller, longer, shorter, wide, narrow

Warm-up

C Class discussion: Exploring 3-D Shapes

Draw the children's attention to the large geometric solids. Assess whether they are acquiring the shape names (the cube might be the easiest to name). Using items from the class shop, ask:



- What does this shape (e.g. a sphere) remind you of? An orange? Why? (Hold up the sphere and the orange.)
- How is this sphere different from the orange? (bigger/smaller)
- How is it the same? (Both can roll.)
- What does this shape (e.g. a cylinder) remind you of? (tin of beans/can of orange/tube of sweets)
- How are the cylinder and the can the same? (Both have two 'circles'. Both can roll.)
- Is this cylinder longer/shorter?
- What is this shape (e.g. a cube) called?
- Can you see something that looks like this cube? (chocolate orange box)
- How are they different/the same? (Both have 'squares'.)
- Let's count the squares.

Continue with the comparisons. This is the rich language of shape that the children are exploring with you.

- What do we call this shape (e.g. cuboid)?
- If I turn the cuboid upside down, what is it called? (It is still a cuboid!)

Continue exploring the concept of changing orientation with the other shapes.

D Digital activity: What Am I?

MAM Routine: Reason & Respond

This resource contains four flip cards, each with a set of audio clues and a shape on the reverse. For each card, ask the children to listen to the clues and guess the 3-D shape. When they guess the correct answer, click the card to reveal the shape.

Some of the clues include:

- I can/cannot be stacked.
- I can roll.
- I am/am not round.
- I have no corners.
- I have no sharp edges.



Main event

C Concrete activity: Building with Shapes

Distribute building blocks, interlocking cubes, and items from the class shop to each group, placing them in the middle of the table. Child A is the banker and is in charge of all of the group's shapes. In turn, the other players each ask for a shape by describing it, and the banker figures out which shape to give them.

Next, the children work in pairs or individually to build one of the following: a tower, a bridge, a house, a car

or a rocket. They will discover which shapes are good for building (cubes/cuboids) and why.

Ask some of the children to try to incorporate a sphere or cylinder into their construction.

Ask:

- How will you do that?

Let's deepen

Some children might like to draw/record the object they have built.

Optional consolidation and extension possibilities

Let's Deepen Use Unit 6 Let's Deepen PCM: Placing 3-D Shapes on 2-D Outlines.

Compose Compose a chant/rap that describes the properties of the 3-D shapes, for example:

I am long. I can roll.

I have a circle at each end.

My name is ... cylinder!

Monty the puppet could help them to compose.

Some children discover that using a puppet helps them overcome any reticence they might have about being creative or performing.

Day 5, Lesson 5

Naming 3-D Shapes (2)

Focus of learning (with Elements)

- Recognises and names common 3-D shapes in different orientation and sizes (U&C)

Learning experiences

- C Game: Name That Shape!
- C Game: Sensory ('Feely') Bag
- C Concrete activity: Constructing 3-D Shapes

Equipment

- Large geometric solids – cube, cuboid, cylinder and sphere – labelled by name on your Maths Table
- Items from the class shop, including a cube tissue box and/or a chocolate orange box
- Lollipop sticks, construction sticks or twigs
- Play dough
- Small geometric solids
- Sensory ('Feely') bag

Maths language

- There is no new maths language in this lesson.

Warm-up

C Game: Name That Shape!

Assess how the children are progressing in identifying and naming 3-D shapes. Hold a shape behind your back and



challenge the children to be the first to name it, based on the clues you give. The shape could be a geometric solid or a real-world item from the class shop. (It is important for children to see that shapes

don't just inhabit the classroom.) For example, for a cylinder, say:

- It can roll.

Some children might shout 'sphere', 'ball' or 'orange'. They need to wait for all the clues.

- This shape has two circles.

Continue with the rest of the 3-D shapes.

C Concrete activity: Sensory ('Feely') Bag

Place one of each shape/solid in the sensory ('feely') bag. Work in groups or as a whole class. Child A closes their eyes and pulls a shape from the bag. They hold up the shape so that the rest of the group can see it. The rest of the group help Child A to name the shape – or Child A is allowed to explore the properties of the shape (aloud) and name it.

