Maths and Me: 1st Class – Short-Term Plan, Unit 1: Numbers to 30 (September: Weeks 1&2)

Strand(s) > Strand Unit(s)	Number > Numeration and Counting; Place Value and Base Ten; Sets and Operations.
Learning Outcome(s)	Through appropriately playful and engaging learning experiences children should be able to demonstrate proficiency in using and applying different counting strategies; understand that digits have different values depending on their place or position in a number; use estimation to quickly determine number values and number calculations; select, make use of and represent a range of addition and subtraction strategies.

Lesson	Focus of Learning (with Elements)	CM	Learning Experiences	Assessment
1	**Counting to 20:** Estimates the number of objects in a set from 0–20 (R); Demonstrates an ability to estimate various arrangements or models of numbers to 20 (U&C); Counts to at least 20, counting fluently across decade (U&C); Explains and justifies choices of counting and calculation strategies used and compares with the choices of others (C)		C D Digital activity: Give the Dog a Bone! L1 C The Sound of a Number L1, 6 C Think-Pair-Share L1, 4, 5 C Game: Win 20! L1 C Number Path Stacks L1–2 D Quick Images L1–2 D Write-Hide-Show L1–2 D Choral Counting L2 C Game: Win 30! L2 D C Move with Monty L3, 5 D Notice & Wonder L3–4, 6 D Reason & Respond L3–6 C I Have... Who Has... ? L4 C Representing 2-Digit Numbers L4 D C Secret Number L5 C More and Less L6 C Grab L6 **Print resources** Pupil's Book pages 6–12 Home/School Links Book pages 6–7 PCMs 3, 4, 5, 6, 7 Unit 1 Maths Language Cards	**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 8–9
2	**Counting to 30:** Counts to at least 30, counting fluently across the decades (U&C)			
3	**Counting in 2s and 5s:** Skip counts multiples of twos and fives from a given multiple using verbal, concrete and pictorial supports (U&C); Uses skip counting to extend number patterns (A&PS)			
4	**Representing Numbers:** Models and represents numbers up to 30 using appropriate models (For example: diagrams or concrete materials) (C)			
5	**Tens and Ones:** Composes and decomposes the structure of 2-digit whole numbers up to 30 (U&C); Identifies place value in 2-digit whole numbers up to at least 99, including zero as a placeholder (U&C); Models and represents 2-digit numbers in terms of tens and ones up to 30 (C)			
6	**Comparing and Ordering:** Compares two 2-digit numbers and represents the relationship between these numbers by selecting and using relational symbols and language (U&C); Orders 2-digit numbers (For example: from least to most, most to least) (R)			
7	**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 '1st Class *Maths and Me* Progression Continua Overview' for a detailed breakdown of how all progression continua are covered.
Maths Language	See '1st Class *Maths and Me* Maths Language Overview', individual lesson plans and Unit 1 Maths Language Cards.
Equipment	See '1st Class *Maths and Me* Maths Equipment Overview' and individual lesson plans.
Inclusive Practices	• See Let's Strengthen and Let's Deepen suggestions throughout lesson plans. • See Unit 1 Let's Strengthen Suggestions for Teachers. (These address the Common Misconceptions and Difficulties listed below.) • See Unit 1 Let's Strengthen PCM. • See Unit 1 Let's Deepen PCM.
Integration	See individual lesson plans.

Background and rationale

Numbers to 30 is the first unit in *Maths and Me* for 1st Class, revising and building on Unit 8 in *Maths and Me* for Senior Infants, where the children have worked with numbers to at least 20. In this unit, in a carefully sequenced plan, the children will work with numbers to 30.

