Maths and Me: Junior Infants – Short-Term Plan, Unit 9: Location and Transformation (January: Weeks 3&4)

Shape and Space > Spatial Awareness and Location; Transformation.

Strand(s) > Strand Unit(s)

ition to their bodies and the immediate environment;	earning Experiences Assessment	teason & Respond L1–6, 8–9 Intuitive Assessment card game: Where Is It? L2 emerging s Stations L2, 9 misconceptions e & Wonder L3–4 cimages L3, 7 room Games L3			Classroom L4 Classroom L4 Planned Interactions: ards game: Using Arrows L4 responding to insights als 1–10 on the Class Clothesline gleaned from children's responses ing the Movement of Shapes L7 to learning the New Words L8 experiences the New Words and the Shapes			rces Assessment Events: information gathered from completion of the unit assessment in the Progress Assessment Booklet page 18			
awareness in relat	CM	Flash	D Notic	O Quic	Hash		Using L8	Print reso	Pupil's Bo Home/Scl	PCMs 3, 3	
ng Outcome(s) Through appropriately playful and engaging learning experiences children should be able to develop a sense of spatial awarenes: describe the spatial features of objects and their relative position in space.	Focus of Learning (with Elements)	patial Awareness: Describes the movement and positioning of people and self (C); Explores and orientates the environment of the assroom, school and other familiar settings (U&C); Gives and follows simple instructions related to movement and positioning (C)	ssition and Location: Explores and negotiates the relative location of objects (e.g. over, under, above, below) (U&C); Demonstrates the sition (e.g. behind, in front of, on, under, over, beside) of an object in a scene (C)	soitional and Locational Games: Deduces the location of an object from descriptions of position or location (R); Identifies objects od specific locations, using knowledge of spatial relations (A&PS); Traces paths on simple maps or mazes (A&PS)	xploring Location and Direction: Explores the rationale and significance of location and/or position of objects, people or self (R); akes predictions about location based on spatial understanding (R); Explores direction through the use of arrows (U&C)	patial Awareness and Counting: Moves and repositions objects for a purpose (A&PS); Responds to obstacles in familiar nvironments by adjusting paths and/or types of movements (A&PS); Uses positional language (before, after, in-between) in the Intext of numeration (e.g. What number comes before 6?) (U&C)	lovement of Shapes: Recognises that a shape may appear different when moved in some way (U&C); Discusses movement and anipulation of shapes using informal language (C)	napes in Different Positions: Identifies shapes in a variety of different orientations (U&C); Selects and manipulates shapes to copy a odel or structure (A&PS)	escribing the Movement of Shapes: Uses appropriate language (e.g. turn, flip, slide, match, fit) to describe movement and mparison of shapes (C)	isualising the Movement of Shapes: Visualises how a shape will look when moved (R); Solves and discusses simple spatial puzzles ich as jigsaws or shape sorters (A&PS); Investigates shape movements and shape matching (e.g. Will it fit if I turn it this way? Will it atch if I turn it over?) (R)	eview and Reflect: Reviews and reflects on learning (U&C)
Learning Ou	Lesson	-	~	m	4	ب م		~	∞	6	10

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 Maths and Me Language Overview', individual lesson plans and Unit 9 Maths Language Cards.			
Equipment	See 'Junior Infants Maths and Me Equipment Overview' and individual lesson plans.			
Inclusive Practices	 See Let's Strengthen and Let's Deepen suggestions throughout lesson plans. See Unit 9 Let's Strengthen Suggestions for Teachers. (These address the Common Misconceptions and Difficulties listed below.) See Unit 9 Let's Strengthen PCM. See Unit 9 Let's Deepen PCM. 			
Integration	See individual lesson plans.			

Background and rationale

- In Junior Infants, the children are still very much learning to navigate the world around them, so initially they will be orientating, moving and locating themselves within their own environment. Once this core 'base' is established, other concepts regarding spatial relations, its specific language, and the locations of objects can be explored.
- The children may only recognise a shape when it is in a 'familiar' position. Discovering that a shape is still the same shape regardless of movement is akin to understanding conservation in other areas of maths, i.e. when an amount of objects in a set is moved, the amount remains the same; and when a shape is moved, the shape remains the same. Transformation focuses on this aspect of both 3-D and 2-D shapes, and the children will need plenty of experience using concrete materials to embed this concept. Some children will be able to move to engaging with pictorial images of changing shapes. In later class levels, they move to the abstract.
- The children focus on spatial awareness in relation to objects and listen to and absorb the language associated with transformation (turn, flip, slide, fit, match). They move on to formally identifying the shapes in their various orientations, and using the language of transformation.
- By the end of the unit, the children are visualising/predicting the movement or new position of shapes (e.g. they know if a triangle will fit into an outline before actually positioning it).
- They are also discovering the rationale behind the location of objects, and making predictions about location.
- They are making connections between positional language and counting. They are also exploring puzzles, making shapes, and engaging in shape-related STEM activities.

The theme of this unit is **Fairy Tales**.

