Maths and Me: Junior Infants – Short-Term Plan, Unit 10: Numbers 9 and 10 (February: 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	**Counting Numbers 1 to 10:** Recites forwards to at least 10 (U&C); Keeps track of counting acts by using numerical patterns such as tapping or fingers (C); Explores how counting can be used to solve problems related to everyday life (A&PS)		D C Reason & Respond L1–7 C Going on a Number Hunt L1 C Ordering and Comparing Numbers and Sets 1 to 10 L2 D C Making Number Models L3 C Matching Numbers to Sets L4 C Making and Writing Numerals 0 to 10 L5 D Number Formation – Numbers 0 to 10 L5 C Grouping Bundles of Ten L6 C Swapping Bundles of Ten L6 C What Number Am I Thinking Of? L7 C Making Equivalent and Non-equivalent Sets – 1 to 10 L7 **Print resources** Pupil's Book pages 57–62 Home/School Links Book pages 25–26 PCMs 42, 45	**Intuitive Assessment:** responding to emerging misconceptions **Planned Interactions:** responding to insights gleaned from children's responses to learning experiences **Assessment Events:** information gathered from completion of the unit assessment in the Progress Assessment Booklet pages 19–20
2	**Ordering Numbers 1 to 10:** Orders numerals up to at least 10 (U&C); Orders sets without counting, and checks by counting (R); Orders and compares numbers 1 to 10 with each other (R)			
3	**Number Models – 1 to 10:** Explores various arrangements (e.g. on number frames) of manipulatives to prompt different mental images of numbers up to 10, while developing a sense of each number (R); Demonstrates an ability to subitise various arrangements or models of numbers to 10 (U&C); Subitises and counts the number of objects in a set 1–10 (R)			
4	**Matching Numbers to Sets – 0 to 10:** Matches numerals to sets and to other numerals in a variety of contexts (A&PS); Selects and uses appropriate materials to make a variety of sets for a given number (A&PS); Identifies the empty set (R); Explores how the appearance of a set has no effect on the overall total (conservation of number) (U&C)			
5	**Writing Numerals 0 to 10:** Discusses, draws and writes representations of numbers 1 to 10, using manipulatives (C); Recognises numbers, initially within 10 (U&C); Explains ordinality, using the language of after, before and in-between (C)			
6	**Grouping and Swapping Bundles of Ten:** Discusses the grouping and swapping of ten ones to 'make a group of ten' (C); Shows awareness of the concept of grouping and swapping/exchanging (C); Participates in grouping and swapping activities that involve making ten (A&PS)			
7	**Equivalence and Non-equivalence – 0 to 10:** Uses comparative language (more, less, same) to compare sets to at least 10 (C); Uses manipulatives to demonstrate equivalence between the numeral and quantity of 10 (U&C); Shows an understanding of differences in value (e.g. 'one', 'a lot', 'some' and 'more') (U&C)			
8	**Review and Reflect:** Reviews and reflects on learning (U&C)			

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

Additional information for planning

Progression Continua	See 'Junior Infants *Maths and Me* 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 10 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 10 Let's Strengthen Suggestions for Teachers. (These address the Common Misconceptions and Difficulties listed below.) • See Unit 10 Let's Strengthen PCM. • See Unit 10 Let's Deepen PCM.
Integration	See individual lesson plans.

Background and rationale

- This unit provides an opportunity to assess and revise the principles of counting:
  - One-to-one
  - Stable order
  - Cardinality
  - Order irrelevance
  - Abstraction.
- The children will now count, order, compare and model numbers 1 to 10. Their understanding of the composition of numbers 1 to 10 will give them a firm foundation for place value in Senior Infants.
- The use of a range of concrete materials is invaluable for the children to experience the same number, using different manipulatives (e.g. six counters, six number shapes, six Cuisenaire rods, six dots, six on the ten frame). They will also see the same number in different configurations (e.g. six counters scattered, in a circle, in a line and in an array). This will develop their mental image of numbers. They will discover how some numbers can be put into an 'array' (e.g. eight links can be made into a 'formation' of four groups of two), and that some numbers have one object 'left over'. These discoveries will develop the concept of 'odd' and 'even' numbers.
- The children will engage in forming numerals 1 to 10, exploring the different ways in which they can be formed, using concrete materials such as links or pebbles. In this way, they will focus their attention on the shape of each numeral before 'putting pen to paper'.
- The children will engage in grouping and swapping activities, which are precursory to making a group of ten objects and swapping it for 'one' in Senior Infants. In this unit, the children will swap a 'bundle of ten' for ten single objects. Some children will be ready to swap ten single objects for a 'non-groupable' object (e.g. the orange Cuisenaire rod or the base ten rod).

The theme of this unit is **Monty**.

Common misconceptions and difficulties

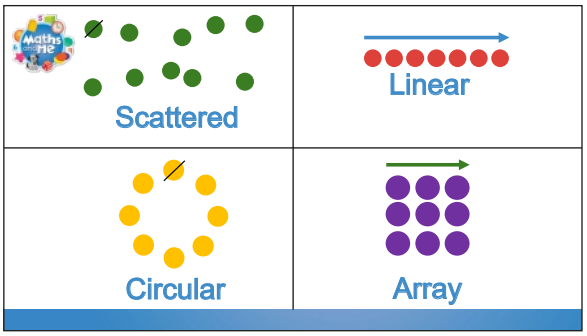
Counting and numeration is one of the key topics in primary maths. Therefore, it is vitally important that misconceptions are identified as early as possible and appropriate interventions implemented.