- This unit enables the children to make rich and meaningful connections between learning experiences in different strand units. It combines learning experiences primarily from Numeration and Counting, Place Value and Base Ten.
- In the context of the progression continua, statements largely refer to skills relating to numbers up to 30. This will be expanded in later units to 100.
- There are abundant opportunities for oral counting, which could also be reinforced in the daily classroom routine (e.g. lining up).
- Counting collections is a fun, interactive way to provide opportunities for hands-on counting. Collections can be made from inexpensive items such as paper clips, bottle tops, beads and buttons. Encourage the children to make their own collections at home.
- The children will hone key mathematical skills such as explaining, justifying, estimating and choosing strategies.
- They will further develop their mathematical modeling skills as they work with a range of concrete materials.

The terminology 'tens and ones' is used throughout this unit, in keeping with the new PMC. The terms 'units' and 'ones' are interchangeable, and their use could form part of an interesting discussion with the children.

The theme of this unit is **Back to School**.

Common misconceptions and difficulties

Counting, numeration and place value are among the most important topics in primary maths, in that a child's understanding of the fundamental concepts of place value will greatly impact on their understanding of almost all the other concepts, especially in Number and Measures. Therefore, it is vital that misconceptions and difficulties are identified as early as possible and appropriate interventions implemented.

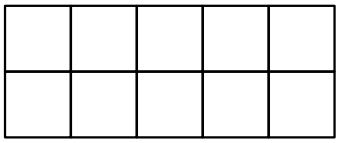
- The children may count too few or too many, if one-to-one correspondence is not maintained while counting.

- The children may find counting backwards more challenging.
- The children may find a set with fewer-but-bigger items confusing where 'more' and 'less' refer to quantities and not size.
- The children may confuse 'teen' and 'ty' numbers.
- The children may need to have their number formation checked.
- The children may not fully grasp place value.
- The children may not fully grasp bridging the 10 (e.g. calling the number following 29 'twenty-ten').

The Unit 1 Let's Strengthen Suggestions for Teachers address the common misconceptions and difficulties listed above.

Mathematical models and representations

- Number path
- Counters
- Number path stacks
- Number lines
- Branching bonds (an example of a part–whole model)
- Number shapes
- Interlocking cubes
- Base ten blocks
- Ten frames
- Coins
- Sorting circles



Ten frame

1	2	3		5	6				10
		13	14	15				19	20

Number path stack

Teaching tip

The following manipulative printables are available to support the unit: Number Path, Number Line, Branching Bonds, Number Shapes, Base Ten Blocks, Ten Frames, Coins and Sorting Circles. Click on the resources icon on the *Maths and Me* book cover on **edcolearning.ie**

Days 1 and 2, Lesson 1

Counting to 20

Focus of learning (with Elements)

- Estimates the number of objects in a set from 0–20 (R)
- Demonstrates an ability to estimate various arrangements or models of numbers to 20 (U&C)
- Counts to at least 20, counting fluently across decade (U&C)
- Explains and justifies choices of counting and calculation strategies used and compares with the choices of others (C)

Learning experiences

- C D Digital activity: Give the Dog a Bone!
  ***MAM* Routine: Reason & Respond**
- C Concrete activity: The Sound of a Number
- C Concrete activity: Number Paths
  ***MAM* Routine: Think-Pair-Share**
- C Game: Win 20!
- C Concrete activity: Number Path Stacks
- D Digital activity: Estimate and Count to 20
  ***MAM* Routines: Quick Images, with Write-Hide-Show**
- P Pupil's Book pages 6–7: Counting to 20

Equipment

- Jar or can
- 1c coins/marbles or any small object that will make noise when dropped into a jar or can
- An object to hide (e.g. a soft toy dog or cat)
- Counting aids: counters, 1c coins, interlocking cubes
- Scissors
- 1–6 spinners
- PCM 3

Maths language

- tens, ones, more, less, compare, skip count, number path, first, last, top, bottom, model, same, different, numeral, reasonable

Warm-up

C D Digital activity: Give the Dog a Bone!
***MAM* Routine: Reason & Respond**

Open the resource, in which Monty is waiting for his bone! Then explain the rules of the game to the children:

- Choose one child to close their eyes while you hide an object in the room.
- The child must find the hidden object, while the rest of the class counts to 20, forwards and/or backwards, and relatively slowly.
- The further away the child is from the hidden object, the softer the children count. The closer, the louder they count.
- The challenge is to find the object before 20 is reached.
- If the child finds the object, they can feed Monty a bone on the IWB and get a 'woof' in return.