Common misconceptions and difficulties

- Initially, young children see the location of objects/people in terms of themselves.
- Many children have difficulty with the concept of 'forwards' and 'backwards', often mixing them up.
- Some children will have heard positional language (e.g. on, under, etc.), but will not have understood it.
- The children might not realise that turning, flipping or sliding a shape might allow it to 'fit' into a puzzle or make new shapes. The children may think that the shape must remain in a static position.
- They may not recognise that a shape can be orientated in many different ways and still be the same shape.

The Unit 9 Let's Strengthen Suggestions for Teachers address the common misconceptions and difficulties listed above.

Mathematical models and representations

- Physical and pictorial representations of 2-D and 3-D
- Arrows



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

There is no equipment needed for this lesson.

Day 1, Lesson 1 Spatial Awareness

Focus of learning (with Elements)

- Describes the movement and positioning of people and self (C)
- Explores and orientates the environment of the classroom, school and other familiar settings (U&C)
- Gives and follows simple instructions related to movement and positioning (C)

Learning experiences

- Digital activity: Where is Baby Bear? MAM Routine: Reason & Respond
- C Role-play activity: Sequence of Movements MAM Routine: Reason & Respond
- Digital activity: Follow the Robot's Voice MAM Routine: Reason & Respond
- Pupil's Book page 49: Spatial Awareness

Maths language

next, then, up, upwards, down, out of, on, at, sideways, backwards, forwards, beside, behind, in front of

Warm-up

Digital activity: Where is Baby Bear? MAM Routine: Reason & Respond

Remind the children of the story of Goldilocks and the Three Bears. Play the



slideshow, which contains a sequence of Assessment Opportunity images of Baby Bear in different positions. This is an opportunity to assess the positional language that the children understand, and whether or not they can use it and apply it. Ask:

- What can you see in the picture? (Baby Bear waking up)
- Where is Baby Bear?

Use the same type of exploratory questions to talk about the other images in the sequence. You are encouraging the use of positional language. For example: Baby Bear is ...

- in bed.
- on the bed.
- holding *up* his arms.
- stretching *up* to the ceiling.
- getting *out of* the bed.
- going *down* the stairs (two steps up/down, etc.).
- climbing on to a chair.
- sitting at the table.
- Baby Bear has his elbows *on* the table.

When the sequence has been explored, encourage the children to relate the sequence/pattern of actions back to you, using positional language. Ask:

- What did he do *next*?
- And *then* what did he do?
- What was the *last* thing he did?
- C Role-play activity: Sequence of Movements MAM Routine: Reason & Respond

Tell the children to pretend that they are Baby Bear and re-enact the sequence of movements from the slideshow. For example:

- Lay your head *on* the table.
- Sit *up* straight and wake up.
- Stretch your arms *up* to the ceiling.
- Sit *up and down* on your chair (like a rider in a saddle/jumping on the bed).
- Get off your chair and stand *beside* it.
- Squat *down* on your hunkers.
- Sit back *down* at your table.

Optional: One child calls out the sequence of actions and the other children carry them out.

them out.

Jump up!

Step sideways.

Step forwards.

Step backwards.

Pupil's Book page 49:

Spatial Awareness

Digital activity: Follow the Robot's Voice MAM Routine: Reason & Respond

Use the interactive robot to issue audio instructions to the children to perform different movements. Using the buttons on the robot's chest. first select the sequence:

- Fixed mode (fixed sequence of steps) •
- Random mode (random sequence of steps)

Then tap the robot to play a command.

Tell the children to listen extra carefully. The instructions are in a sequence of steps (an introduction to algorithms, and computational thinking). For example:

- Stand up.
- Push your chair backwards.
- Stand beside your chair.

Optional consolidation and extension possibilities Teaching tip: Where Is Monty? Tell the children to close their

eyes while you hide Monty the puppet in the classroom. With their eyes still closed, the children use positional language to describe where Monty might be. Tell them if they are getting 'hot' or 'cold'. When Monty has been found, ask the class to relate the exact location.

Let's deepen

The children could relate how they would get to that location using a different route.

Story Read 'Goldilocks and the Three Bears' or watch an animated version at: edco.ie/cr56

Then read this poem, while the children do the actions:

Teddy bear, teddy bear, Turn around. Teddy bear, teddy bear, Touch the ground. Teddy bear, teddy bear, Show your shoe. Teddy bear, teddy bear, That will do. Teddy bear, teddy bear, Run upstairs. Teddy bear, teddy bear, Say your prayers. Teddy bear, teddy bear, Turn off the light. Teddy bear, teddy bear, Say goodnight.

Optional: One child, speaking like a robot, calls out a

sequence of actions and the other children carry

Use the rhymes/songs in the Optional Consolidation and Extension Activities sections as warm-ups for the lessons.

Who Is Near You? (Integration with PE) Take the children to the PE hall or yard. Ask them to look around them and see who is *near* them. Then, ask:

- Who is beside you?
- Who is behind you?
- Who is *in front of* you?
- Is anyone under/over you?
- If you stretch your arms out, will you bump into anyone? (They should extend their arms as if they are 'about to fly'.)
- Turn around slowly. (Ensure that they turn slowly to prevent them getting dizzy and falling over or bumping into another child.)
- Move around without touching anyone or bumping into anyone. (They should have enough space around them now.)
- Stop!

Let's strengthen

Ask the same questions as before, such as: Who is beside you? Who is behind you? Who is in front of you? Try this a few times so that the children get an impression of these terms (behind/in front, etc.) and what it means to them as individuals. You could vary this by asking the children to hop, jump or dance.

