

Maths and Me: Junior Infants – Short-Term Plan, Unit 7: Consolidating Numbers 0 to 5 (December: Weeks 1&2)

Strand(s) > Strand Unit(s) Number > Uses of Number; Numeration and Counting; Sets and Operations. Algebra > Pattern, Rules and Relationships.




Learning Outcome(s)

Through appropriately playful and engaging learning experiences children should be able to develop an awareness that numbers have a variety of uses; develop an awareness that the purpose of counting is to quantify, use a range of counting strategies for a range of purposes; recognise and understand what happens when quantities (sets) are partitioned and combined; explore, extend and create patterns and sequences.

Lesson	Focus of Learning (with Elements)	CM	Learning Experiences	Assessment
1	Exploring Counting 1 to 5: Demonstrates a growing understanding of the five principles of counting (one-one, stable order, cardinal, order relevance and abstraction) (U&C); Estimates and counts the number of objects in a set, up to 5 (R); Undertakes tasks involving counting in other areas of learning (A&PS)		<ul style="list-style-type: none"> D Choral Counting L1 C Birthday Cards L1 D Notice & Wonder L1 D Reason & Respond L1, 3–8 D Concept Cartoon L1, 5 D Think-Pair-Share L1, 5 C Exploring Counting 1 to 5 L1 	Intuitive Assessment: responding to emerging misconceptions
2	Patterns in Number Sequences: Explores patterns in number sequences, noticing one more object being added each time (U&C); Identifies a unit of repeat within a repeating pattern (U&C)		<ul style="list-style-type: none"> D Making a Pattern L2 	Planned Interactions: responding to insights gleaned from children's responses to learning experiences
3	Introducing Zero: Explores how counting can be used to solve problems related to everyday life (A&PS); Identifies the empty set and the numeral zero (U&C); Matches numerals to sets up to at least 5 (U&C); Establishes that zero, as a numeral, represents nothing/none in terms of quantity (R)		<ul style="list-style-type: none"> C Exploring Pattern-making L2 C Making a Growing Pattern L2 C Matching Numbers to Sets (0 to 5) L3 C Ordinality of Number and Ordering Sets (0 to 5) L4 	
4	Ordering and Ordinality of Number – 0 to 5: Displays 0, 1, 2, 3, 4, 5, to convey the different uses and application of numerals to represent 'how many', order/rank and label (C); Orders sets of objects according to their quantity, 0–5 (A&PS); Accurately counts and compares equivalent and non-equivalent sets from 1 up to at least 5 and establishes which set has more or less (R)		<ul style="list-style-type: none"> C Number in Different Areas of the Classroom L5 	
5	Real-life Numbers – 0 to 5: Investigates the role of quantifying in real-life situations (A&PS); Explores the use of number and plays games to raise awareness of number in their environment (A&PS)		<ul style="list-style-type: none"> C Making Number Paths (1 to 5) L6 C Composition of Number (1 to 5) L7 C Rhyme: 'Here Is the Beehive' L8 C Partitioning Sets L8 	Assessment Events: information gathered from completion of the unit assessment in the Progress Assessment Booklet page 15
6	Number Paths – 1 to 5: Discusses, draws and writes representations of numbers 0–5, using manipulatives (C); Begins to use simple number paths for counting all, counting on and counting back, as appropriate (A&PS); Recognises that each subsequent number in a sequence is one more than the one that precedes it and one smaller than the one that comes after it (R)			
7	Composition of Number – 1 to 5: Investigates various arrangements (e.g. on number frames) of manipulatives, to prompt different mental images of numbers up to 5, while developing a sense of each number (R)			
8	Partitioning: Partitions sets of two or more objects (U&C)			
9	Review and Reflect: Reviews and reflects on learning (U&C)			
			Print resources	
			Pupil Book pages 36–42	
			Home/School Link Book pages 18–20	
			PCMs 29–32	

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 7 Maths Language Cards.
 Equipment	See 'Junior Infants <i>Maths and Me</i> 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 7 Let's Strengthen Suggestions for Teachers. (These address the Common Misconceptions and Difficulties listed below.) ● See Unit 7 Let's Strengthen PCM. ● See Unit 7 Let's Deepen PCM.
Integration	See individual lesson plans.

Background and rationale

- Over the course of the fortnight, the children will count from 1 to 10, but the focus will be on the numbers 0 to 5. The children are introduced to the abstract principle of counting (e.g. counting sounds), which leads to them being able to create a mental image of a number and more easily 'count on' in their head.
- The children will discover the empty set, and the number zero, and explore its properties.
- They will subitise amounts from 2 to 5, and learn to recognise these amounts in different arrays of dots/objects.
- They will 'write' numerals *creatively*. The focus is not on writing numerals on paper, but rather on identifying and understanding numbers 0 to 5 without the additional 'distraction' of writing the numerals.
- They will order sets, match numerals to sets (0–5), and group and swap amounts of objects, setting the foundation for Place Value and Base Ten.
- In the second week, they will partition sets of 2, 3, 4 and 5, and then combine the sets again. Some children will be assigning numbers to the partitioned sets. These activities lay the foundation for addition and subtraction (in Senior Infants).

The theme of this unit is **Numbers And Me**.