Main event

C Concrete activity: Constructing 3-D Shapes

Teaching tip

Some children may not be ready to construct 3-D shapes using play dough, twigs, etc. These children could consolidate their shape-building skills from Lesson 4, by using building blocks and items from the class shop.

Distribute materials such as lollipop sticks, twigs and play dough to each group. The children use these items to build random 3-D constructions, such as a skyscraper, a circus tent or a marquee. The children can explore the materials first, and you can observe what the children do before you give them any directions. Then suggest a type of 'building' to each group, e.g. a tent. Discuss with the children how they will set about the task. Ask them to consider how many sticks/balls of play dough they will need.

Explore the construction issues if a group wants to incorporate a sphere or cylinder in their construction. Discuss with the children how they will solve the problem of having twigs of different lengths.

Let's deepen

Suggest constructing a 3-D shape to some of your groups (e.g a cube or a cuboid). You could place the 3-D shape in front of them as a reference.



Optional consolidation and extension possibilities

Games Bank Play 'Last One Sitting'.

Day 6, Lesson 6

Exploring 2-D Shapes

Focus of learning (with Elements)

- Recognises and names common 2-D shapes in different orientation and sizes (U&C)

Learning experiences

- C** Concrete activity: Introducing 2-D Shapes
- C** Class discussion: 2-D Shapes All Around Us
- D** Videos: Shapes Are Everywhere (A) & (B)
MAM Routine: Reason & Respond
- C** Concrete activity: Exploring 2-D Shapes
- C** Drawing activity: Drawing Around 2-D Shapes
MAM Routine: Think-Pair-Share
- P** Pupil's Book page 34: Exploring 2-D Shapes

Equipment

- Small geometric solids: cubes, cuboids, spheres and cylinders only
- Items from the class shop, including a cube tissue box and/or a chocolate orange box, and a party hat
- 2-D shapes: circles, squares, rectangles and triangles only
- PCM 2

Maths language

- square, rectangle, triangle, short, small

Warm-up

C Concrete activity: Introducing 2-D Shapes

Use geometric solids and items from the class shop to revise the 3-D shapes, holding up representations of the shapes and asking the children to name them. Next, hold up the 2-D shapes and explain to the children that they are going to learn about some new shapes. Distribute sets of geometric solids and 2-D shapes to the class and allow the children time to handle both 'types'.



Ask:

- What is the difference between these shapes (2-D) and these shapes (3-D)?
- Are these shapes (3-D) fat?
- Are these shapes (2-D) flat?
- Can anyone see any of our flat shapes on our fat shapes? (rectangle on the cuboid; square on the cube; circle on the cylinder)

The children will not necessarily use the 2-D shape names, but they can describe the properties. Hold up the 2-D shapes, and ask:

- What words could we use for these shapes? (sharp, pointy, corners, round, long, longer, short, small, wide, narrow)

- How many sides does this shape have (e.g. a triangle)?
- Which shape has more sides?
- What is the difference between these two shapes (e.g. a rectangle and a square)?
- How are these two shapes the same/different?

Continue asking questions about differences and similarities. Assess whether any of the children know the 2-D shape names.

C Class discussion: 2-D Shapes All Around Us

Tell the children to put on their Maths Eyes. Ask:

- Can you see something that is straight/curved/has four sides?
- Can anyone see any of these shapes around us?

D Videos: Shapes Are Everywhere (A) & (B)

MAM Routine: Reason & Respond

Play Shapes Are Everywhere (A), which explores the properties of some 2-D shapes (square, triangle, circle, rectangle) and includes real-life examples.

Play Shapes Are Everywhere (B). Encourage the children to name the shapes and to notice how there are shapes all around us.



Main event

C Concrete activity: Exploring 2-D Shapes

Distribute a set of 2-D shapes to each child. You could also distribute PCM 2: Exploring 2-D Shapes and scissors to each child, and allow them to cut out the shapes. The children explore and then communicate the properties of the shapes to you.

Teaching tip

Ensure that the children see, touch and name (if they can) the 2-D shapes in different orientations.

Let's deepen

Notice if any children are 'fitting' or aligning some shapes together (e.g. two triangles). Ask them about these activities and which shapes work best.