C Concrete activity: The Sound of a Number

The children close their eyes, listen, and count silently as you drop coins (up to 20), one by one, into the jar. Ask/say:

- How many altogether?
- Write the number pattern, 1, 2, 3 ...

Continue the pattern to 20.

Variations:

- Begin with some 1c coins in the jar. Add more or take some/all out.
- Estimate how many coins in the jar. Give reasonable/unreasonable answers.
- Headline story: Two people gave me money, making 20c altogether. How much did they each give me?

Main event

C Concrete activity: Number Paths

***MAM* Routine: Think-Pair-Share**

Distribute PCM 3: Blank Number Paths. Using the prompts below, ask the children to complete the number paths.

- Write the number 1/the last number on the path. What number is that?
- Write the number after the first number. What number is that?
- Write the number before the last number. What number is that?
- Write number 5 on the number path. Write the number before 5. What number is that? Write the number after 5. What number is that?
- Write 11 on the number path. Count on 5. What number is that? Write it.
- Write the number which has 1 ten and 8 ones on the number path.
- Write 7 on the number path. Count back 4. What number is that? Write it.
- Write number 10 on the number path. What number is 2 more than 10? Write it.
- What number is 2 less than 10? Write it.

Pair Work: Take turns to think of a number not yet written on the number path. Use prompt words to give your partner clues about what the number is, e.g. *more*, *less*, *before*, *after*.

Let's strengthen

The children might benefit from pre-prepared number paths (see Number Path 0–20 manipulative printable). In response to the prompts from the teacher, the children can place counters (or their fingers) on the numbers.

Let's deepen

Some children will be ready to say or write number sentences in response to some of the prompts.

- Headline story: I have 20 new pencils. Some are red, some are blue, some are green. How many of each have I?

Teaching tip

Keep the completed number paths for later activities.

C Game: Win 20!

Play in pairs, threes or fours. Give each child their own 'bank' of 20 counters. Using their MAM spinner 1–6, the children take turns to 'spin and win' the corresponding number of counters from their bank. The first child to win all 20 counters wins the game.

Let's deepen

In 'Win 20!' the children could record their turns as number sentences.

C Concrete activity: Number Path Stacks

The children need their completed number paths from the previous activity.

Ask:

- If I wanted to split the number path into 2 equal parts, after which number would I cut?
- Why did you choose that number?

Instruct the children to cut the number path between 10 and 11. Then:

- On your MWBs, stack the number paths one row on top of the other. (This is a precursor to the 100 square.)
- Which numbers are on the top row?
- Which numbers are on the bottom row?

Ensure the children understand it makes most sense to have 1 to 10 on top and 11 to 20 below. Ask:

- What is the last number on the top row? Use cubes and make a tower of 10.
- What is the last number on the bottom row? Use cubes and make a tower of 20.
- Compare the cube towers. What is the same/different?
- What is the same/different in those 2 numerals? (Both have 0 ones but different numbers of tens.)
- If I count 1, 2, 3 along the number path, I am moving in 1s. (Demonstrate on the number path.) If I count 10, 20, how am I counting?

Let's strengthen

The children can make the cube towers in pairs.

Teaching tip

Keep the number paths for use in Lesson 2.

D Digital activity: Estimate and Count to 20 ***MAM* Routines: Quick Images, with Write-Hide-Show**

Play the slideshow and ask the children to estimate how many objects are in each set. Briefly reveal and then hide the image(s), and use Write-Hide-Show to collect feedback.