Common misconceptions and difficulties

- The children may count too many or too few. (They need to line up items and touch them as they count, count a certain number from a bigger set, and know when to stop counting.)
- The children may not realise that the amount does not change when a specific set of objects is rearranged (e.g. cubes arranged in a circle or a line, or spread out).
- The children may not understand that 'more' refers to the number in the set rather than the size. (They need to count different-sized objects in two groups, ensuring that the group of smaller objects has more in it. When lined up, the larger objects might take up more space, but it is the number of items that matters.)
- The children may think that to compare two groups, one group has to have fewer or more items and they cannot be equal. (*Would You Rather?* and *Same or Different* activities help here. A four on a dice is different in appearance from a horizontal row of four dots, but they have the same value. In pairs, ask the children to arrange – in different ways – two sets that are worth the same, and to use a five frame to compare.)

The Unit 7 Let's Strengthen Suggestions for Teachers address the common misconceptions and difficulties listed on the previous page.

Mathematical models and representations

- Number shapes
- Five frames
- Cuisenaire rods
- Dice dots
- Number paths
- Set circles/rings
- Maths sticks



Five frame

Teaching tip

Number Shapes, Five Frames, Ten Frames and Sorting Circle manipulative printables are 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 Counting 1 to 5

Focus of learning (with Elements)

- Demonstrates a growing understanding of the five principles of counting (U&C)
- Estimates and counts the number of objects in a set, up to 5 (R)
- Undertakes tasks involving counting in other areas of learning (A&PS)

Learning experiences

- D** Animation: Numbers 1 to 10 **MAM Routine: Choral Counting**
- C** Concrete activity: Birthday Cards
- D** Digital activity: Houses **MAM Routines: Notice & Wonder with Think-Pair-Share; Reason & Respond**
- D** Digital activity: Who's at Home?
MAM Routines: Concept Cartoon, with Think-Pair-Share
- C** Concrete activities: Exploring Counting 1 to 5
- P** Pupil's Book page 36: Exploring Counting 1 to 5

Equipment

- Numerals 1 to 10 on the class clothes line
- Birthday cards for ages 1 to 5
- Manipulatives (links, interlocking cubes, bricks or blocks)
- Monty the puppet

Maths language

- larger, smaller, take away/subtract*
- (*The children can become confused later on by the 'sudden' use of the word 'subtract'. You may wish to use it informally at this stage.)

Warm-up

D Animation: Numbers 1 to 10
MAM Routine: Choral Counting

Play the video. The children chant the numbers 1 to 10, using their fingers. This is an opportunity to assess the children's counting skills.

Use Monty the puppet to point to each numeral 1 to 10 on the class clothes line as the children chant the numbers. Take numerals 1 to 5 off the clothes line and mix them up. Ask the children to put them back in the correct order, using the language of: *after, before, one more, one less, in-between*. Without looking at the numerals on the clothes line (with their eyes closed), have the children got a 'mental' image of the numbers 'before' and 'after' (1–5)?

Ask:

- What number comes *after* 4?
- What number comes *before* 4?
- What number is *one more* than 4?

Teaching tip

The children could practise 'whispering' the number *before* (e.g. before 3) to help them find the number *after* (e.g. after 3). In recalling the sequence of 2, 3, 4, they help themselves to find the next number.

Let's deepen

What number comes in-between 3 and 5?

Ask:

- What age are you now?
- What age will you be on your next birthday?
Count on.
- What age is your baby brother/sister?
- What age will they be on their next birthday?
- Do you know the age of your dog/cat? What age do you think Monty is?



C Concrete activity: Birthday Cards

Show the birthday cards to the class. Ask:

- Which card/number is greater: 4 or 5?
- Which card/number is smaller: 3 or 4?

Hold up a card (e.g. with 3). Ask:

- I have a card behind my back with the *next* number on it. What number is on the card?

Let's deepen

Can you put these cards in order: 3, 2, 4?

D Digital activity: Houses

MAM Routines: Notice & Wonder with Think-Pair-Share; Reason & Respond

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

- How many houses do you see? Can you count them?
- Jay is knocking on a door. What is the house number?
- Dara wants to go house number 2. Which house is that?
- Mia lives in the last house. What number is her house?

- Lexi lives in the first house. What number is her house?
- What number house is Monty hiding in?
- Listen to Jay knock on the door. How many knocks do you hear?
- If Jay lives next door to Mia, what house number is that?
- How many houses have red doors? Can you count them?
- How many houses have a chimney? Can you count them?

D Digital activity: Who's at Home? MAM Routines: Concept Cartoon, with Think-Pair-Share

Display the Concept Cartoon, which shows dogs and their homes. The characters are trying to decide which home is Monty's. Click each character to listen to their statements. Using Think-Pair-Share, ask:

- What do you think? Explain why.
- Who do you not agree with? Why do they think that?
- How can we find out whose thinking is correct?

Let's deepen

Ask:

- Mia lives next door to the first house. What number is her house?

Continue with similar questions.

Main event**C Concrete activities: Exploring Counting 1 to 5**

These activities provide further opportunities to revise and assess how the children are progressing with the five principles of counting.

Distribute manipulatives (links, interlocking cubes, bricks or blocks) to each group.

**Activity 1**

Distribute links to each group. Ask:

- Can you make a worm/snake/caterpillar with four links?
- How many links do you need to make a *longer* worm with five links?
- How many links are there in the worm now? (Are the children counting correctly and assigning the *final* number?)

Activity 2

Distribute interlocking cubes to each group. Ask:

- Can you make a baby snake with one cube?
- The baby snake is getting bigger/older. It is the snake's birthday. How many cubes (long) is it now? (two)
- Now the snake is two cubes (long). It is the snake's next birthday. How many cubes (long) is it now? (three)

Continue in increments of one.