Optional: The children could move sideways, backwards/forwards, one step forwards/ backwards, and so on. You could position obstacles for them to move around. Assess whether individual children can tell you what they are doing in terms of movement (e.g. 'I am hopping forwards/backwards/sideways/behind Emily/between Conor and Ahmed').

Chatty Robot Ask a child to use the voice of a robot and to tell you what they are doing.

Let's deepen

Download an image of a robot and use it as your 'robot sign'. Give the robot sign to a child and get them to ask the questions.

Conga Line The children form a line. The child at the end moves in between two other children (in front of David, behind Suzie, etc). They keep going in and out until they get to the top of the line. Then the child who is now at the end starts to move in and out of the line.

Day 2, Lesson 2 Position and Location

Focus of learning (with Elements)

- Explores and negotiates the relative location of objects (e.g. over, under, above, below) (U&C)
- Demonstrates the position (e.g. behind, in front of, on, under, over, beside) of an object in a scene (C)

Learning experiences	Equipment
 Animation: Monty's Obstacle Race MAM Routine: Reason & Respond Plashcard game: Where Is It? Concrete activity: Maths Stations Pupil's Book page 50: Position and Location 	 Manipulatives/assorted collections of objects Plasticene or play dough Materials from the recycling box, or the small-world/play area Building blocks, straws, toppling tower blocks (e.g. Jenga) Unit 9 Maths Language Cards

Maths language

through, over, under

Warm-up

Animation: Monty's Obstacle Race MAM Routine: Reason & Respond

Assess whether the children are making

the 'transition' from positional language

Assessment Opportunity

involving themselves to positional **Opport** language involving the location of objects/other people/animals.

Play the animation, in which Monty takes part in the local dog show. Supported by you, the children should use positional language to describe Monty's antics at the race. For example:

- Monty is running *through* the tunnel.
- Monty is jumping *over* the fence.
- Monty is going *forwards*, *up* the ramp.
- Monty is walking *down* the ramp.
- Monty is jumping *through* the circle.
- Monty is walking *between* the poles.
- Monty is on the swing.

Plashcard game: Where Is It?

Ask/say:

- This will be our question for the week: *Where is it?*
- If anyone has lost something, we will ask this question and then find it.

Introduce the Unit 9 Maths Language Cards (over, under, beside, on, behind, in front of). Ask:

• Can anyone tell me what these cards say?

Distribute manipulatives/collections of objects to the class. Tell the children to stand up. Hold up one card, e.g. 'under'. Help the children to read the card. Say:

Show me 'under'.

Each child tries to 'action' the word, e.g. by holding an object under the table or placing an object under their chin/foot.

Let's strengthen

You could ask the children to verbalise what they have done (e.g. 'I put the cube under my chin.').

The last child to 'action' the word sits down (naturally, use your judgement on this). Continue going through the words, getting faster each time.

Let's deepen

During the week, you could add to the Maths Language Cards as other positional words arise.

C Concrete activity: Maths Stations

Arrange the children into five groups.

Groups 1 and 2: The children use toppling tower blocks (e.g. Jenga), straws and building blocks to construct an obstacle course for Monty.

Group 3: The children use the sand and/or water area to construct an obstacle course for Monty.

Group 4: The children use plasticine or play dough to construct an obstacle course for Monty.

Group 5: Distribute a range of materials from the recycling box or small-world/play area. (This is good integration with STEM.) The children construct an obstacle course for Monty, and use an animal from small-world to test out the course. Can the children voice what they are doing? For example:

- Monty is running through the tunnel (kitchen roll).
- Pupil's Book page 50: Position and Location



Optional consolidation and extension possibilities

Games Bank Play 'Forwards and Backwards' from the Games Bank.

Dog Obstacle Course (Integration with PE) Set up a 'dog obstacle course' in the PE hall. The children work in groups and take turns to be the 'dogs', while the other children give ideas for obstacles and/or give directions. You could also give a 'destination' for groups of children (e.g. the corner of the hall where the bench is). What route might the groups take to get there?

Story Read 'Three Billy Goats Gruff', which features plenty of positional language, or play the animated version at: edco.ie/26se

Rhyme The children come up with their own actions for this rhyme:

Over and under

Over, under, up and down, Forwards, backwards, round and round. To the side, in front, behind, In and out, it's time to find ... Here and there, above, below Now all* through you go!

(*The children form an arch/tunnel for a group of four children, for example, to go through.)

Home/School Links Book Page 23 can be completed any time after this lesson.

Monty the puppet

Day 3, Lesson 3

Positional and Locational Games

Focus of learning (with Elements)

- Deduces the location of an object from descriptions of position or location (R)
- Identifies objects and specific locations, using knowledge of spatial relations (A&PS)
- Traces paths on simple maps or mazes (A&PS)

Learning experiences

- Digital activity: Where Has Monty Put the Toys? MAM Routines: Notice & Wonder; Reason & Respond
- Digital activity: Where Are the Toys? MAM Routine: Quick Images
- Concrete activity: Classroom Games
- Digital activity: The Donkey Needs a Tail! MAM Routine: Reason & Respond
- Pupil's Book page 51: Positional and Locational Games

Maths language

There is no new maths language for this lesson.