Assessment Opportunity

Ask:

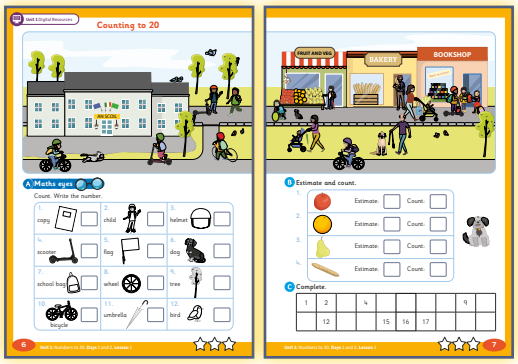
- Would 20 (or another large number) be a reasonable estimate? Why?
- Would 1 (or another small number) be reasonable? Why?
- Do you think there are more or less than ten? Explain.
- Do you estimate that there are more in this set than the last set? Why? Write your reasonable estimate.

Once the estimates have been recorded, ask for suggestions for counting strategies and compare with those of others. Display the slides again and discuss the total number per slide, comparing the answers to the children's estimates.

Let's deepen

Prompt the children to use skip counting in 2s and 5s.

P Pupil's Book pages 6 and 7: Counting to 20



Optional consolidation and extension possibilities

Games Bank Play 'Collect!'.

Estimation Station Fill a transparent container with less than 20 small items from the classroom (e.g. pens, sharpeners, rubbers, whiteboard markers). Leave a box close by, where children can 'post' their estimates. After 2 or 3 days, ask a group to count the items and identify who had the closest estimate. Then set up the station again with more/less items or different items.

Story Read *Have You Seen My Dragon?* by Steve Light, or listen to a reading at: edco.ie/v28r

Review and Reflect Use the Prompt Questions Poster.

Home/School Links Book Page 6 can be completed at any stage after this lesson.

Days 3 and 4, Lesson 2

Counting to 30

Focus of learning (with Elements)

- Counts to at least 30, counting fluently across the decades (U&C)

Learning experiences

- D C Digital activity: Forwards and Backwards Counting to/from 20 ***MAM* Routine: Choral Counting**
- D Digital activity: Dot Patterns ***MAM* Routines: Quick Images, with Write-Hide-Show**
- C Concrete activity: Number Path Stacks
- D Digital activity: Estimate and Count to 30 ***MAM* Routines: Quick Images, with Write-Hide-Show**
- C Game: Win 30!
- P Pupil's Book page 8: Counting to 30

Equipment

- Blank number paths with 10 steps
- Counters
- 1–6 spinners
- PCM 3

Maths language

- forwards, backwards, set

Warm-up

D C Digital activity: Forwards and Backwards Counting to/from 20

***MAM* Routine: Choral Counting**

See it, then say it! Using a visual support (e.g. a physical number path or this digital counting tool), ask the children to practise counting forwards and backwards to and from 20.

- Clap on each count forwards.
- Tap on each count backwards.
- Change from backwards to forwards, and vice versa, within the count.

As the children get more confident and competent, challenge them further:

- Remove/hide some of the numbers until there are (almost) none left. (physical number path only)
- Ask them to count forwards from different starting points.
- Ask them to count backwards from different starting points.
- Ask them to count forwards and backwards in 10s.
- Ask: In real life, do you count anything in 10s?

D Digital activity: Dot Patterns *MAM* Routines: Quick Images, with Write-Hide-Show

Play the slideshow, which contains a series of images of dot patterns from 1 to 20. Briefly reveal and then hide the image(s). Using Write-Hide-Show, the children record their responses on their MWBs.

Ask:

- What did you see?
- What counting strategy did you use?
- Did anyone use a different strategy?
- Which strategy is the best, do you think?
- Do you agree? Why?

Main event

C Concrete activity: Number Path Stacks

The children need their completed number paths from the previous lesson and a blank number path with 10 steps (see PCM 3: Blank Number Paths).

Ask/say:

- On your MWB, stack the number paths one row on top of the other. (This is a precursor to the 100 square.)
- Which numbers are on the top row?
- Which numbers are on the bottom row?