Activity 3

Distribute bricks/blocks to each group. Say/ask:

- Can you make a tower with five bricks/blocks?
- How many bricks are there in your tower? (five)
- How could you make a tower with four bricks? (Take one brick away./Subtract one brick.)

- How many bricks are there now? (Does the child need to recount?)
- Here is a big pile of bricks. Can you count out five bricks and make a tower? (Can the children count out the amount from a larger amount?)

Subitising an amount and then checking the count

Create three *different* arrangements of, for example, four cubes. Can the children subitise the amount of cubes in each group/set?

Let's strengthen

Some children may need additional practice in the skill of counting. You could check to see if they are double-counting an object or missing an object in their count. Do they understand that 'more or greater' refers to the increased amount they have counted, and not the size of the object or the size of the set of objects?

Let's strengthen

Some children may need additional practice in identifying and naming the numbers. They might benefit from tracing over the tactile numerals in the Pupil's Book and naming each numeral.

P Pupil's Book page 36: Exploring Counting 1 to 5



Optional consolidation and extension activities

How Many Knocks? Step outside the classroom door with Monty the puppet. 'Monty' knocks (e.g. three times) on the door. The children count the number of knocks. The knocks should be loud at the beginning, and become softer so that the children have to listen very carefully. (You could also ask one of the children to knock on the door.)

Counting Equipment (Integration with PE) Ask the children to count out the equipment in the PE hall (e.g. beanbags, hoops, balls). Pose problems such as: 'We have three children, but only two hoops. What will we do?'

Day 2, Lesson 2

Patterns in Number Sequences

Focus of learning (with Elements)

- Explores patterns in number sequences, noticing one more object being added each time (U&C)
- Identifies a unit of repeat within a repeating pattern (U&C)

Learning experiences

- D** Digital activity: Making a Pattern
- C** Concrete activity: Exploring Pattern-making
- C** Concrete activity: Making a Growing Pattern
- P** Pupil's Book page 37: Patterns in Number Sequences

Equipment

- Manipulatives (links, interlocking cubes, bricks or blocks)
- Small World objects
- Collections from nature walks

Maths language

- next, informal use of: pattern

Warm-up

Assess the children's understanding of what makes a pattern. Some children may have previous experience of identifying patterns and/or making patterns. Use their experience of the number sequence to reinforce the concept of a pattern, e.g. Let's count up to 10. What comes next?



D Digital activity: Making a Pattern

Display the pattern activity, which features a selection of vehicles and a road. The children must choose two vehicles, and use these to make an ABAB pattern on the road (e.g. car, truck, car, truck, car, truck). This is an informal introduction to pattern (via the Number strand); Pattern will be covered in much greater detail in Unit 13.



Main event

C Concrete activity: Exploring Pattern-making

Again, this activity provides an informal introduction to Pattern. Distribute a collection of small world or 'nature walk' items to each child. The children should use the items to make an ABAB pattern (e.g. cow, sheep, cow, sheep, cow, sheep).

Let's strengthen

Some children will need guidance; a pattern could be created for them to copy.

Pair Work:

- One child should make a pattern for their partner to copy.
- One child should make a pattern, and then break it up. Can their partner remember the pattern and recreate it?

Let's deepen

The children could make a 'number pattern' (e.g. one bear, two shapes, one bear, two shapes), and then use different manipulatives to create the same pattern again.

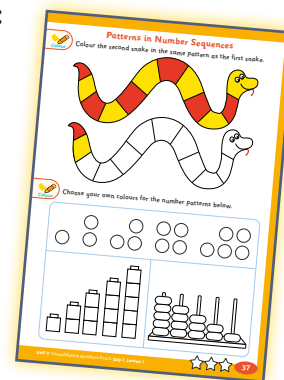
Teaching tip

The children could be prompted to make patterns in various orientations (not just horizontal).

C Concrete activity: Making a Growing Pattern

Distribute interlocking cubes, bricks/blocks to your groups. The children are going to making growing patterns. They start with, e.g., 1 cube, then 2, then 3, then 4, then 5, making a 'rising staircase'. They count aloud as they make their staircase. One step, two steps, etc. The Pupil's Book page 37 provides a clear reference for this activity. Some children might use different-coloured cubes to make each 'step', e.g. blue, red, blue, red for the fourth step.

P Pupil's Book page 37: Patterns in Number Sequences



Optional consolidation and extension possibilities

Counting Beats Ask the children to listen to a simple musical beat, count it out, and then repeat it. For example, one child could make a beat (e.g. on a toy drum or their table), and the class could count it out and repeat it.

Pattern Dance (Integration with PE) Model a pattern of physical movements (e.g. stamp feet, clap hands, stamp feet, clap hands) for the class. The children should identify and then copy the pattern. When you call out, 'Freeze!', the children must identify the next movement in the pattern.

Day 3, Lesson 3

Introducing Zero

Focus of learning (with Elements)

- Explores how counting can be used to solve problems related to everyday life (A&PS)
- Identifies the empty set and the numeral zero (U&C)
- Matches numerals to sets up to at least 5 (U&C)
- Establishes that zero, as a numeral, represents nothing/none in terms of quantity (R)

Learning experiences

- D** Animation: Here Comes Zero!
MAM Routine: Reason & Respond
- C** Concrete activities: Matching Numbers to Sets (0 to 5)
- P** Pupil's Book page 38: Introducing Zero

Equipment

- Manipulatives (bears, counters, beads, links, cubes, 2-D and 3-D shapes, collections of items)
- PCMs 29, 30

Maths language

- zero, nothing, empty

Warm-up

- D** **Animation: Here Comes Zero!**
MAM Routine: Reason & Respond

Play the animation, in which the characters are carrying different amounts of presents to a birthday party and baked goods to a cake sale. In each situation, Monty ('Zero') turns up with nothing.