C Drawing activity: Drawing Around 2-D Shapes

MAM Routine: Think-Pair-Share

Distribute a set of 2-D shapes to each child. Ask the children to draw around each shape on a sheet of paper, as they did in Lesson 1 with the items from the class shop. Ask:

- Is this an easier drawing task? Why?
- Does anyone remember what shape you drew under a cube?

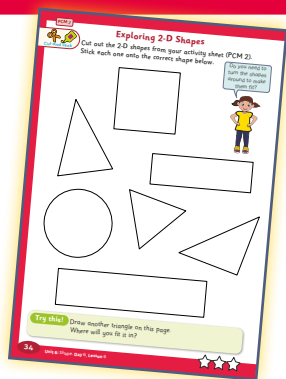
Using Think-Pair-Share, ask:

- Would it be easier to work with a partner?
- How could they help? (They could hold the paper/the shape.)

Can the children name the properties of the shape they have drawn?

- Do you know its shape name?
- What does each shape remind you of? (Examples: circle – wheel; square – window; rectangle – football pitch; triangle – Toblerone.)

P Pupil's Book page 34:
Exploring 2-D Shapes



Distribute PCM 2: Exploring 2-D Shapes, glue and scissors to each child. The children could also use crayons to colour the shapes before cutting them out.

Optional consolidation and extension possibilities

More 2-D Shapes The children can use concrete shapes in a range of sizes and orientations, both 3-D and 2-D, to make patterns and/or shape pictures.

Music Listen to a song about 2-D shapes: edco.ie/gwre



Day 7, Lesson 7

2-D Shapes All Around Us

Focus of learning (with Elements)

- Recognises and names common 2-D shapes in different orientation and sizes (U&C)

Learning experiences

- D** Digital activity: 2-D Shapes in Nature **MAM Routine: Reason & Respond**
- C** Class discussion: 2-D Shapes in the Classroom **MAM Routine: Reason & Respond**
- C** Concrete activity: Orientation of Shapes **MAM Routine: Reason & Respond**
- C** Concrete activity: Hidden Shape
- D** Digital activity: Hidden Shape **MAM Routine: Reason & Respond**
- C** Game: What Shape Is It, Mr Wolf?

Equipment

- 2-D shapes: circles, squares, rectangles and triangles only
- Monty the puppet

Maths language

- There is no new maths language in this lesson.

Warm-up

D **Digital activity: 2-D Shapes in Nature**
MAM Routine: Reason & Respond

Distribute a set of 2-D shapes to each child. Play the slideshow and ask the children to identify the shape in each photograph. They hold up the corresponding shape to give their answer. For example, for the rings on an onion when it is sliced, they hold up the circle and name or describe the shape.

C **Class discussion: 2-D Shapes in the Classroom**
MAM Routine: Reason & Respond

Tell the children to put on their Maths Eyes and to look around the classroom. Ask:

- What shape is the classroom window? (rectangle)
- What do we call this shape? (Hold up a small rectangle from the 2-D shapes pack.)
- Is the rectangle in/on the window the same as this rectangle?
- What is the difference? (One is big and the other is small.)

- Are they both rectangles? How do we know?
Explore the other 2-D shapes in the same way.
- How many sides does this shape (square) have?
Let's count.
- How many sides does this shape (triangle) have?
Let's count.

Let's deepen

Which shape has more/less sides? Which shape has the same amount of sides as the square?

Main event

C Concrete activity: Orientation of Shapes MAM Routine: Reason & Respond

Show Monty to the children. Ask:

- Who is this? (Monty!)
- If I turn Monty upside down is it still Monty?
- If I make him do a back flip is it still Monty?

You could continue with these types of questions to show the children that no matter what position Monty is in, he's still Monty.

Assess the children's understanding of the orientation of shapes. Distribute a set of 2-D shapes to each child. In groups, the children talk about the properties of each shape and/or name it.



Ask:

- What do we call this shape (e.g. the rectangle)?
How do we know it's a rectangle?
- I am going to turn this rectangle on its side. What is it called now?

Continue with the circle (flip it over); the square (turn it slightly, and turn it into a 'diamond'); the triangle (flip it over, and turn it sideways and 'upside down').

Let's strengthen

In pairs, the children repeat the activity, with Child A naming the shape, and Child B turning the shape and asking for its name.

C Concrete activity: Hidden Shape

Model this game for the children. Cover a 2-D shape with your hand cupped, so that they are able to see only a portion of the shape.