Ensure the children understand it makes most sense to have 1 to 10 on top and 11 to 20 below. Ask:

- What is the last number on the top row?
- What is the last number on the bottom row?
- If I count 1, 2, 3 along the number path, I am moving in 1s. (Demonstrate on the number path.) If I count 10, 20, how am I counting?

Now instruct the children to use their blank number path to make a third row in their number stack.

- What is the last number in the second row?
- Model the number using your choice of resource.
- Add one more. How many is that? (If the children correctly answer '21', be sure to revoice it.)
- Does anyone know how to write 21? (Allow the children to teach each other, practising on their MWBs. Conference to ensure correct formation and that tens and ones are in the correct place.)
- Write 21 on your number path.

Continue in this manner until numbers 21 to 30 are covered and written into the number path.

Ask/say:

- What is the last number on the top row? Use cubes and make a tower of 10.
- What is the last number on the second row? Use cubes and make a tower of 20. **Assessment Opportunity**
- What is the last number on the bottom row? Use cubes and make a tower of 30.
- Compare the models. What do you notice? What is the difference?
- What is the same/different in those 2 numerals? (Both have 0 ones but different numbers of tens.)

- If I count 1, 2, 3 along the number path, I am moving in 1s. (Demonstrate on the number path.) If I count 10, 20, 30, how am I counting?

Let's strengthen

The children can make the cube towers in pairs.

Teaching tip

Keep the number paths for use in Lesson 3.

Let's strengthen

Provide some children with pre-prepared number paths from 21–30, and prepared cube towers or base ten blocks. They can trace, ring or place a counter on the appropriate number.

D **Digital activity: Estimate and Count to 30** ***MAM*** **Routines: Quick Images, with Write-Hide-Show**

Play the Quick Images slideshow and ask the children to estimate how many objects are in each set. Click to briefly reveal and then hide each image, using Write-Hide-Show to collect feedback.

Ask:

- Would more than 20 be a reasonable estimate? Why?
- Would 1 (or another small number) be reasonable? Why?
- Do you think there are more or less than 10? Explain.
- Do you estimate that there are more in this set than the last set? Why? Write your reasonable estimate.

Once the estimates have been recorded, ask for suggestions for counting strategies and compare with those of others.

Reveal the count and compare to the estimates.

Teaching tip

A range of numbers up to 30 are included in the slideshow. Use as many as will suit your class.

Let's strengthen

As the children work, play 'Number Tennis' with some children. You say one number and they say the next. Ensure they are correctly differentiating between 'teen' and 'ty' numbers and say '30' and not 'twenty ten'. Provide them with opportunities to practise number formation.

C **Game: Win 30!**

Play in pairs, threes or fours. Give each child their own 'bank' of 30 counters. Using their MAM spinner 1–6, the children take turns to 'spin and win' the corresponding number of counters from their bank. The first child to win all 30 counters wins the game.

Let's deepen

In 'Win 30!' the children could record their turns as number sentences. They could also play in reverse and 'give back' the counters to the bank.

P **Pupil's Book page 8: Counting to 30**

Let's strengthen

The children might benefit from further exploration of estimating and counting to 30. See the Unit 1 Let's Strengthen PCM.

Optional consolidation and extension possibilities

Estimation Station Remind the children to make estimates or set up a new station.

Review and Reflect Use the Prompt Questions Poster.

Home/School Links Book Page 7 can be completed at any stage after this lesson.

Day 5, Lesson 3

Counting in 2s and 5s

Focus of learning (with Elements)

- Skip counts multiples of twos and fives from a given multiple using verbal, concrete and pictorial supports (U&C)
- Uses skip counting to extend number patterns (A&PS)

Learning experiences

- (D) (C) Digital activity: Move with Monty
- (D) Videos: The Number Line – Part 1 & 2
  MAM **Routines: Notice & Wonder; Reason & Respond**
- (P) Pupil's Book page 9: Counting in 2s and 5s

Equipment

- Counters
- PCM 4

Maths language

- There is no new maths language for this lesson.