Warm-up

Digital activity: Where Has Monty Put the Toys? MAM Routines: Notice & Wonder; Reason & Respond

Display the interactive poster, in which Monty has 'borrowed' toys from the playroom and left them in the garden. The toys are hidden from Jay. He asks Monty where each toy is, but Monty just points with his paw. Monty claims he can't see very well because he is wearing sunglasses.

First, click to play or ask:

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

Then, click to play or ask the following questions. The children need to identify the location of each toy and then help Jay to locate them by giving him directions:

- The teddy is near the red flowers and under the yellow bush. Can you find it?
- The robot is behind the purple flowers and on top of the compost heap. Can you find it?
- The yellow ball is under the table. Can you find it?
- The blue ball is up in a tree. Can you find it?

- Can you see the car? Can you tell Jay how to find it?
- The doll is above the blue ball and below the kite. Can you find it?
- Can you see the snake? Can you tell Jay how to find it?
- Can you tell Jay how to get the blue ball?
- Can you find the yellow bone? Can you tell Jay how to find it?
- Can you see any other toys?

Let's deepen

Say, for example:

• The toy truck is in between the two pink trees and in front of the shed.

Digital activity: Where Are the Toys? MAM Routine: Quick Images

Briefly reveal and then hide the image. With each image, the children are quickly shown the location of a toy. The children should describe the location from memory, using their 'mind's eye'.

🕒 Concrete activity: Classroom Games

Take this opportunity to assess the children's auditory

discrimination skills and concentration levels, as well as their understanding of positional language. Can they wait to hear Assessment a cue before acting (e.g. 'O'Grady Says')?



Play one or all of these simple games.

Game 1: 'I Spy with My Little Eye'. One child describes an object and its location. The other children quess the object and figure out its location.

Game 2: 'Blind Man's Bluff'. One child is blindfolded, and an object is hidden from this child. One child gives the first direction. Another child gives the next direction. Continue like this, with several children getting a chance to give a direction, until the object has been located.

Game 3: Use Monty the puppet in a game of 'O'Grady Says'. Monty (O'Grady) gives directions to the rest of the class. For example: 'Monty says "Put your hand under your chin."'

The children act on the instruction *only* if they hear the phrase 'Monty says'. If they hear 'Put your hand under your chin' without the preface of 'Monty says' and they move, they are out! (You might like to be Monty/O'Grady to start the game.)

Digital activity: The Donkey Needs a Tail! **MAM** Routine: Reason & Respond

Display the activity. Select a child (player) to draw a tail on the donkey. The player is blindfolded and given an IWB pen. Alternatively, the in-built drawing tools can be used. You could give the first set of directions, using simple words, such as 'up', 'down' (and, if appropriate, 'left', 'right'). If the player draws the tail in the wrong place, they must pass the blindfold and pen to a new player. Children from the 'audience' take turns to give the player a direction until the tail has been drawn.

Let's deepen

Mind's Eye: Tell the children to close their eyes and think of the yard/the classroom/their bedroom/the bathroom. Can they recall the location of certain objects? For example:

- Where is the bench/hoop/garden in the yard?
- Where is the sink/IWB/library in the classroom?

Pupil's Book page 51: **Positional and Locational Games**



Optional consolidation and extension possibilities

Twister If one of the children has this game at home, ask them to bring it in and the children could play it in groups.

Nature Walk (Integration with Science) Take the children on a nature walk, if feasible. Use the walk as an opportunity for a multi-sensory spatial awareness experience. In pairs, the children take turns to be the 'guides' for this activity. Ask the two guides to move to certain positions. When they get there, they give commands such as the following to the other children:

- Take two steps forwards.
- Move sideways.
- Take two steps backwards.
- Tell us if you hear any sounds above you.

- Tell us what you see *under* you.
- Move towards that tree.
- Put your arms *around* the tree.
- Tell us what the tree feels like. (Encourage the children to use additional vocabulary, such as spiky, smooth, rough, bumpy, fluffy.)
- Stand beside those flowers.
- Tell us what the flowers smell like.

Continue with the activity, giving each pair a turn at being the guides.

(Tip: You might need to revoice the commands to ensure they are audible, or use a megaphone or loudspeaker.)

Day 4, Lesson 4

Exploring Location and Direction

Focus of learning (with Elements)

- Explores the rationale and significance of location and/or position of objects, people or self (R)
- Makes predictions about location based on spatial understanding (R)
- Explores direction through the use of arrows (U&C)

Learning experiences

Digital activity: On Our Shelves MAM Routines: Notice & Wonder; Reason & Respond

- Concrete activity: In the Classroom
- P) Flashcard game: Using Arrows
- Pupil's Book page 52: Exploring Location and Direction

Maths language

arrow; informal use of: left and right

Warm-up

Digital activity: On Our Shelves MAM Routines: Notice & Wonder; Reason & Respond

Display the interactive poster, which shows a number of toys on three shelves. First, click to play or ask:

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

Then use the audio guestions to prompt the children to observe details in the scene and describe the location of the toys. Click to play or ask:

- What toys are on the top shelf?
- What toys are on the bottom shelf?
- What toys are on the middle shelf?
- Where is the monkey? •
- What toy is between the penguin and the teddy?
- Which toy is beside the dinosaur?
- Which toy is under the doll?
- Which toy is above the Lego?