- The children may count an object twice or miss counting an object.
- They may not know when to stop counting the objects.
- They may not realise that the amount does not change when a specific set of objects is rearranged.
- They may not understand that 'more' refers to the number in the set rather than the size.
- They may think that in order to compare two groups, one group has to have fewer or more items, and the groups cannot be equal.

The Unit 10 Let's Strengthen Suggestions for Teachers address the common misconceptions and difficulties listed above.

Mathematical models and representations

- Cuisenaire rods
- Number models e.g. linear, scattered and circular configurations, and arrays
- Number shapes



Number Configurations Chart

Teaching tip

A Number Configurations Chart and Number Shapes manipulative printables are available to support this unit. Click on the resources icon on the *Maths and Me* cover on **edcolearning.ie**

Day 1, Lesson 1

Counting Numbers 1 to 10

Focus of learning (with Elements)

- Recites forwards to at least 10 (U&C)
- Keeps track of counting acts by using numerical patterns such as tapping or fingers (C)
- Explores how counting can be used to solve problems related to everyday life (A&PS)

Learning experiences

(D) (C) Digital activity: Number Popping
MAM Routine: Reason & Respond

(C) Concrete activity: Going on a Number Hunt

Equipment

- Manipulatives for counting, such as bears, counters, beads, links and cubes
- Monty the puppet
- Numeral poster printables

Maths language

- nine, ten

Warm-up

(D) (C) **Digital activity: Number Popping**
MAM Routine: Reason & Respond

Open the interactive resource, in which balloons with the numbers 1 to 10 are floating around Monty. The children pop the balloons in the correct numerical sequence, and identify the 'new' numbers, 9 and 10. Assess the children's number sequencing ability. Tell the children to look at Monty's sign – he will tell them which number to pop next!

Assessment Opportunity

Use Monty the puppet and the Numeral poster printables. Assess the children's counting skills from 1 to 10. Use Monty to point to various numerals. Ask:

- (Hold up or point to 6.) Can you tap six times on your table?
- (Hold up or point to 7.) Can you show me seven fingers?
- (Tap eight times on the IWB.) Can you count the number as I tap? Maybe count silently, in your mind.
- (Hold up nine fingers.) How many fingers am I holding up?
- Can you count to 9 and stop?
- Can you count on from 3?
- (Hold up or point to 0.) Can you show me 0 fingers? Can you tap 0 times?

Play 'Number Tennis'. When you say '1, 2', the children say '3, 4', and so on up to 10. Try other patterns and start at different numbers.

Let's strengthen

The children may need to count concrete objects (e.g. bears or cubes) to 10. Are they applying the five principles of counting?

Teaching tip

Begin each lesson with a counting warm-up activity.

Main event

(C) **Concrete activity: Going on a Number Hunt**

Teach the children to sing the refrain of the song 'We're Going on a Bear Hunt', but substitute the word 'number' for 'bear'. If feasible, take them outdoors for a number hunt. If not, you could take them to the PE hall or let them 'hunt' around the classroom. They look for 'numbers' (numerals) in their environment (e.g. car registration numbers, numbers on classroom doors, numbers in the yard). They also look for items to count. These could be in 'irregular' arrangements, such as birds on the grass. The children count 'on the spot' and/or record their findings by drawing the

items, counting them when they return to the classroom, and assigning the correct number. (The amounts and numerals must be 10 or under.) You could assign one group to finding numerals and the other groups to finding amounts of objects. When they return to the classroom, the children report their findings to the rest of the class and draw/paint one 'special recording' of what they found (e.g. draw six cars). Then they write the numeral.

Teaching tip

You can listen to the song 'We're Going on a Bear Hunt' at the following link: edco.ie/hntn

Let's strengthen

Some children could use concrete materials to count amounts as opposed to drawing/painting. Place particular focus on identifying and counting the numbers 9 and 10.

Optional consolidation and extension possibilities

Problem-solving There will be lots of opportunities in the play area for the children to experience solving 'problems' by counting. For example:

- How many cups? How many saucers? Are there enough/too many?

Other problems can be extended beyond the play area. For example:

- How many sheets of drawing paper do we need for the group?
- How many sheets of newspaper will cover the table?
- Does everyone have a paintbrush? How many more do we need?

Story Read *We're Going on a Bear Hunt* by Michael Rosen or listen to a reading at: edco.ie/mrtm
Play the song at: edco.ie/hntn

Games Bank Play 'Race to Fill the Cup' from the Games Bank.

Song Play 'Counting 1–10 Song' at: edco.ie/txcb
The numbers are also sung backwards from 10 to 1, if your class is ready for this.

How Do We Count? Distribute six manipulatives of the same type to each child. Ask the children how they count 6, or how they 'see' 6. For example: Do they count: 5 and 1; 3 and 3; 6 ones; or three groups of 2? The children draw/record the way in which they count 6. You then move on to 7, 8, 9 and 10.