Continue to explore the concept of zero. Ask/say:

- Can you show me three fingers?
- How many fingers is this (one, two, three, four, and then five fingers)?

- Can you show me four fingers on one hand?
- Can your partner show me one finger?
- How many fingers is that? (five) Give yourselves a high-five!

Hold up 'no fingers'. (You could hold up a closed fist or fold your arms.)

- How many fingers am I holding up? (no fingers or zero)
- Can you hold up zero fingers?

Main event

- C** **Concrete activities: Matching Numbers to Sets (0 to 5)**

Distribute manipulatives (or a collection of items) and numerals from PCM 29: Numerals 0–5 (Small), and PCM 30: Numerals 0–5 (Large) to each child.

Activity 1: Exploring Zero

Ask the children to sort objects into sets by quantity (e.g. making sets of one, two, three, four, five of the same objects and/or different objects). They match the numerals from PCM 30 to their sets. Ask:

- What is this number called? (0, zero)
- Can we make a set for 0? (No.)
- How many objects for 0? (no objects)

- If we put 0 (the number) beside this set of four, how many will we have in the set? (We will still have four.)

Ask the children to do the following:

- Subitise *different arrangements* of the same number of objects (1 to 5), and check the count.
- Make a variety of sets (using the same or different objects and arranging them in different ways) for numerals 0, 1, 2, 3, 4, 5.
- Connect numbers to the sets of objects they have counted (counting a set of objects and choosing the correct number).

- Explore conservation of number (e.g. counting five objects, assigning the number name, moving the objects but not re-counting).
- Count out objects from a collection of objects and assign the correct numeral.
- Select a number and make the corresponding set.

Activity 2: Zero Does Nothing!

Assess the children's understanding of the abstraction principle for numbers 0 to 5. Can they perform an action for each number?



Place large numerals face down on each group's table. Tell each child to take a numeral without showing it to anyone else. They each perform an

action the number of times that corresponds to their numeral (e.g. if they have the numeral 4, they could tap/clap/jump/hop four times). The other children count the actions and name the number. The child who gets the numeral 0 does nothing. (Can the other children name the number 0?) Place the numerals face down on the table again, and repeat the activity.

P Pupil's Book page 38: Introducing Zero



Optional consolidation and extension possibilities

Story Read a version of 'Goldilocks and the Three Bears' in which Baby Bear ends up with an empty bowl ('zero porridge'). A suitable version is also available at: edco.ie/qtzf

Nursery rhyme Recite 'Old Mother Hubbard', in which Mother Hubbard finds her cupboard empty – zero bones for the dog. An extended version of the nursery rhyme is also available at: edco.ie/35rm

The 0 Song Play the video at the following link, and ask the children to sing along: edco.ie/b9r6

Home/School Links Book Page 18 can be completed any time after this lesson.

Days 4 and 5, Lesson 4

Ordering and Ordinality of Number – 0 to 5

Focus of learning (with Elements)

- Displays 0, 1, 2, 3, 4, 5, to convey the different uses and application of numerals to represent 'how many', order/rank and label (C)
- Orders sets of objects according to their quantity, 0–5 (A&PS)
- Accurately counts and compares equivalent and non-equivalent sets from 1 up to at least 5 and establishes which set has more or less (R)

Learning experiences

- D** Digital activity: Petrol-Pump Counter
MAM Routine: Reason & Respond
- D** Digital activity: Pirate Line-Up **MAM Routine: Reason & Respond**
- C** Concrete activities: Ordinality of Number and Ordering Sets (0 to 5)
- P** Pupil's Book page 39: Ordering and Ordinality of Number – 0 to 5

Equipment

- Magnetic numbers
- Interlocking cubes
- Cuisenaire rods
- Number shapes
- PCM 29

Teaching tip

You could use number labels in the classroom (e.g. on the door, group tables, classroom helpers, star chart).

Maths language

- There is no new maths language in this lesson.

Warm-up



D Digital activity: Petrol-Pump Counter
MAM Routine: Reason & Respond

Click the petrol pump to trigger an animation. The children read the numbers (0–5) as the petrol-pump counter ticks forwards and backwards.

When it stops on a number, ask:

- What number do you see?
- What number comes after this number?

- What number comes before this number?
- What number is one more than this number?
- What number is one less than this number?



D Digital activity: Pirate Line-Up
MAM Routine: Reason & Respond

This is an activity for ordering numbers from 1 to 5. The pirates on the ship are in the wrong order. Ask the children to put them in the correct order so that they are ready to set sail!

Main event

C Concrete activities: Ordinality of Number and Ordering Sets (0 to 5)

You could use Maths Stations for these activities.



Teaching tip

When the children are ordering numbers, notice *how* they are doing it and assess the following:

- Are they making space for a number in-between (e.g. 3 and 5)?
- Are they ordering from left to right?
- Would This Work? Could we order the numbers from bottom to top?
- Are they starting with 1?

Group 1: Magnetic Numbers

Distribute magnetic numbers and interlocking cubes to each child. (If magnetic numbers are not available, use PCM 29) The children put the magnetic numbers in order (with guidance, as needed). They then make towers of cubes to match the numbers, and explore the towers that have one more/less.