- Which toy is beside the train?
- Which toy is between the football and the car?

Let's deepen

Use the words 'left' and 'right'.

Concrete activity: In the Classroom

Toys

PCM 38

Masking tape

Describe the location of a book or toy in the classroom. One child finds the item and places it where everyone can see it. Ask different children to describe what they see from their different perspectives – the *back* of the teddy, the *front* of the teddy, the *side* of the teddy, and so on.

Let's deepen

If you are looking *down* at the teddy (i.e. the teddy is on the floor), what do you see?

Main event

Plashcards game: Using Arrows

Assess whether your class is ready to use the words 'left' and 'right'. Some children may have heard the words before but might not know their meaning. Others will have the two meanings mixed up. Use these words



informally or use 'this way/that way', depending on the ability of your class.

Using PCM 38 Flashcards: Directional Arrows, show the children the four arrows. (Enlarge the four arrows on the photocopier, if required.) Use masking tape to mark out a classroom-size 'grid', appropriate for your

class level (3 × 1, 3 × 2 or 3 × 3). Position about five toys within the grid. Ensure the grid has a definite starting point. Initially, you might guide a child to 'walk' through the grid and reach a toy (e.g. 'go up, down, left, right, two steps'). Then the children use their positional language to describe how to get to the various toys. After they have 'walked' through the directions, they position the arrows to move towards the chosen toy.

Pupil's Book page 52: Exploring Location and Direction



Optional consolidation and extension possibilities

Blocks Use a three-block tower to reinforce the

language of *middle*, *top*, *bottom*, *over*, *under*. Ensure each block is a different colour. How many ways can the children construct the tower with a different order of colours (red at the top, red on the bottom, red in the middle, blue at the top, blue on the bottom, and so on)?

Bubbles Using a bubble kit, blow a bubble. The children describe the direction of the bubble and observe it land. Having seen where the first bubble landed, can the children predict where the next bubble will land, e.g. Who will it land next to/beside/ behind?

Computational Thinking If you have Bee-Bot toys in your classroom the children can be guided to program the bots to go to a certain location on a classroom mat or on a grid made with masking tape.

Line Dance (Integration with Music) A number of Bee-Bots (e.g. five or six) could be programmed to perform a simple 'line dance', which could be accompanied by music.

Let's Deepen Use the smaller directional arrows and A4 grid cards activity templates for using arrows to bring each character to a toy on the grid.

Day 5, Lesson 5

Spatial Awareness and Counting

Focus of learning (with Elements)

- Moves and repositions objects for a purpose (A&PS)
- Responds to obstacles in familiar environments by adjusting paths and/or types of movements (A&PS)
- Uses positional language (before, after, in-between) in the context of numeration (e.g. What number comes before 6?) (C)

Learning experiences

Concrete activity: Numerals 1–10 on the Class Clothesline
 Digital activity: Little Red Riding Hood's Woodland Adventure
 MAM Routine: Reason & Respond

Equipment

 Class clothesline and numeral poster printables 1–10

Maths language

space

Warm-up

Concrete activity: Numerals 1–10 on the Class Clothesline

This is an informal opportunity to assess the children's number recognition, and number sequencing skills. (You could use the numeral poster printables.) It will also help you to assess their understanding of

e Assessment Opportunity

the language of location/position with regard to numbers 1 to 10.

You might like to revisit the class clothesline. Remove all the numerals from the line.

The children peg the numerals back on the line, using positional language. (Identifying numbers is informal at this stage, so the children will need support.) For example, say/ask:

- Put number 1 at the beginning/start of the line.
- Put number 10 at the end of the line.
- Will all the other numbers 'fit' in between number 1 and number 10?
- Will we make the space between 1 and 10 'wider'?

Give ten children one numeral each to hold (1–10). Ask them to position themselves 'correctly'. The rest of the children in the class give assistance in terms of positional advice, using their new vocabulary (e.g. *beside*, *in-between*, *more space*, *not enough space*). Ask:

- How much space do we need to fit the children in between Child 1 and Child 10? (They show you by moving the two children – Child 1 and Child 10 – a certain distance apart.)
- If we put Child 5 here, how much 'space' do we need?(The children show you the amount of space in their positioning of Child 5.)
- How many children have to fit between Child 1 and Child 4?
- Which children/numbers go beside Child 2?

You can try a vertical line instead of a horizontal line. In this case, ask:

- Which child/number goes behind/in front of Child 5?
- If I move up/down the line to here (e.g. to Child 6), what number am I at?
- If I move up/down the line by one child, what child/number will I be at?

Main event

Digital activity: Little Red Riding Hood's Woodland Adventure

MAM Routine: Reason & Respond

Play the slideshow, in which the children will 'virtually' walk along the woodland path with Little

Optional consolidation and extension possibilities

Growing Plants (Integration with Science) Grow some sweet peas with the children. One of the primary considerations when growing plants is location. Sweet peas like sunshine, and they need a stake or other structure for support to grow, along with plenty of moisture.