Day 2, Lesson 2

Ordering Numbers 1 to 10

Focus of learning (with Elements)

- Orders numerals up to at least 10 (U&C)
- Orders sets without counting, and checks by counting (R)
- Orders and compares numbers 1 to 10 with each other (R)

Learning experiences

- (D) Digital activity: Ordering Numbers 1 to 10
  ***MAM* Routine: Reason & Respond**
- (C) Concrete activity: Ordering and Comparing Numbers and Sets 1 to 10
- (P) Pupil's Book page 57: Ordering Numbers 1 to 10

Equipment

- Manipulatives for counting, such as bears, counters, beads, links and cubes
- Objects from nature, such as pinecones, pebbles, leaves, twigs and seashells
- Scissors
- Numeral poster printables
- PCM 42

Maths language

- largest, smallest

Warm-up

D Digital activity: Ordering Numbers 1 to 10
***MAM* Routine: Reason & Respond**

This is an activity for ordering numbers from 1 to 10. Ask the children to put the hot air balloons in the correct order. You could also use the Numerals poster printables to ask which number comes before/after/in-between.

Main event

C Concrete activity: Ordering and Comparing Numbers and Sets 1 to 10

Assess whether the children can order numbers 'in isolation' (e.g. order 8, 6, 3). What is their understanding of 'larger' and 'smaller' when applied to numbers?

Distribute scissors and a copy of PCM 42 Numerals 1–10 (Small) to each child. The children cut out the numerals, identify them and arrange them in order.

Let's strengthen

The children could work with a partner to identify the numbers and put them in order. They could also compare each number to another number. Ask/say:

- Which number is smaller?
- Which number is larger?
- Look at three numbers. Which number is the smallest/largest?
- What is the difference between (for example) the number 6 and the number 7? (6 is smaller. 7 is larger. 7 is one more. 6 is one less.)
- Can you put these three numbers in order (for example): 8, 3 and 7?

Let's deepen

Can you put these four numbers in order (for example): 10, 4, 3 and 8?

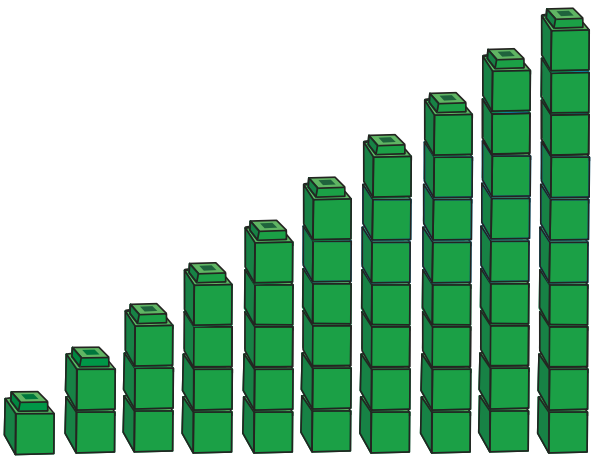
Distribute manipulatives of one type to each group. This will ensure that when the children put their sets in order, *visually* the order of the sets will look correct. You could 'model' putting the sets in order first.

The children take random amounts of manipulatives, starting with two handfuls. They arrange one handful horizontally or vertically on their table and align the second handful beside or below the first one. They say which set has more (i.e. subitise the sets/amounts), and then count the amounts to check if they were correct. They verbalise what they are doing and say the difference between the sets. For example: 'This set has five bears, and this set has six bears. The set of six bears has one more./The set of five bears has one less.'

Teaching tip

You might also like to mix the manipulatives so that the children can see that a set of larger objects does not mean a larger amount. A set of six large objects has a smaller *amount* than a set of seven small objects, and needs to be ordered accordingly.

The children now move on to putting three random sets in order (some may have the same amount of objects). They subitise first, and then check by counting. They could try putting four random sets in order next, and then order objects from 1 to 10 (e.g. place one cube on the desk, then two cubes above it, three cubes above that ... up to ten objects). Rotate the manipulatives, so that every group gets to use different types. In this way, the children will see different 'models' of numbers.



Teaching tip

The terms 'sequence' and 'order' can sometimes seem interchangeable. However, the main difference is that sequences are typically patterns (repeating or increasing/decreasing), and therefore governed by a rule. See the definitions below for further clarification.

Order: an arrangement according to size, amount or value

Sequence: an ordered set of numbers, shapes or other mathematical objects, arranged according to a rule

Example: The amounts 2, 3, 7, and 2, 4, 8 are both ordered least to greatest, but we could say that 2, 4, 8 is also a sequence, whereas 2, 3, 7 is not. The following links provide further information:
Order: edco.ie/bxmz

Sequence: edco.ie/c8me

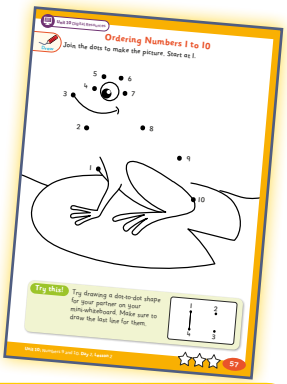
Teaching tip

Some children will arrange their manipulatives in horizontal or vertical lines to put them in order. Ensure that they use an equal amount of space (or no space) between them, so that the order is *visually* correct.