Group 2: Dice Dots

Distribute PCM 29 and the cut-out ‘cards’ from the Unit 7 Let’s Strengthen PCM to each child. Ask the children to order the numerals and assign the correct dice card to each numeral. They will notice that 0 does not get a dice card. They explore the cards that have one more/one less.

Group 3: Cuisenaire Rods

Distribute the Cuisenaire rods and a copy of PCM 29 to each child. Ask the children to order the numerals 1 to 5, and assign the number rods to the numerals. They should also explore the increase by ‘one unit/rod’ in each rod. They will observe that there is no rod for 0.

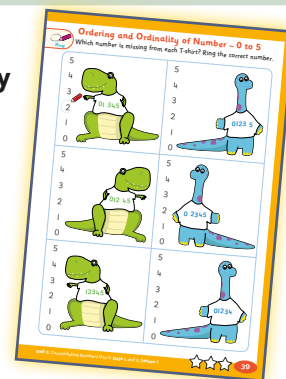
Groups 4 and 5: Number Shapes

Distribute number shapes 1–5 and a copy of PCM 29 to each child. Ask the children to order the numerals 1 to 5, and to assign the correct number shape to each numeral. They will observe that there is no number shape for 0. They should also explore the number shapes that have: one more hole/one less hole; and more/less; and the difference between them.

Let’s deepen

Some children may be able to communicate that there is a difference of one/two/three holes between some number shapes.

P Pupil’s Book page 39: Ordering and Ordinality of Number – 0 to 5



Optional consolidation and extension possibilities

Order the Cups You will need five cups and numerals 1–5 (see PCM 29) for this game. The children close their eyes while you place a numeral under each cup in random order. Each child in a group gets one turn to guess which cup has the numeral 1. When the correct cup is guessed, the ‘1 cup’ is placed at the start of the ‘line’ with the numeral 1 now on show. As the cups are turned over (to find the next number), the children could try to remember which cup contained which number. The child who guesses the last number (5) and places it at the end of the line wins the game.

Sensory (‘Feely’) Bag Put two sets of number shapes 1 to 5 into a sensory bag, and give it to a pair of children. Tell them to take turns to guess the number by feeling the shape. If they guess correctly, they take out the shape and keep it. The child with the most shapes at the end wins the game, but they must then put the shapes/numbers in order. For an extra challenge, they could try to order the shapes/numbers with their eyes closed.

Day 6, Lesson 5

Real-Life Numbers – 0 to 5

Focus of learning (with Elements)

- Investigates the role of quantifying in real-life situations (A&PS)
- Explores the use of number and plays games to raise awareness of number in their environment (A&PS)

Learning experiences

- D** Digital activity: Real-Life Counting and Problem-Solving
MAM Routine: Reason & Respond
- D** Digital activity: Do We Have Enough Wetsuits?
MAM Routine: Concept Cartoon, with Think-Pair-Share
- C** Concrete activities: Number in Different Areas of the Classroom
- P** Pupil’s Book page 40: Real-life Numbers – 0 to 5

Equipment

- Water Area, and items including cups, a boat and a bucket
- Sand Area, and items including a spade, a container, a bucket and shells
- Role-Play Area
- Small-World Area

Maths language

- There is no new maths language in this lesson.

Warm-up

D Digital activity: Real-Life Counting and Problem-Solving

MAM Routine: Reason & Respond

Play the slideshow, which shows a range of real-life images. Click to play the audio questions to prompt the children to count the items in each image.

You could also ask:

- Can we count anything outside or inside the classroom?
- Can you guess how many ... (e.g. water bottles) there are on this table? Let’s count them. Were you right?

- Are there enough ... (e.g. water bottles) for everyone at the table?

D Digital activity: Do We Have Enough Wetsuits? **MAM Routine: Concept Cartoon, with Think-Pair-Share**

Display the Concept Cartoon and click each character to listen to their statements. Using Think-Pair-Share, ask:

- What do you think? Explain why.
- Who do you not agree with? Why?
- How can we find out whose thinking is correct?

Main event

Assess whether the children have made a 'smooth' connection between the numberwork they engage in using concrete materials/manipulatives and numbers in 'real life'.



C Concrete activities: Number in Different Areas of the Classroom

You might like to use Maths Stations for these activities. Explain to the children that they are going to count in different areas of the classroom. Tell them to begin by putting on their Maths Eyes. You could put one child 'in charge' of communicating the counting tasks that the children are undertaking. Provide pencils/crayons and paper for the children to record their counting, using their own representations. They could do this in the Writing Area, if you have one set up.

Let's strengthen

The children could explore the areas themselves in terms of counting, but some might need guidance.

Group 1: Water Area

Ask:

- How many cups of water do you think will fill the bucket? Guess. (e.g. four)
- Do you want to 'write' your guess? (They might draw four cups.)

The children pour cups of water into the bucket to fill it. Ask:

- How many cups filled the bucket? Was anyone's guess correct?
- How many small cups of water/objects can you put on the boat before it sinks?

Group 2: Sand Area

Ask:

- How much sand will fill the bucket?
- How will we 'count' the amount of sand?
- Would This Work? Could we use a spade or a container?

- Can you make a sandcastle? How many shells will fit on top/around the edge?
- Do you want to 'write' your guess? (They might draw five shells.)
- Can you 'write' some numbers in the sand?