There is a lot to discuss in terms of location – a sunny spot, with some kind of support structure and easy access to water. Discuss different classroom locations with the children and decide on the best option. You could also position some of the plants in other (shady) locations. Elicit from the children that these plants are not thriving and discuss a new location. Red Riding Hood. There are many twists and turns, and Little Red Riding Hood has to make different decisions. Click to play the audio questions to prompt the children to help Little Red Riding Hood find her way out of the woods.

Day 6, Lesson 6

Movement of Shapes

Focus of learning (with Elements)

- Recognises that a shape may appear different when moved in some way (U&C)
- Discusses movement and manipulation of shapes using informal language (C)

Learning experiences

- Digital activity: What 3-D Shape Am I? MAM Routine: Reason & Respond
- Animation: Shape Shifters! Shapes on a Trampoline MAM Routine: Reason & Respond
- Concrete activity: Construction Toys MAM Routine: Reason & Respond
- Pupil's Book page 53: Movement of Shapes

Equipment

- Small geometric solids
- Building blocks and construction toys (e.g. Stickle Bricks)

Maths language

informal use of: turn, twist, fit, flip and slide

Warm-up

Digital activity: What 3-D Shape Am I? MAM Routine: Reason & Respond

This is an opportunity to formally revise the names of the 3-D shapes (you may have been using the names informally since Unit 6).



Play the activity, which slowly reveals each shape. Ask the children to say the name of the shape as soon as they recognise it. Use the Pause button to allow for reason and respond discussion. Use the Reveal button to reveal the answer, if the shape has been correctly guessed. Some children might refer to the shapes by their properties (e.g. round, pointy, curved).

Let's strengthen

Support the children in recalling the attributes of the shapes and, if appropriate, the names of the shapes. Ask:

- Can you tell me about this shape?
- Does this piece of the shape look like it could be another shape?
- Do we all agree what this shape might be?
- Who thinks it is a different shape? Why?

Animation: Shape Shifters! Shapes on a Trampoline MAM Routine: Reason & Respond

Play the animation. Initially, the children see Monty jumping on the trampoline. He is seen in different positions, but he is still Monty! Next, they see the shapes jumping on the trampoline. When a shape is upside down/turning around, is it still the same shape? Explore this concept with the children, using geometric solids and informal language. Ask:

- Can you name the shape waiting beside the trampoline? (sphere)
- Which shapes are jumping up and down on the trampoline? (sphere, cylinder, cuboid, cube)
- What shape is doing backflips? (cylinder)
- What shape is jumping backwards? (cube)
- What shape is jumping forwards? (cuboid)
- Look at the shape doing somersaults in the air! What shape is it? (cube)
- Is it still a cube if it turns?
- Does it look different?
- Does the cylinder look different when it turns?

Concrete activity: Construction Toys MAM Routine: Reason & Respond

Distribute construction toys to each group. (You could give each group just one type of construction toy.) Allow the children time to engage in free play. Ask:

- Can you see any of our shapes?
- How could you move that shape (e.g. cuboid)? (Turn it around. Flip it over. Slide it along the table.)
- Is it still the same shape?
- Will this piece/brick fit onto that piece/brick?
- How could you make it fit? Do you need to turn it around or flip it?

- Will those two small bricks fit onto that one big brick?
- If you turn/flip that piece/brick around, will it fit better?
- What shape is the wheel? Will it turn if you put it on the car?
- Pupil's Book page 53: Movement of Shapes



Optional consolidation and extension possibilities

Concrete Activity Puzzles Give the children more practice with jigsaw puzzles and shape sorters.

Let's Deepen Give the children more practice with double-sided jigsaw puzzles, or ask them to construct

specific animals, using building bricks. Watch this video to learn how to make a specific animal: edco.ie/8kh6

Day 7, Lesson 7

Shapes in Different Positions

Focus of learning (with Elements)

- Identifies shapes in a variety of different orientations (U&C)
- Selects and manipulates shapes to copy a model or structure (A&PS)

Learning experiences

- D Digital activity: 3-D Shapes MAM Routine: Quick Images
 - Concrete activity: Exploring the Movement of Shapes
- Pupil's Book page 54: Shapes in Different Positions

Maths language

There is no new maths language for this lesson.

Warm-up

Digital activity: 3-D Shapes MAM Routine: Quick Images

Play the slideshow. Briefly reveal and then hide the image(s). The children guess or name which 3-D

shape has been shown. Some children might still refer to the shapes by their properties (e.g. it is sharp, it has corners).

Equipment

recycling box or the small-

Materials from the

world/play area

Let's strengthen

Support the children in naming the shapes. Ask:

- Which shape do you think that was?
- What did it look like?

- Did it look a bit like a ... (e.g. cube)?
- Do we all agree what this shape was?
- Who thinks it was a different shape? Why?

Main event

Concrete activity: Exploring the Movement of Shapes

Assess how the children are coping with 'conservation of shape'. Do they grasp the concept of the shape retaining its 'name' regardless of its movement?



Distribute materials from the recycling box or the small-world/play area to each group. Allow the children time to engage in free play. Ask:

- Can you see any of our shapes? (Some children might notice that there is a rectangle on the box of cereal.)
- How could you move that shape (e.g. sphere)? (Roll it forwards.)
- Is it still the same shape?
- Can you turn it, flip it or slide it?
- Does the shape change? Is it still a ... (e.g. cube)?
- Could you fit any of these shapes on top of another shape? (e.g. two small boxes on top of one bigger box)
- Will any of these cubes fit together on top of this cuboid?