Let's deepen

Distribute scissors and a copy of the Unit 10 Let's Deepen PCM to each child. The children cut out the cards and order the representations of numbers. They also mix in the numerals from PCM 42 to make a sequence such as the following: small numeral 1, numeral 2, card with 3 rabbits, dot picture of 4, tally of 5, numeral 6, card with 7 shapes, numeral 8, dot picture of 9, numeral 10.

Pupil's Book page 57: Ordering Numbers 1 to 10



Optional consolidation and extension possibilities

Role Play The children could role-play a scene involving a queue (e.g. for the cinema, at a bus stop, at airport security). Only ten people are allowed in the queue at a time. One child 'in authority' (wearing a 'badge') must make sure that there are only ever ten in the queue.

Order the Lollies In pairs, the children write the numerals 1 to 10 on lollipop sticks and put them in order.

Games Bank Play 'High Low' from the Games Bank.

Get in Order (Integration with PE) Using PCM 43 Numerals 1–10 (Large), give each child a large numeral. They arrange themselves in order, in groups of ten. There cannot be two of the same number in any group. The group that arranges itself first wins the game.

Websites If you have tablets for a group, the children could access the following websites and explore a range of ordering activities:

- Caterpillar Ordering: edco.ie/f3dh
- Ladybird Spots: edco.ie/zzvc
- Helicopter Rescue: edco.ie/x7rw

Number Patterns In pairs, using a few sets of numerals 1 to 10 from PCM 42, can the children make a number pattern (e.g. 1, 2; 1, 2)? Can their partner guess what number comes next?

Story Read *Nibbles Numbers* by Emma Yarlett. This story focuses on the order of the numbers 1 to 10 (no counting of objects). A reading of the story is also available at: edco.ie/jgr8

Day 3, Lesson 3

Number Models – 1 to 10

Focus of learning (with Elements)

- Explores various arrangements (e.g. on number frames) of manipulatives to prompt different mental images of numbers up to 10, while developing a sense of each number (R)
- Demonstrates an ability to subitise various arrangements or models of numbers to 10 (U&C)
- Subitises and counts the number of objects in a set 1–10 (R)

Learning experiences

- (D) Digital activity: Number Models
  ***MAM* Routine: Reason & Respond**
- (D) (C) Digital activity: Making Number Models
- (P) Pupil's Book page 58: Number Models – 1 to 10

Equipment

- Counters
- Two-sided counters
- Collections of objects

Maths language

- Informal use of: scattered, in a circle, in a line, array, in a column, in a row

Warm-up

(D) Digital activity: Number Models
***MAM* Routine: Reason & Respond**

Play the slideshow, which shows 'arrays' of items alongside random configurations of the same items (e.g. eggs packed in a carton and 'loose' eggs). For each slide, ask:

- Can you guess how many [items] there are in each group?
- Count the [items].
- Which group is easier to count?
- [Note, replace 'items' with 'eggs', 'chocolate pieces', etc.]

The children will discover that counting an 'array' is easier than counting a random configuration. They transfer this knowledge to initially make 'concrete arrays', and eventually turn the objects they are counting into 'mental arrays'.

Main event

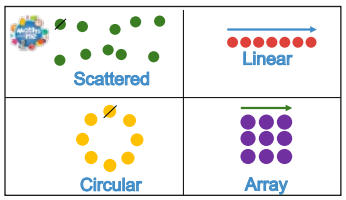
(D) (C) Digital activity: Making Number Models

Assess the children's counting skills. Are they making counting errors (e.g. counting twice, missing a count)?

Assessment Opportunity

Distribute counters to each child. Play the Making Number Models PowerPoint presentation, which shows a number configuration chart.

With each of the models/configurations, the children *first* subitise and *then* count the amount of objects.



Let's strengthen

The children may need plenty of practice with each type of configuration before moving on to the next type.

- **Scattered configuration:** The children start by making a scattered configuration (e.g. using eight counters). Then they subitise, and then they count. Explore the difficulties in counting this type of configuration. Are the children trying to put the objects into an 'array' or make them 'linear'?

Let's strengthen

The children could work in pairs. Child A puts out the counters, and Child B counts.

- **Circular configuration:** Explore the drawbacks of this type of configuration. Do the children count some items twice because they have doubled back on where they started on the circle?
- **Linear configuration:** Explore the advantages of this type of configuration. How are the children managing this counting activity?
- **Array of objects:** Are the children trying different ways of making an 'array', depending on the amount of objects they have? Do they notice that some objects are 'left over'? Is this an easy way to count?

Teaching tip

By using one type of manipulative, the children can see the 'rows' and 'columns' more easily, and create concrete and mental images for each number. Some children might like to use other types of manipulatives (e.g. links).

Ensure that the children 'experiment' with different numbers, making different arrays, and discovering 'new' configurations of numbers (eventually leading to a knowledge of 'odd' and 'even' numbers in Senior Infants/1st Class). Using their own 'maths language', they should verbalise how, for example, six objects can be made into an array, whereas seven objects cannot. You could mention configurations they might see in everyday life, such as paints on a palette, markers in a packet, crayons in a box, drawers in a cupboard, or eggs in a carton.