Groups 3 and 4: Role-Play Area

The opportunities for counting here will depend on your own classroom set-up. If you have a Kitchen Area, the children could count out cups and matching saucers for their 'guests' – are there enough for everyone? If you have a post office, they could count out their letters and stamps. On a construction site, they could count out hard hats and high-viz jackets.

Group 5: Small-World Area

Ask:

- How many pieces of 'fence' would you need to keep these piglets inside?
- How many sheep will fit into the truck/pen?
- If you take one sheep out, how many will be left?
- How many bricks/lollipop sticks will you need?
- How many bricks do you think you will need to build a pigsty?
- How many different-sized blocks could you use to build a tower before it falls over?
- Make a river (using tinfoil). How many stones/pebbles will you need to make stepping stones across the river?
- Can you build a henhouse with ten bricks?

P Pupil's Book page 40: Real-life Numbers – 0 to 5



Optional consolidation and extension possibilities

Visual Arts While the children are painting, ask:

- How many paintbrushes are there? How many jars of water? How many paint colours?
- Do we have enough for the group?
- How many more do we need?
- Are there too many?

Home/School Links Book Page 19 can be completed any time after this lesson.

Story Read *Five Fuzzy Chicks* by Diana Murray.

A reading of this book is also available at:

edco.ie/txsx

STEM Use small-world items. Can the children make a bridge or road with bricks or lollipop sticks that a truck can drive over?



Day 7, Lesson 6

Number Paths – 1 to 5

Focus of learning (with Elements)

- Discusses, draws and writes representations of numbers 0–5, using manipulatives (C)
- Begins to use simple number paths for counting all, counting on and counting back, as appropriate (A&PS)
- Recognises that each subsequent number in a sequence is one more than the one that precedes it and one smaller than the one that comes after it (R)

Learning experiences

- D** Digital activity: Number Path (1 to 5)
MAM Routine: Reason & Respond
- C** Concrete activities: Making Number Paths (1 to 5)
- P** Pupil's Book page 41: Number Paths – 1 to 5

Equipment

- Trays containing moist sand
- Shells
- Five paper cups
- Markers
- Sheets of A4 paper
- Five paper plates
- Cotton buds
- Paint
- Scissors

Maths language

- in front, behind, beside, bigger, smaller, count backwards, count forwards

Warm-up

- D** Digital activity: Number Path (1 to 5)
MAM Routine: Reason & Respond

You are assessing the children's understanding of the number sequence and their use of the associated language.



Play the slideshow, in which the characters and Monty are on a number path. For each slide, click to play the audio questions, which ask the children to figure out which number each character is standing on. The first five slides show numbers on the number path. The last five slides do not show numbers.

Main event

- C** Concrete activities: Making Number Paths (1 to 5)

Mark out a 1–5 number path in the yard with chalk. (Alternatively, use a commercial class number path or one made by the children in Group 2 below.) The children help you to count the numbers on the path. Tell a child to stand on a specific number (e.g. 4).

Ask:

- What number is Jessica standing on?
- What number is behind her?
- What number is in front of her?
- What number is in-between 3 and 5?
- If Jessica goes one step backwards, what number will she be on?
- If Jessica goes one step forwards, what number will she be on?

- Mark, can you stand on the last number?
- Ahmed, can you stand on the middle number?

You might like to use Maths Stations for the activities that follow.

Group 1: Sand Number Path

Distribute trays containing moist sand. Ask the children to trace a number path in the sand. They then make their own representations for each number. For example: some may 'write' the number 4, some may show four shells, and some may make four small mounds in the sand.

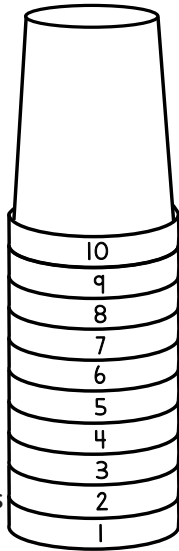
Group 2: Classroom Number Path

If you do not have a classroom 1–5 number path, the children could help you to make one. You will need five sheets of A4 paper (or art paper) and markers. For clarity, you could write the numerals or draw

dotted numerals for the children to trace over (or print them off in a large size font on A4 sheets). The children could decorate the sheets. You could use this number path with the class when asking the questions listed above.

Group 3: Tower Number Path

Distribute five paper cups and markers. The children turn the paper cups upside down and ‘write’ the numerals in their own way (e.g. dots and/or numbers) on the rim of the cups so that when the cups are stacked in the correct order, they make a vertical number path.



Group 4: Paper Plate Number Path

(Optional: You might prefer that this group use the same materials as Group 3.) Distribute five paper plates and markers or crayons. Ask the children to make representations of the five numerals on the plates. They can decorate each plate and/or draw the correct number of items to match the number. They then lay the plates on their table in the correct order.

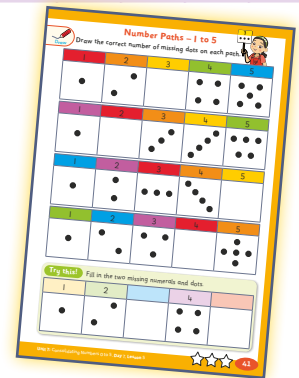
Group 5: Painted Number Path

(Optional: You might prefer that this group use the same materials as Group 4.) Distribute cotton buds, paint, sheets of paper and scissors. Ask the children to paint the numbers on sheets of paper using the cotton buds. The children then cut them out and make a paper number path. You could try this as a whole-class Visual Arts activity.