- Can you put two shapes together and make a 'picture'? (A tissue box and Toblerone box could be a rocket!)
- What two shapes did you use?

Let's deepen

Using Think-Pair-Share, ask:

- Can your partner copy your 'picture'?
- Can you make a different 'picture' with the same shapes?
- Pupil's Book page 54: Shapes in Different Positions



Optional consolidation and extension possibilities

Song Sing the following song to the tune of 'Frère Jacques'.

Four shapes jumping on the bed. Poor cube fell and hit his head! They called for the doctor, and the doctor said, 'No more jumping on the bed!'

Three shapes jumping on the bed. Cuboid fell and hit her head! They called for the doctor, and the doctor said, 'No more jumping on the bed!'

Two shapes jumping on the bed. Poor sphere fell and hit his head! They called for the doctor, and the doctor said, 'No more jumping on the bed!' One shape jumping on the bed. Cylinder fell and hit her head! They called for the doctor, and the doctor said, 'No more jumping on the bed!'

Home/School Links Book Page 24 can be completed any time after this lesson.



Small 2-D shapes and geometric solids

Large 2-D shapes and

Unit 9 Maths Language Cards

geometric solids (if

available)

Day 8, Lesson 8

Describing the Movement of Shapes

Focus of learning (with Elements)

 Uses appropriate language (e.g. turn, flip, slide, match, fit) to describe movement and comparison of shapes (C)

Learning experiences

- Digital activity: Shape Line-Up MAM Routine: Reason & Respond
- C Concrete activity: Using the New Words
- Concrete activity: Using the New Words and the Shapes
- Pupil's Book page 55: Describing the Movement of Shapes

Maths language

turn, flip, slide, match, fit

Warm-up

Let's strengthen

Digital activity: Shape Line-Up MAM Routine: Reason & Respond

Play the matching activity. The children will see shapes in different orientations. Assess their recognition and naming of

the shapes. To create a match, click and drag a line to connect a shape with the correct name.

Support the children in recalling the attributes and names of the 2-D shapes.

Main event

Concrete activity: Using the New Words

Distribute 2-D shapes and geometric solids to each group. (If you need extra 2-D shapes, use the 2-D Shapes printable.) Using the maths language cards, show the children the word *turn*. Ask:

- Can anyone tell me what this word says?
- What does it mean?
- When would you see someone turn something at home or at school? (Someone might turn the handle/sausages/your copy.)
- Can you show me the action? (A child might get up and turn around.)
- Can you use an object to show me? (A child might turn their pencil.)
- Could you use a shape to show me? (A child might turn a triangle.)

Continue with the other maths language cards, asking similar questions to those above, and using the

concrete shapes. Examples for *flip* include: flip a pancake/card/coin; do a back flip; a beetle might flip onto its back. Examples for *slide* include: slide along the floor in your socks; slide down a slide; slide across ice.

Let's strengthen

Use Monty the puppet to embed the new language with the children, e.g. Turn Monty! Flip Monty! Slide Monty along the table!

Concrete activity: Using the New Words and the Shapes

Distribute 2-D shapes and geometric solids to each group and allow the children time to engage in free play. Distribute one maths language card to each group and get the children to explore the word in relation to their shapes. Ask:

- What does this word (e.g. *turn*) say?
- What will you do with this shape (e.g. circle)?

- Does the shape look the same or different when you turn it?
- What will you do with this shape (e.g. triangle)?

Swap the maths language cards between the groups so that each group eventually explores all five of the words.

Let's deepen

Was there a difference when you turned the circle, and when you turned the triangle?

Let's deepen

The children work in pairs using Think-Pair-Share. Child A turns, flips or slides a shape. Child B names the shape and the movement, e.g. 'You flipped the circle.' Gauge the children's understanding of three of the new words: *turn*, *flip* and *slide*. Using the large shapes and geometric solids, flip a shape (e.g. a square). You might flip it on the back of your hand, like a coin. Ask:

• What did I do to the shape?

Turn a shape (e.g. a triangle) and ask:

What did I do to the shape?

Slide a shape (e.g. a rectangle) and ask:

- What did I do to the shape?
- Pupil's Book page 55: Describing the Movement of Shapes



Optional consolidation and extension possibilities

Ready, Steady ... Action: In the yard or the PE hall, hold up a maths language card. The children perform the action shown on the card.

Rectangle Song Sing the following to the tune of 'The Farmer in the Dell'.

A rectangle has four sides, A rectangle has four sides, Two are long and two are short, A rectangle has four sides.

Circle Song Sing the following to the tune of 'Are You Sleeping?'

This is a circle, This is a circle. How can you tell? How can you tell? It goes round and round, No end can be found. It's a circle, it's a circle.

Square Song Sing the following to the tune of 'You Are My Sunshine'.

You are my square, My lovely square. You have four sides, They're all the same. You have four corners, four pointed corners. You are a square, that is your name! **Triangle Song** Sing the following to the tune of 'Frère Jacques'.

It's a triangle, It's a triangle. Look and see, Look and see. It has three sides, It has three points, 1, 2, 3! 1, 2, 3!