Say:

- There's a shape hiding in a cave.
- This shape is afraid to come out.
- Let's encourage it to come out!

As you reveal more of the shape, the children should guess what it is. The children can then play the game in pairs.

D Digital activity: Hidden Shape MAM Routine: Reason & Respond

This is a slow-reveal activity for 2-D shapes. Click Play to begin the slow reveal. Ask the children to say the name of the shape as soon as they recognise it. Use the Pause button to allow for a Reason & Respond discussion. If the shape has been correctly guessed, press Reveal to confirm the answer.

C Game: What Shape Is It, Mr Wolf?

Working in pairs, Child A turns the shape (over, up, down, sideways) and each time asks: 'What shape is it now, Mr Wolf?' Child B names the shape.

Optional consolidation and extension possibilities

Find the Shapes (Integration with PE) Hide 2-D shapes in the PE hall (hide a few of each shape). Give the children clues, e.g. 'I'm thinking of a shape that is pointy. It is not round. It has three sides. What is it called?' They tell you the shape name. Then give them clues about the location of the shape, e.g. 'Conor is near this shape. The shape is also close to the bench. It might be underneath an object.'

Home/School Links Book Page 17 can be completed any time after this lesson.

Day 8, Lesson 8

Solving 2-D Shape Problems

Focus of learning (with Elements)

- Represents shapes in various ways (C)
- Explores shape properties and functions, and describes using everyday language

Learning experiences

- C** Concrete activity: Shape Shifters!
MAM Routine: Reason & Respond
- C** Maths Stations: Exploring 2-D Shapes
- P** Pupil's Book page 35: Solving 2-D Shape Problems

Equipment

- Classroom-sized 2-D shapes cut out from card/paper (squares, rectangles, circles and triangles in two different sizes)
- Pattern blocks or 2-D shapes
- Play dough or plasticine
- Counters
- PCMs 26–28
- Shape Bingo activity printable

Maths language

- There is no new maths language in this lesson.

Warm-up

- C** **Concrete activity: Shape Shifters**
MAM Routine: Reason & Respond

Using the classroom-sized 2-D shape cut-outs, enable the children to understand that shape names remain constant, even when the shapes are re-oriented.

Start by holding up one of the circles and ask:

- What can you tell me about this shape? (round, no corners)

- What is this shape called?
- If I turn it, what shape is it now? (still a circle)

Repeat with the other circle, squares, rectangles, triangles and ask the same questions.

You may prefer to embed this concept showing 2-D shapes on the IWB and rotating them.

Let's deepen

Use 3-D shapes to reinforce the same concept.

Main event

- C** **Maths Stations: Exploring 2-D Shapes**

Group 1: Shape outlines

Distribute play dough and a copy of PCM 26: Triangle and Square or PCM 27: Circle and Rectangle to each child. (A more dextrous child could use PCM 27 with the outline of a circle. Some children could complete the two PCMs in the given time.) The children roll their play



dough into a 'snake' and use it to cover the outline of each shape they have been given. Encourage the children to describe what they are doing and the 'problems' they might encounter. Ask:

- Did you roll out enough play dough for the circle?

- How many sides does the square have? How many pieces of play dough will you need for the square? Will all of the pieces be the same size? How many corners will you have when you make the shape?
- How many sides does the rectangle have? How many pieces of play dough will you need for the rectangle? Will all of the pieces be the same size? How many corners will you have when you make the shape?

Group 2: Shape patterns

The children use concrete 2-D shapes to make a patterns, e.g. square, circle, square, circle.

Variation: One child calls out: 'Change the last shape!'

In the example above, the final circle might be changed to a triangle, and a new pattern can be started on a new line.

Group 3: Pattern block mats

Distribute concrete pattern blocks or 2-D shapes and one mat from PCM 28: Pattern Block Mats (two mats in total) to each child. The children position the pattern blocks or 2-D shapes to 'fit' the shapes on the mat. The orientation of the shapes differs. For some shapes, the children will problem-solve by fitting, for example, two squares on a rectangle. When a child finishes with their pattern mat, they swap with another child who has also finished.

Group 4: Shape bingo

Distribute counters and a bingo card from the Shape Bingo activity printable to each child. One child is bingo caller. They call out a size and a shape name, e.g. big, triangle. If a player has a big triangle on their

card, they cover it with a counter. The first player to cover their card with counters wins the game.