Warm-up

(D) (C) Digital activity: Move with Monty

Open the interactive resource, which features a barking Monty. You can select the number of barks (between 1 and 30) or use the random mode. The children count the barks silently while standing, then jump that number of times, counting as they jump. Each jump counts as 1.

Ask:

- If you hold hands with a partner and jump at the same time, how many jumps at a time is that? (2 children and 1 jump per child = 2 jumps)
- Do it a second time. How many jumps is that? (4)
- Do it a third time. How many jumps is that? (6)
- Do you notice a pattern?
- What will the next number be?
- Are we counting in 1s? Are we counting in 2s?
- Can you continue the pattern to 20?
- Let's jump and count using the pattern.

Teaching tip

If class numbers do not support even groups of 2, use this as a teaching opportunity:

- When we jump with a partner, does everyone have a partner?
- How many children do not have a partner? Why/why not?
- How many more children would we need to make another group of 2?

Teaching tip

Adapt the activity for some children by allowing them to use a doll, action figure or teddy. Where space is an issue, one group of children could jump and the other group could record the jumps using MWBs, rekenreks, etc.

Main event

(D) Videos: The Number Line – Part 1 & 2

MAM **Routines: Notice & Wonder; Reason & Respond**

Play the Part 1 video and ask the children:

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

Allow the children the opportunity to respond to (agree/disagree with or query) others' responses.

If helpful, watch the video again. If the children have not already raised the following questions, ask:

- How did the video start? What did you see? (a number path)

- What did you see at the end? (a number line)
- What is the same? (numbers)
- What is different? (not a path any more, but a line)
- What is the first/last number?
- Starting at 1, say all the numbers to 10.
- Say the green numbers. What do you notice? (skip counting in 2s)
- How could you use a number line?

Play the Part 2 video. Ask:

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

Allow the children the opportunity to respond to (agree/disagree with or query) others' responses.

If the children have not already raised the following questions, ask:

- How did the video start? What did you see? (a number stack)
- What did you see at the end? (a number line)
- What is the same? (numbers)
- What is different?
- What is the first/last number?

Assessment Opportunity

Provide the children with blank number lines to 30 (see PCM 4) and ask them to write the numbers 1–30.

When ready, ask/say:

- Count to 5 on your number line. Ring 5.
- Count on from 5 for 5 more. At what number are you? Ring it.
- Count on from 10 for 5 more. At what number are you? Ring it.
- What do you notice? (skip counting in 5s)
- What is the next number?
- Continue to 30.
- Is there a pattern?
- Say the numbers.

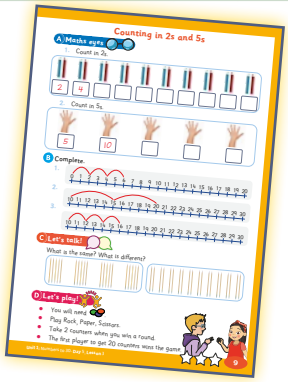
Let's strengthen

Provide some children with pre-prepared number lines for tracing and colouring.

Let's deepen

Some children may be ready to count and skip count beyond 30.

Pupil's Book page 9: Counting in 2s and 5s



Optional consolidation and extension possibilities

Estimation Station Remind the children to make estimates or set up a new station.

Maths Journal The children write their favourite number and draw that number of objects (or paste pictures).

Skip Counting Maximise opportunities to skip count in 2s (e.g. when lining up the children).

Story Read *Pie for Piglets: Counting By Twos* by Michael Dahl, or listen to a reading at: edco.ie/xy6x

Review and Reflect Use the Prompt Questions Poster.