Let’s strengthen

Using numeral cards 1–5, ask the children to close their eyes. Remove a numeral. When they open their eyes, can they tell you which numeral has been removed? Repeat for all of the numerals. The children then try this in pairs.

P Pupil’s Book page 41: Number Paths – 1 to 5



Optional consolidation and extension possibilities

Pegs ‘n’ Pops Each pair needs five lollipop sticks with a numeral from 1 to 5 written at one end, a clothes peg, and paper and pencils or counters for keeping score. Child A closes their eyes. Child B places the clothes peg over the number on one lollipop stick. Child A opens their eyes and names the covered number. They give themselves one point, either by marking it on paper or taking a counter.

One More, One Less (Integration with PE) Bring a set of large numerals 1–5 to the PE hall and spread them out randomly. Call out a number (e.g. 4). The children all gather at that number. The last player to reach the

number is out. When you call out ‘One more’, the children gather at the number 5. When you call out ‘One less’, they gather at the number 4. Continue like this until one child wins the game.

Let’s deepen

Play ‘One More, One Less’ with numerals 1 to 10, if your class is ready for larger numbers.

Music The children sing along to this song about moving on one more (from 1 to 10): edco.ie/9yrrp



Day 8, Lesson 7

Composition of Number – 1 to 5

Focus of learning (with Elements)

- Investigates various arrangements (e.g. on number frames) of manipulatives, to prompt different mental images of numbers up to 5, while developing a sense of each number (R)

Learning experiences

- D** Digital activity: Composition and Partitioning of Number (1 to 5)
MAM Routine: Reason & Respond
- C** Concrete activities: Composition of Number (1 to 5)
- P** Pupil's Book page 42: Composition of Number – 1 to 5

Equipment

(See menu of activity options in the Main Event section.)

- Manipulatives, such as cubes and bears
- Play dough
- Pipe cleaners
- Buttons
- Cords/strings and beads
- Cupcake cases with numerals 0–5 written inside them
- Coloured pom-poms
- Sticky notes with numerals 2–5 written on them
- Chart paper with different compositions of numbers shown with coloured dots
- PCMs 31, 32

Maths language

- There is no new maths language in this lesson.

Warm-up

- D** **Digital activity: Composition and Partitioning of Number (1 to 5)**
MAM Routine: Reason & Respond

Display the activity, in which the children create sets of numbers using beads. Ask the children to choose

beads of two different colours to create the composition of the number shown. The numbers in the activity include 2, 3, 4 and 5.

Main event

- C** **Concrete activities: Composition of Number (1 to 5)**



assessment of their understanding of 'making' and 'breaking' numbers.

Teaching tip

Try to rotate the activities (on the Review & Reflect day or during a Visual Arts session) so that the children have an opportunity to try the different activities. This will enrich your

Choose from this menu of activities, depending on the needs of your class and the resources available. You could also integrate some of these activities into your Visual Arts session.

Number Stories

Distribute cubes and/or bears of two different colours to each child. Ask the children to make a set of five, using two colours (e.g. three red cubes and two green cubes).

Ask:

- How many red cubes did you use?
- How many green cubes did you use?
- How many cubes did you use altogether?

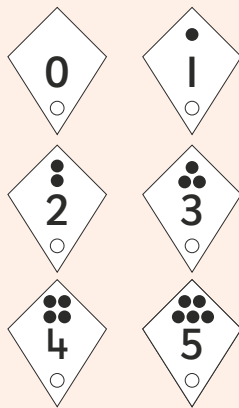
The story of 5 (or another number) could be shown incidentally by having a display table with the number 5 on it. The children could use any type of manipulative to show the number 5, but their composition must have two colours. Discuss the results together, including the children's choice of manipulative.

Making an Alien

Distribute play dough, pipe cleaners, buttons and PCM 31: Number Cards 2–5 to each child. Tell the children to choose a number card for their alien. For example, if they choose the number 5, their alien could have five legs (e.g. two red legs and three white legs) and five heads or five eyes. Ask the children to articulate their choices.

Making a Kite

Distribute play dough, cords/strings and beads, and a copy of PCM 32: Kites with Numerals 0–5 to each child. Tell the children to thread beads of two different colours onto the cords to show the composition of the number on each kite (e.g. two red beads and two yellow beads for the number 4 kite). They attach cords to the kites, using play dough.



Make Cupcakes

Distribute cupcake cases with numerals 0–5 written inside them and coloured pom-poms to each child. Tell the children to choose pom-poms of two different colours to make up each number (e.g. one red pom-pom and two blue pom-poms for the number 3 cupcake case), and to place them in the cupcake cases.

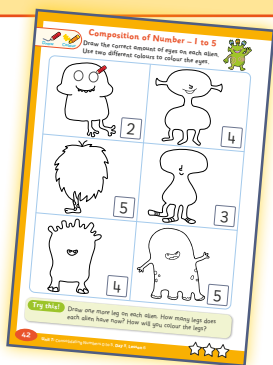
Play Dough Imprints

Distribute play dough, buttons and manipulatives (e.g. bears and cubes) to each child. Tell the children to use the buttons and manipulatives to make imprints in the play dough to show the composition of numbers (e.g. four button imprints and one cube imprint to make the number 5).