The children make various models/configurations of numbers on their ten frames, using counters. Ask:

- What number have you made?
- Can you tell me how you have made it? (e.g. four counters on the top, and four counters on the bottom)

Place a number of counters on a ten frame. For example: For the number six, place five on the top row, and one on the bottom row. Ask the children to subitise first:

- How many counters are there? How do you know?

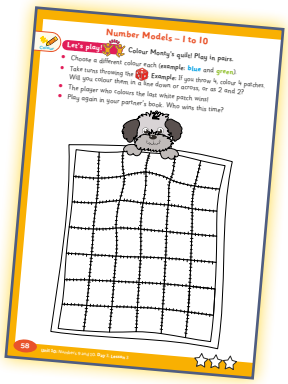
Then, place six counters randomly on the ten frame. Ask the children to subitise first:

- How many counters are there? How do you know?
- Was it easier to count the counters when they were in 'lines'?

Let's deepen

The children could use the two-sided counters to show different compositions within the configurations of each number 2–10. (For example: For number 6, they could use 2 red counters and 4 yellow counters.)

Pupil's Book page 58: Number Models – 1 to 10



Optional consolidation and extension possibilities

Digital Ten Frame The children make their own numbers, using different coloured counters on the ten frame at the following link: edco.ie/x8cz

Playing Soldiers (Integration with PE) The children organise themselves into 'arrays' or formations of soldiers (e.g. 2, 4, 6, 8, 10) and march around the hall. Anyone not in formation/left over is out.

Maths Eyes Ask the children if they can spot any 'arrays' of objects in the classroom and/or outdoors (e.g. an array of cars parked in the car park).

Days 4 and 5, Lesson 4

Matching Numbers to Sets – 0 to 10

Focus of learning (with Elements)

- Matches numerals to sets and to other numerals in a variety of contexts (A&PS)
- Selects and uses appropriate materials to make a variety of sets for a given number (A&PS)
- Identifies the empty set (R)
- Explores how the appearance of a set has no effect on the overall total (conservation of number) (U&C)

Learning experiences

- D Digital activity: Matching Numbers to Dogs
  ***MAM* Routine: Reason & Respond**
- D Digital activity: Matching Numbers to Dots
  ***MAM* Routine: Reason & Respond**
- C Concrete activities: Matching Numbers to Sets
- P Pupil's Book page 59: Matching Numbers to Sets – 0 to 10

Equipment

- Manipulatives for counting, such as bears, counters, beads, links and cubes
- Collections of objects from the classroom, and/or from nature, such as pinecones, pebbles, leaves, twigs and seashells
- Number shapes
- Small-world items
- 2-D and 3-D shapes
- PCM 42

Maths language

- There is no new maths language for this lesson.

Warm-up

D Digital activity: Matching Numbers to Dogs
***MAM* Routine: Reason & Respond**

(Recommended on Day 4.)

Play the interactive game. Each screen shows three sets of dogs. Click to play the audio question. The children count the dogs and select the correct number.

D Digital activity: Matching Numbers to Dots
***MAM* Routine: Reason & Respond**

(Recommended on Day 5.)

Play the interactive game, in which the children count the number of dots on each dog, then match each dog to the correct dog tag.

Main event

C Concrete activities: Matching Numbers to Sets

This is an opportunity to assess the children's ability to give a set the correct number name. Ideally, the activities are carried out on both Day 4 and Day 5. You could rotate the equipment among the groups over the two days.

Assessment Opportunity

Let's strengthen

The children might need additional practice at using the lower numbers 1 to 5.

Teaching tip

The children have already engaged in similar activities with lower numbers, but if you model each activity first, it will help them to complete each task independently.

Distribute the small numerals 1 to 10 from PCM 42 to each group, along with the following equipment:

- **Group 1:** Manipulatives (e.g. bears, links, cubes or beads)
- **Group 2:** Collections of objects from the classroom and/or from nature
- **Group 3:** Small-world items
- **Group 4:** Number shapes
- **Group 5:** 2-D and 3-D shapes.

The children engage in the following activities.

- They make different number models (scattered, circular, linear, arrays) for numbers 2 to 10.
- They make different sets (using the same objects, two different types of object, or many different types of objects) for numbers 2 to 10.
- They count a set of objects, and choose the correct numeral for the set.
- They match numerals (e.g. 9 to another 9) and say the number name.
- They choose a number from 0 to 10, and make the equivalent set of objects. (Can we make a set of objects for 0?)
- They explore conservation of number (e.g. counting ten objects, assigning the number name, and moving the objects into smaller amounts, but not re-counting).
- They make two sets of different amounts (e.g. a set of two objects and a set of three objects), and then put them together and count the objects. (They continue with different amounts for two sets. Do any of the children *count on* or *count all* of the objects?)
- One child in a group writes a numeral on their MWB, and the rest of the group makes a set containing that amount of objects.

- They make a set with ... (e.g. three) large bears and a set with ... (e.g. seven) small bears, and say, when asked, which set has more/less – or whether the sets are equal.

Let's deepen

Moving from the concrete to the pictorial, the children match numerals to sets of items, using the small numerals from PCM 42, and a copy of PCM 44 Sets of 1–10. They could also draw sets of items and write the correct number for each.