Day 6, Lesson 4

Representing Numbers

Focus of learning (with Elements)

- Models and represents numbers up to 30 using appropriate models (For example: diagrams or concrete materials) (C)

Learning experiences

- (C) Concrete activity: I Have... Who Has...?
- (D) Digital activity: Representing Numbers – 25
  ***MAM* Routines: Reason & Respond, with Think-Pair-Share**
- (C) Concrete activity: Representing 2-Digit Numbers
  ***MAM* Routine: Build it; Sketch it; Write it**
- (P) Pupil's Book page 10: Representing Numbers

Equipment

- Ten frames
- Branching bond templates
- Number shapes
- Interlocking cubes
- Coins
- Links
- Number paths and number lines to 30
- Place value arrow cards
- Base ten blocks
- PCM 5

Maths language

- representation, base ten blocks, model, branching bond

Warm-up

(C) Concrete activity: I Have... Who Has...?

Ask the children to write any number between 0 and 10 on their MWBs. Write a number on your own MWB and display it to the class, saying:

- I have number... Stand up if you have 1/2/3 (etc.) more/less than my number.

Continue playing until all the children are standing, or ask those who are still sitting:

- Do you have more/less than my number?
- How much more/less?

Main event

(D) Digital activity: Representing Numbers – 25
***MAM* Routines: Reason & Respond, with Think-Pair-Share**

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

- What number did you see?/What number is modeled here?
- What are the different ways you saw it?
- Use some of the classroom resources to show me your favourite way of representing 25.

(C) Concrete activity: Representing 2-Digit Numbers
***MAM* Routine: Build it; Sketch it; Write it**

Arrange the children in pairs or groups. Ask them to represent various numbers (from 10 to 30, including numbers ending in zero) using at least one mathematical model (e.g. cubes, coins, base ten blocks, place value arrow cards) in each section below. Leave the poster on the board for them to refer to.

- Build it! Can you use classroom resources to represent the number? Show us.
- Sketch it! Can you represent the numbers as a sketch? Show us.
- Write it! Can you use words, branching bonds or number sentences to represent the number? Show us.

Conference with the children as they work. Take this opportunity to check their understanding of base ten blocks and how they resemble interlocking cubes (they just come ready made in towers of 10). Encourage the children to include base ten blocks in their representations.

Teaching tip

Choose one number and make a display of all the various ways of making that number.

Let's strengthen

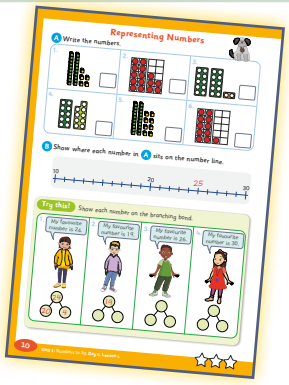
Some children will build only; others will build and sketch only. For some children, use a pre-prepared tens and ones grid (see PCM 5: Tens and Ones Grid) to show the number, as they may not have fully grasped place value.

Let's deepen

Challenge the children to write multiple number sentences for a given number, for example: 20 + 5 = 25 and 18 + 7 = 25.

Assessment Opportunity

P **Pupil's Book page 10: Representing Numbers**



Optional consolidation and extension possibilities

Estimation Station Remind the children to make estimates, or set up a new station.

Display Ask the children to make a classroom display showing a number between 10 and 30.

Integration Science: Processes of Life: Plant a variety of seeds (e.g. watercress seeds, apple seeds, acorns). Count the days until they germinate.

Days 7 and 8, Lesson 5

Tens and Ones

Focus of learning (with Elements)

- Composes and decomposes the structure of 2-digit whole numbers up to 30 (U&C)
- Identifies place value in 2-digit whole numbers up to 30, including zero as a placeholder (U&C)
- Models and represents 2-digit numbers in terms of tens and ones up to 30 (C)

Learning experiences

D Digital activity: Move with Monty

C Concrete activity: Secret Number

D Digital activity: Back to School Shopping
MAM **Routines: Reason & Respond, with Think-Pair-Share**