Sticky Notes and Chart

Distribute sticky notes with numerals 2–5 written on them and chart paper with different compositions of numbers shown with coloured dots to each group. Tell each group to choose a sticky-note number and to place it above a number composition on the chart (e.g. a child might choose the number 4 and stick it above a composition showing three red dots and one

P Pupil's Book page 42: Composition of Number – 1 to 5



Optional consolidation and extension possibilities

Maths Journals Play the digital resource 'Composition and Partitioning of Number (1 to 5)' again to remind the children how they can use beads to make up numbers. Ask them to draw a necklace in their journal (a large circle). They need to draw 5 beads on the necklace. What colours will they use? 2 red and 3 blue? 5 different colours?

Battle of the Five Frames Use PCM 33: Five Frames and play in pairs. Each child has a five frame and at least five counters. When you/a child shouts 'Go!' each child places counters on their five frame. Shout 'Stop!' Whoever has the most counters on the frame wins the game. The counters must be placed accurately on the frame!

Story Read *Ten Little Rubber Ducks* by Eric Carle. A reading of this story is also available at: edco.ie/bn7z

Let's Swap Play in groups. The children 'swap' small-world animals with the other children in their group. They could make up their own 'stories' while swapping. For example, a child who has two cows might say, 'I'm not happy with these two cows, I'd like to swap them for two horses, but I would like one black horse and one white horse, please.' The children will need guidance to grasp this aspect of 'swapping'.

Let's deepen

The children could use the 2-D and 3-D shapes to swap. A child with four triangles might say, 'I have four triangles. I would like to swap them for your two rectangles and two squares, please.'

Day 9, Lesson 8

Partitioning

Focus of learning (with Elements)

- Partitions sets of two or more objects (U&C)

Learning experiences

- C** Rhyme: 'Here Is the Beehive'
- D** Digital activity: How Many Beads?
MAM Routine: Reason & Respond
- C** Concrete activity: Partitioning Sets

Equipment

- Manipulatives (bears, counters, beads, links, cubes, 2-D shapes, 3-D shapes, collections of items)
- Cords/twigs/maths sticks for partitioning
- PCM 29

Maths language

- split, partition

Warm-up

C Rhyme: 'Here Is the Beehive'

Read this rhyme to the children while performing the actions.

Here Is the Beehive

Here is the beehive. (Make a fist.)
Where are the bees?
Hiding inside, where nobody sees.
Watch them come creeping, out of the hive,
One, two, three, four, five ... (Release one finger at a time from the fist/hive.)
BUZZ-ZZZ! (Wiggle fingers.)

You could explore making the story of 5 with the children (e.g. two fingers and three fingers).

D Digital activity: How Many Beads?

MAM Routine: Reason & Respond

This is a multiple-choice activity for the composition of number. Each question shows a set of beads, from 1 to 5. Each set of beads is made up of two colours or sizes. Discuss the composition of the number. How many beads are there of each colour? Ask the children to count the total number of beads. When the children have agreed on the total number of beads, select the correct answer option.

Main event

C Concrete activity: Partitioning Sets

This is an opportunity to assess the children's understanding of Number, and their counting skills. Distribute a set of manipulatives that can be sorted in two ways (e.g. by size and colour), cords/twigs/maths sticks, and a copy of PCM 29: Numerals 0–5 (Small) to each child. Begin by holding up, e.g., the number 4, and asking the children to make a set of four objects, using their manipulatives. Ask the children to 'split' their set (you might like to use the word 'partition'). Some children might like to use set rings.



Let's strengthen

Continue up to number 5, giving guidance where needed.

Teaching tip

Keeping the number beside the set reminds the children that the partitioned set is still the whole number.

Ask:

- How did you split/partition your set? ('I split/partitioned my set into red bears and blue bears.')
- How many red bears and how many blue bears?
- Is there another way that you could have partitioned your set? (e.g. by size)
- How many big bears and how many small bears?

Some children could draw the five bees from the rhyme 'Here Is the Beehive' on their MWBs. They could partition them and/or draw, e.g., three small bees and two big bees.

Next, ask the children to take a number, and make their own set and partition it.



Let's deepen

1. Some children might be ready to incorporate zero into their partitioning; others may have started using zero without any prompting.
2. Some children might use the Unit 7 Let's Deepen PCM: Star Arrays instead of numbers, and some could record what they are doing on paper.
3. Some children might like to *label* the subsets. For example, a child might partition a set of five objects into four objects and one object, and use the numbers 4 and 1 to label the subsets.

Optional consolidation and extension possibilities

Visual Arts The children make bees to accompany the rhyme 'Here Is the Beehive'. They use toilet roll tubes for the bees' bodies and paint them yellow and black. When the paint is dry, they paint two black eyes or stick on googly eyes. Wings could be

added, using tissue paper or tissue.

Song Teach the children to sing the 'Five Little Ducks Song' (an adding-and-taking-away song) at: edco.ie/7fdk



Day 10, Lesson 9

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.

Maths story	Home/School Links Book
Read one of the suggested stories you may not have had time to try.	Page 20 can be completed any time after this lesson.
Maths language	Let's create!
Use some of the following words in other contexts (apart from Number): <i>before, in-between, after, first, next, last, more, less</i> . 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?	Try one of the concrete activities from the menu in Lesson 6.
Progress Assessment Booklet	Maths eyes
Complete Questions 25–26 on page 15. Alternatively, these can be left to do as part of a bigger review during the next review week.	Revisit the slideshow 'Real-Life Counting and Problem-Solving'.
Let's strengthen	Let's deepen
Identify children who might benefit from extra practice with some of the key concepts or skills in this unit. Consult the Unit 7 Let's Strengthen Suggestions for Teachers and/or use the Unit 7 Let's Strengthen PCM.	Use the Unit 7 Let's Deepen PCM.