Pair Work: Using two sets of numerals 1 to 10 from PCM 42, can the children match the numerals to make pairs (e.g. 10 to another 10)? Can they tell the class about the pairs they have made? Which two children made the most pairs?

Pupil's Book page 59: Matching Numbers to Sets – 0 to 10

Optional consolidation and extension possibilities

Song Play the video at: edco.ie/dc8r
The children can sing along and count and assign numbers to the sets.

Number Bingo Play bingo in groups. Distribute the Number Bingo activity printable.

Story Read *How Many Legs?* by Kes Gray or listen to a reading at: edco.ie/qdu9

Home/School Links Book Page 25 can be completed any time after this lesson.

Day 6, Lesson 5

Writing Numerals 0 to 10

Focus of learning (with Elements)

- Discusses, draws and writes representations of numbers 1 to 10, using manipulatives (C)
- Recognises numbers, initially within 10 (U&C)
- Explains ordinality, using the language of after, before and in-between (C)

Learning experiences

- (D) Digital activity: Which Number Am I?
  ***MAM* Routine: Reason & Respond**
- (C) Concrete activity: Making and Writing Numerals 0 to 10
- (D) Animations: Number Formation – Numbers 0 to 10
- (P) Pupil's Book page 60: Writing Numerals 0 to 10

Equipment

- Manipulatives for counting, such as bears, counters, beads, links and cubes
- Collections of objects from nature, such as pinecones, pebbles, leaves, twigs, seashells and dried flower petals
- Buttons
- Coloured pom-poms
- Wool
- Tactile numbers in the Pupil's Book
- PCM 45

Maths language

- There is no new maths language for this lesson.

Warm-up

D **Digital activity: Which Number Am I?**
***MAM* Routine: Reason & Respond**

Click Play to begin the slow reveal of numerals between 0 and 10. As each numeral is slowly revealed, ask the children to say the name of the numeral 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 numeral has been correctly guessed.

Main event

C **Concrete activity: Making and Writing Numerals 0 to 10**

Make a quick assessment of the children's recognition and ordinality of each numeral. Hold up individual large numerals, and ask/say:

Assessment Opportunity

- Which number is this? How do you know?
- I'm going to hold up the number that comes after/before this one (e.g. 5). What number will that be?
- (Hold up a numeral upside down.) Is this the right way up? What way should it be? What number is it?
- I'm going to draw a number on the IWB/in the air. Who can be the first to tell me what number it is?
- Can you make 9 using your fingers? Use the fingers on two hands. Can you make 10?
- Can you tell me about the number that comes after 5/before 7/in-between 5 and 7?
- What can you tell me about (for example) the number 8? (It comes between/after/before ...)

Teaching tip

Making numerals creatively gives the children an opportunity to pay close attention to the shape of each number. They could also trace over the tactile numerals in their Pupil's Book.

Distribute the manipulatives, buttons, coloured pom-poms, wool or a collection of objects from nature to each group. (You could give the objects from nature to one or two groups; and then rotate them between the other groups.) The children use the equipment to make numerals creatively.

Let's strengthen

The children may need a reference to form certain numerals, including 9 and 10, which will be 'new'. Use your large classroom numerals, or write the numbers on the IWB. Ask:

- Do you find any numbers easy to make? Which ones? (1 and 7, perhaps)
- Why is that? (Because they are straight, perhaps.)
- What about 0? Is that easy to make?
- Which objects work best when making a number? (small objects such as pebbles, or objects that are uniform, such as links). Does it depend on which number you are trying to make?

Pair Work: Child A begins to make a numeral. How quickly can Child B identify the numeral they are making?

Distribute a copy each of PCM 45 Dotted Numerals 9–10 to each child and tell the children to trace the numerals. They could then try writing 9 and 10 in their Maths Journal or on their MWBs.

Let's strengthen

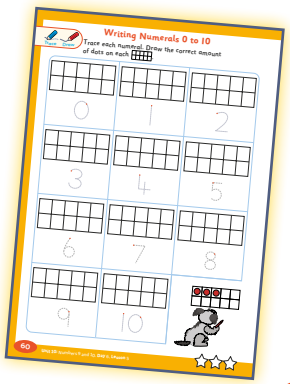
The children may benefit from using PCM 17 Dotted Numerals 1–3, PCM 25 Dotted Numerals 4–5 and PCM 37 Dotted Numerals 6–8 before using PCM 45.

Let's strengthen

The children may benefit from using the Unit 10 Let's Strengthen PCM, which uses patterns to provide additional practice in forming the numerals.

D **Animations: Number Formation – 0 to 10**
Play the numeral formation animations for each numeral. They describe the formation very clearly.

P **Pupil's Book page 60: Writing Numerals 0 to 10**



Optional consolidation and extension possibilities

Body Numbers (Integration with PE) Tell the children to make 'body numbers' for 9 and 10 in the hall. Are there enough children to make a set of nine children and a set of ten children for each body number?

Play Dough The children could use play dough to form each numeral.

Story Read *The Crayons' Book of Numbers* by Drew Daywalt or listen to a reading at: edco.ie/a3eg

Home/School Links Book Page 26 can be completed any time after this lesson.