Shape Art The children create their own versions of paintings by Wassily Kandinsky, Piet Mondrian or Sean Scully.



Artwork in the style of Piet Mondrian

Day 9, Lesson 9

Visualising the Movement of Shapes

Focus of learning (with Elements)

- Visualises how a shape will look when moved (R)
- Solves and discusses simple spatial puzzles such as jigsaws or shape sorters (A&PS)
- Investigates shape movements and shape matching (e.g. Will it fit if I turn it this way? Will it match if I turn it over?) (R)

Learning experiences

- D Digital activity: Monty's Shape Puzzle MAM Routine: Reason & Respond
- Concrete activity: Maths Stations
- Pupil's Book page 56: Visualising the Movement of Shapes

Equipment

- Shape sorters
- 2-D shapes
- Jigsaw puzzles (single-sided and double-sided)
- Toppling tower blocks (e.g. Jenga)
- Geometric solids
- Scissors
- Glue
- PCM 3

Maths language

There is no new maths language for this lesson.

Warm-up

Digital activity: Monty's Shape Puzzle MAM Routine: Reason & Respond

Play the slideshow. Ask the children to help you choose the correct shape to fit in the space. Initially, the children will see a set of different coloured shapes, in various orientations. The children must decide which shape will fit into the space and how it will fit (e.g. by flipping/turning the shape around). Encourage the children to give reasons for their answers. Reveal the correct answer on the next slide. Repeat for each of the other sets of slides (there are six sets of two slides in total).

Main event

Concrete activity: Maths Stations

Assess whether the children realise that turning,

flipping or sliding a shape might allow it to 'fit' into a puzzle or make new shapes. Some children may think that the shape must remain in a static position and cannot be manipulated to fit a space.



Group 2: Single-sided jigsaw puzzles Before the children begin, ask:

- Which pieces will you start with? The four corners?
- Which way will you turn each piece?
- Do you think this piece will fit?

Group 3: Fitting shapes

Distribute a copy of the Unit 9 Let's Strengthen PCM to each child. The children visualise which 2-D shape will fit which outline. They make their decision and describe how they need to turn or flip the shape to fit the space.

Distribute the equipment to your groups.

Group 1: Shape sorters

Before the children fit the shape into the space, ask:

- Which shape *do you think* will fit this space?
- Will you need to turn/flip the shape?

Group 4: Double-sided jigsaw puzzles Before the children begin, ask:

- Which pieces will you start with? The four corners?
- Which way will you turn each piece?
- Do you think this piece will fit?

Group 5: Wooden blocks and geometric solids

The children are tasked with constructing a tower. Ask:

- Which shapes will make the best tower?
- Will you be able to slide a shape from the tower without it falling down?

Pupil's Book page 56: Visualising the Movement of Shapes



Distribute a copy of PCM 3

Visualising the Movement of Shapes, scissors and glue to each child.

Optional consolidation and extension possibilities

Let's deepen Use the Problem-solving with Shapes activity printable.

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!
Distribute a copy of PCM 39 Jigsaw Puzzle Template and a pair of scissors to each child. The children draw a picture on the template. Alternatively, they glue a picture from a magazine or an old calendar to the reverse of the template.	Allow the children more time to explore jigsaw puzzles, shape sorters or making shapes with play dough.
Progress Assessment Booklet	Maths eyes
Complete Questions 33–34 on page 18. Alternatively, these can be left to do as part of a bigger review during the next review week.	Go on a Shape Hunt outdoors to see how leaves, trees, branches, twigs and clouds change shape and/ or move.

Maths language

Ask the children to explain the following terms, perhaps using examples or drawings on their MWB: *turn*, *twist*, *fit*, *flip*, *slide*.

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?

Maths stations

You will need: 2-D shapes, pegboards and pegs, geoboards and elastic bands, stones, pebbles and twigs.

Group 1: 2-D shapes

The children match the shapes. Ask:

- Which shape is the same/will match this shape?
- Can I make it match?
- Will I turn it or flip it?

Group 2: Pegboards

The children make a 2-D shape picture, using a pegboard and pegs. They could then copy their picture onto PCM 40 Pegboard Picture. They could also make patterns inside each shape. Alternatively, they could make the numerals 1–8.

Group 3: Geoboards

The children make a 2-D shape picture (same shape in different rotations), using a geoboard and elastic bands. They could then copy their picture onto PCM 41 Geoboard Picture.

Group 4: 2-D shape pattern

The children make a pattern, using 2-D shapes. (You could use the 2-D Shapes printable if needed.) The children must use the same shape turned in a different orientation in the pattern. For example:



Group 5: Shape outlines

The children use stones, pebbles and twigs to fill the outline of each shape on the Large Shape Outlines activity printable. Ask:

- Which materials will work best?
- How will you fill the outline with the least amount of white space showing?

Let's strengthen	Let's deepen
Revise the following terms: turn, twist, fit, flip, slide.	Use the Unit 9 Let's Deepen PCM.
Revise the names of the 2-D and 3-D shapes.	
Reuse some of the digital resources to prompt	
revision of key language. Consult the Unit 9 Let's	
Strengthen Suggestions for Teachers and/or the	
Unit 9 Let's Strengthen PCM.	