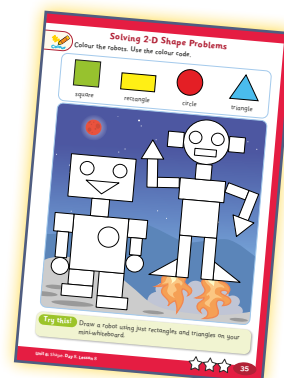
Group 5: Fermi problems

Ask:

- How many squares will fit on this box of crayons/ copy/textbook? Guess!
- How many circles will fit in the palm of your hand/ on a small ruler? Guess!

The children could record their guesses with dots or tally marks.

P Pupil's Book page 35: Solving 2-D Shape Problems



Optional consolidation and extension possibilities

Maths Journals Give each child a selection of 2-D shapes. They practise drawing around the shapes. Then they try making an AB pattern, e.g. circle, square, circle, square. They could add colour to their pattern.

Circle Art (Integration with Visual Arts) The children dip cookie cutters or jar lids into paint and then stamp them onto paper to create 'circle paintings'. The other 2-D shapes could be used as well.

Geoboards The children use geoboards and elastic bands to make 2-D shapes.

Bingo – Shapes Play the interactive Bingo game to practise recognition of 2-D shapes. Before using this game with your class, print the bingo cards and give each child a set of cards.



Day 9, Lesson 9

Sorting 2-D and 3-D Shapes

Focus of learning (with Elements)

- Sorts, compares and classifies 2-D and 3-D objects into logical categories according to their attributes. For example: non-geometrical properties such as colour, size and geometrical properties (R)
- Solves problems involving 2-D shapes (A&PS)

Learning experiences

- D Digital activity: Problem-Solving with 2-D Shapes
MAM Routine: Reason & Respond
- D Digital activity: Shape Train
- C Class discussion: Revising 3-D Shapes
- C Sorting activity: Sorting 2-D and 3-D Shapes

Equipment

- 2-D shapes
- Small geometric solids
- Items from the class shop: cuboids (boxes), spheres (tennis balls, golf balls, ping pong balls), cylinders (tubes), cubes (box of tissues, chocolate orange)

Maths language

- There is no new maths language in this lesson.

Warm-up

D Digital activity: Problem-Solving with 2-D Shapes *MAM Routine: Reason & Respond*

Display the slideshow, in which the children will solve 2-D shape problems, e.g. Which shape is missing?

D Digital activity: Shape Train

Play the interactive game, in which the children have to select the correct shape to move Monty's train!

Main event

C Class discussion: Revising 3-D Shapes

Ask:

- Does anyone remember our shape friends from last week?
- We called them our 'fat' shapes.
- Let's have a look at them.

Hold up each of the geometric solids in turn and ask:

- Who can tell me about this shape (e.g. sphere)?
- What does this shape remind you of? (ball, orange, moon, bubble, dandelion)

C Sorting activity: Sorting 2-D and 3-D Shapes

This activity provides an opportunity to revise and assess the children's ability to distinguish the different properties of 3-D and 2-D shapes. Assess their use of the language they have acquired in relation to shape.



Distribute a selection of items from the class shop, 2-D shapes and 3-D shapes to each group. Ask each group to sort the shapes according to their own chosen criteria. This could be by:

- Colour
- Size
- Number of corners
- Shapes that can roll
- Shapes that can stack
- 3-D shapes with circles on them
- Flat shapes
- Fat shapes
- Shapes with three corners.

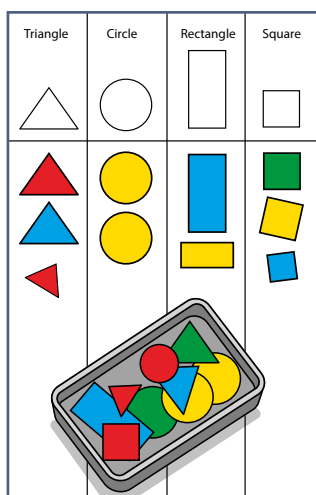
The children can record their criteria in their maths journals, on their MWBs or with the class camera. As in Lesson 6, help the children to discover/remember that there are:

- Squares on the cube (How many?)
- Circles on the cylinder (How many?)
- Rectangles on the cuboid (How many? Are they all the same size?)