Days 7 and 8, Lesson 6

Grouping and Swapping Bundles of Ten

Focus of learning (with Elements)

- Discusses the grouping and swapping of ten ones to 'make a group of ten' (C)
- Shows awareness of the concept of grouping and swapping/exchanging (C)
- Participates in grouping and swapping activities that involve making ten (A&PS)

Learning experiences

- (D) Digital activity: Bundles of Ten
  MAM Routine: Reason & Respond
- (C) Concrete activity: Grouping Bundles of Ten
- (C) Concrete activities: Swapping Bundles of Ten
- (P) Pupil's Book page 61: Grouping and Swapping Bundles of Ten

Equipment

- Collections of objects to represent sticks, such as lollipop sticks, twigs, straws, pipe cleaners, pencils, markers, paintbrushes and bundling sticks
- A dice per group
- Base ten rods and ones
- Orange and white Cuisenaire rods
- Cubes

Maths language

- bundles of ten, swap, group

Warm-up

(D) Digital activity: Bundles of Ten
MAM Routine: Reason & Respond

Play the multiple-choice activity, in which the children are shown different sets of pencils and they must decide which set adds up to a bundle of ten. Encourage the children to give reasons for their answers.

Main event

(C) Concrete activity: Grouping Bundles of Ten

(Recommended on Day 7.)

Assessment Opportunity

Assess the children's comprehension of 'bundles of ten'. What is their understanding of the fact that 'ten' sticks when bundled together can be called 'one' bundle?

Distribute a collection of objects (e.g. lollipop sticks) to represent sticks to each group. Place the objects in the middle of each group table. Tell the children that they are going to tidy up the sticks, just like Monty and Goldie did, by making bundles/groups of ten. You might need to check the children's counting of ten. Have they counted accurately? Ask:

- Who will have the most bundles of ten at the end?
- Will there be any sticks left over?
- What could we do with the leftovers?
- Could we make another bundle of ten out of the leftovers?

Let's deepen

Play 'Throw the Dice to Make Ten'. Using their 'sticks' and a dice, each group takes turns throwing the dice. For example: If one child throws 6, they count out six straws and put them in a group. If they throw 4 next, they put four straws with their six straws to group a bundle of ten. The first child to make ten wins the game.

C Concrete activities: Swapping Bundles of Ten

(Recommended on Day 8.)

Carry out the following activities, using cubes, base ten rods and ones, and orange and white Cuisenaire rods.

Groups 1 and 2: Place approximately one hundred cubes in the middle of each group table. Ask the children to count out ten cubes and build a tower. They compare towers to ensure they are all the same height.

- Is one tower shorter? Taller? Why? Let's count again.

When they have completed their tower, they swap it for ten single cubes from the middle of the table (or from one child who is the 'banker').

Groups 3, 4 and 5: Distribute orange and white Cuisenaire rods. Using the Cuisenaire rods, the children swap ten white 'ones' for one orange 'ten'. One child in each group could be the 'banker' who holds either the ten rod or the ones.

Teaching tip

Cuisenaire rods are 'non-groupable' (they cannot be dismantled), so the children are consolidating the concept of ten single objects being exchanged for 'one'.

P Pupil's Book page 61: Grouping and Swapping Bundles of Ten

Complete this page on Day 8.

Optional consolidation and extension possibilities

Role Play The children could role-play working on a production line in a factory, where they put all the goods (e.g. straws) into bundles of ten. Can they think of any way of containing/tying up the bundles? A quality control 'supervisor' could check the bundles!

Counting Bundles of Ten Play a game in which the children must select the correct amount of bundles of ten: edco.ie/thc4

Bundles of Ten (Integration with PE) In the hall, the children arrange themselves into 'bundles of ten', lying on the floor like sticks or logs. Who will count them? Anyone left over must try to make a bundle of ten with any other 'leftovers' or they are out.

Story Read *Every Buddy Counts* by Stuart J. Murphy or listen to a reading at: edco.ie/hdsq

Day 9, Lesson 7

Equivalence and Non-equivalence – 0 to 10

Focus of learning (with Elements)

- Uses comparative language (more, less, same) to compare sets to at least 10 (C)
- Uses manipulatives to demonstrate equivalence between the numeral and quantity of 10 (U&C)
- Shows an understanding of differences in value (e.g. 'one', 'a lot', 'some' and 'more') (U&C)

Learning experiences

- C Concrete activity: What Number Am I Thinking Of?
- D Digital activity: More or Less – Ten Frames
  ***MAM* Routine: Reason & Respond**
- C Concrete activity: Making Equivalent and Non-equivalent Sets – 1 to 10
- D Digital activity: Are They the Same?
  ***MAM* Routine: Reason & Respond**
- P Pupil's Book page 62: Equivalence and Non-equivalence – 0 to 10

Equipment

- Manipulatives for counting, such as bears, counters, beads, links and cubes
- Collections of objects from the classroom, and/or from nature, such as pinecones, pebbles, leaves, twigs and seashells
- 2-D and 3-D shapes
- PCM 42

Maths language

- There is no new maths language for this lesson.

Warm-up

C Concrete activity: What Number Am I Thinking Of?

This quick activity will get the children thinking about larger and smaller numbers. Using large numerals 1 to 10 as a visual aid, ask:

- What number am I thinking of?
- Who would like to guess first? (A child will call out a number, e.g. 3.)
- Hmm ... the number I am thinking of is larger than 3. (A child will call out a larger number, e.g. 8.)
- This number I am thinking of is smaller than 8.
- Which numbers are smaller than 8, but larger than 3? Can you list/tell me those numbers?

Teaching tip

You might have to change the number you thought of to get maximum mileage from this game!

D Digital activity: More or Less – Ten Frames

***MAM* Routine: Reason & Respond**

This activity contains a set of multiple-choice questions. The initial questions focus on the concept of equivalent and non-equivalent sets. In some comparisons it is visually obvious which set has more.

Main event

C Concrete activity: Making Equivalent and Non-equivalent Sets – 1 to 10

Assessment Opportunity

Distribute manipulatives or a collection of objects, and a set of small numerals 1 to 10 from PCM 42 to each child. The children engage in the following activities:

- They choose a numeral (e.g. 8) and make a set of eight objects. (This is an opportunity to assess the children's counting skills and their ability to assign the correct number name to a set.)
- They make two sets: one with a larger amount of objects, and one with a smaller amount of objects. They assign the correct number to each, and verbalise which set has more/less. (Can they make the sets the same/have the same amount?)
- They use the following language to describe the difference between two sets: *same*, *more*, *less*, *one more*, *a lot*.
- They make *equivalent* sets, using different objects. (Sets do not have to have 'more' or 'less'; they can have the same amount, even if made up of different objects. It is the amount that matters, not the size or appearance.)
- They make different configurations of numbers (e.g. arranging one set of objects in a line, and scattering another set of objects).

Teaching tip

Some children might think that the set with the larger objects must always be the bigger set. They are seeing the *size* of the set rather than the amount of objects.

Use the ten frames from the Pupil Pack. The children move on to the following activities:

- They count out ten objects and assign the numeral 10.
- They choose the numeral 10 from a selection of numerals and make a set of ten objects.
- They make a set of nine objects. (How can you make this set into a set of ten?)
- They deconstruct a set of ten objects into smaller amounts of their choosing, reassembling the set, and assigning the numeral 10. (If using bears, you could add a simple storyline, such as: 'The ten bears were playing together, but then they decided to play in little groups. Let's divide them into two groups playing together. How many in each group? Now, let's put them all back into the same big group. How many are there in the big group?)

Let's deepen

Divide the ten bears into more than two groups, e.g. three groups.

- Put ten objects into a ten frame in different configurations (e.g. five red counters and five yellow counters), and assign the number 0.
- Put (e.g. nine) cubes into a ten frame, and notice the one 'empty' space. (How many more are needed to make ten?)
- Using the Unit 10 Let's Deepen PCM the children assign the correct number to the pictorial representation of the set.

Let's deepen

The children could make two sets of (for example) nine objects. Can they change one set so that it has ten objects? How will they do that? Can they change the set back again so that it has nine objects?

Let's deepen

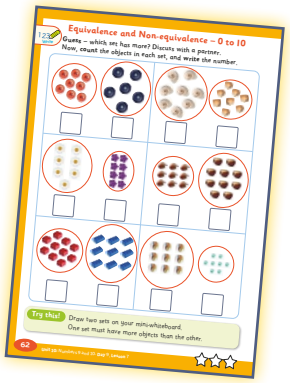
Can the children make two sets and ask their partner to describe them. For example: 'These two are the same./ This one has one more. This one has one less.')

D **Digital activity: Are They the Same?**
***MAM* Routine: Reason & Respond**

This activity contains a set of multiple-choice questions. Each question presents three sets. Ask the children:

- Which sets have the same amount of objects?
- How many items are in each set?

P **Pupil's Book page 62: Equivalence and Non-equivalence – 0 to 10**



Optional consolidation and extension possibilities

Dice Throw In pairs, the children take turns throwing the dice. Is the number thrown larger, smaller or the same as their partner's number? They play ten times and keep a record (in their own way) of the results. The player who throws the most 'larger' numbers wins the game.

Story Read *One Fox: A Counting Book Thriller* by Kate Read or listen to a reading at: edco.ie/mtse

Day 10, Lesson 8

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

Use this menu of activity ideas to choose how best to structure this last lesson of the unit to suit your needs and the needs of your class.

Maths story	Let's play!
Read one of the stories that you might not have had a chance to read, and explore the vocabulary and concepts.	Play a game from the Games Bank.
Maths language	**Let's create!**
Revisit some of the maths language to assess the children's understanding. They might demonstrate their understanding through drawings (e.g. two sets that are the same/a set with one more than the other set). 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?	Revisit 'How Do We Count?' from the Optional Consolidation and Extension Possibilities in Lesson 1, and ask the children to draw their ideas.
Progress Assessment Booklet	**Maths eyes**
Complete Questions 43–47 on pages 21–22. Alternatively, these can be left to do as part of a bigger review during the next review week.	Revisit the Maths Eyes suggestion from the Optional Consolidation and Extension Possibilities in Lesson 3.
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 10 Let's Strengthen Suggestions for Teachers and/or the Unit 10 Let's Strengthen PCM.	Use the Unit 10 Let's Deepen PCM.

Notes

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