Each group selects a spokesperson to tell the rest of the class about their chosen criteria.

Optional consolidation and extension possibilities

Sorting 2-D Shapes Use masking tape to create a grid on the floor. Label the top of the grid with the four different 2-D shapes, as below. The children sort a selection of 2-D shapes into the correct categories.



Sorting 3-D Shapes Use masking tape to create a grid on the floor. Label the top of the grid with the four different 3-D shapes. The children sort a selection of 3-D geometric solids into the correct categories.

D Colouring Shapes Play the interactive colouring game, in which children identify and colour the correct shapes.

Song (Integration with Music) Sing 'The 'Rectangle Song' to the tune of 'Old MacDonald Had a Farm':

My rectangle has four sides, EIEIO!
But all four sides are not the same, EIEIO!
With two sides big and two sides small,
My rectangle has four sides, EIEIO!

Day 10, Lesson 10

Review and Reflect

Focus of learning (with Elements)

- Reviews and reflects on learning (U&C)

Warm-up

Carry out a warm-up activity of your choice from one of the lessons in this unit.

Main event

Choose from this menu of activity ideas, or choose your own way to best structure this last lesson to suit your needs and the needs of your class.

Let's create!	Let's play!
<p>(Integration with PE) The children could create 2-D 'body shapes' with their fingers and bodies. Ask:</p> <ul style="list-style-type: none"> ● Can we make a circle? (Use thumb and index finger; arms above head; or body bent over.) ● Can you make a circle with a partner (perhaps on the floor)? ● Will we try our shape with three sides? What is it called? (Triangle. Use fingers/arms or work with one or two children.) ● Which shapes have we not tried? What about a shape with four sides? Which shape could it be? (square or rectangle) <p>Now try this: Child A comes to the top of the classroom and makes a shape. The other children guess the shape. This could also be done in pairs or groups.</p>	<p>Play 'Last One Sitting' from the Games Bank.</p>

<p>Maths language</p> <p>Ask the children to explain the following terms, perhaps using examples or drawings on their MWBs for some: round, straight, corners, pointy, sides, cube, cylinder, cuboid, sphere, circle, square, rectangle, triangle, bigger, smaller, longer, shorter, wide, narrow.</p> <p>Use the maths language cards for this unit to revise the key terms. For example: if the image and text are cut apart, can the children match them?</p>	<p>Maths Stations</p> <p>You will need: construction sticks or twigs/ matchsticks, play dough, wooden lacing beads, string, interlocking cubes, 2-D shapes and small geometric solids.</p> <p>Group 1: The children use construction sticks or twigs/matchsticks and balls of play dough to make 2-D or 3-D shapes. In Lesson 5 they made 3-D shapes; in this activity they have ‘free choice’. Which shapes are easier to make: 2-D or 3-D?</p> <p>Group 2: The children use wooden lacing beads and string to make circles. They could make patterns with the beads, ensuring that they finish off the pattern with a circle. They describe and name each shape as they thread the cord through it.</p> <p>Group 3: The children use interlocking cubes to make shapes. Are the cubes any good for making a circle/cylinder?</p> <p>Groups 4 and 5: In Lesson 4, the children used 3-D shapes to construct objects. Now, they use 2-D <i>and</i> 3-D shapes to construct a truck, train, car, bridge or house. Which shapes are good for the carriage of the train, the wheel of the car?</p>
<p>Progress Assessment Booklet</p>	<p>Maths eyes</p>
<p>Complete Questions 21–24 on pages 13–14. Alternatively, these can be left to do as part of a bigger review during the next review week.</p>	<p>D Animation: At the Supermarket</p> <p>Play the animation from Day 1, Lesson 1 again. Have the children progressed in terms of their reaction to the video? Has their use of the language related to shape developed? Are they naming the shapes?</p>
<p>Let’s strengthen</p>	<p>Let’s deepen</p>
<p>Identify children who might benefit from extra practice with some of the key concepts or skills in this unit. Consult the Unit 6 Let’s Strengthen Suggestions for Teachers and/or use the Unit 6 Let’s Strengthen PCM.</p>	<p>Use the Unit 6 Let’s Deepen PCM.</p>