D C Digital activity: Monty Asks 'How Many?'
MAM **Routines: Reason & Respond, with Think-Pair-Share**

P Pupil's Book page 11: Tens and Ones

Equipment

- Base ten blocks
- Number shapes
- Ten frames
- Number paths
- Number lines
- Links
- Interlocking cubes
- Place value arrow cards
- PCM 5

Maths language

- between, group, grid

Warm-up

D Digital activity: Move with Monty

Open the interactive resource, which features a barking Monty. You can select the number of barks (between 1 and 20) or use the random mode. The children count the barks silently while standing, then jump that number of times, counting as they jump. Each jump counts as 1.

Ask:

- If you hold hands with a partner and jump at the same time, how many jumps at a time is that?
- How should we count? What numbers will we use if we count in 2s?
- Do you notice a pattern? Let's jump and count using the pattern.
- If five children hold hands and jump at the same time, how many jumps at a time is that?
- How should we count?
- What numbers will we use if we count in 5s?

Teaching tip

If class numbers do not support even groups of two and five, use this as a teaching opportunity.

C Concrete activity: Secret Number

Choose a number between 1 and 30 (inclusive), but do not divulge it to the children. The children need their MWBs.

Ask:

- I have a secret number. Can you guess it using these clues?
- If I count in 2s (do this) I say the number. Write down all possible answers.
- My number is more than 12. Erase all the wrong answers.
- My number is less than 24. Erase all the wrong answers.
- My number is between 16 and 22. Erase all the wrong answers.
- My number has 1 ten. Erase all the wrong answers.
- My number has 8 ones.
- What is my secret number?

Teaching tip

This activity can also be led by a child – or done in groups, with children taking turns to lead.

Main event

D Digital activity: Back to School Shopping

***MAM* Routines: Reason & Respond, with Think-Pair-Share**

Display the slideshow. Tell the children that Mia, Jay, Dara, Lexi and Monty bumped into their teacher in the shop and are helping her to get organised for school. Using Think-Pair-Share to gather feedback, click to play or ask the questions for each slide below. Encourage the children to model their answers using classroom resources.

- (Slide 1) How many packs of 10 colouring pencils and how many loose ones should Lexi get?
- (Slide 2) How many packs of 10 sharpeners and how many loose ones should Mia get?
- (Slide 3) How many packs of 10 balloons and how many loose ones should Jay get?
- (Slide 4) How many packs of 10 erasers and how many loose ones should Dara get?
- (Slide 5) How many packs of 10 copies and how many loose ones should Lexi get?

Conference with the children as they work. As they talk about their model, show them the same quantity using base ten blocks (if they have not chosen them).

Let's strengthen

Some children will benefit from having the questions repeated.

Let's deepen

Challenge some children to model numbers over 30 using various models (e.g. branching bonds, and place value arrow cards).

D C Digital activity: Monty Asks 'How Many?'

***MAM* Routines: Reason & Respond, with Think-Pair-Share**

Distribute the tens and ones grid template (PCM 5) and interlocking cubes to the children.

Display the slideshow. Monty has collected lots of treats. Can you help him count them? (Also have on hand the Calculation Strategy Wall Card for Counting.)

For each slide, use the audio questions and Think-Pair-Share to encourage the children to discuss the strategies. Click to play or ask:

- How many?
- How will Monty count?
- What strategy will you use?

A strategy is chosen and the treats are counted. Click to play or ask:

- Would it help to make a group of 10? (Show me using classroom resources.)

Conference with the children as they work, checking their counting strategies and understanding of groups of 10. Click to play or ask:

- How many groups of 10 and how many ones?
- What number is that?
- Can your write that number on your MWBs?

Tell the children you will show them how the group of 10 and the ones can also be shown on the tens and ones grid.

Ask:

- Remind me, how many treats does Monty have?
- How many tens?
- Put that number of tens into the tens place on your grid.
- Why have you put a ten there?
- How many ones in the number?
- Put that number of ones into the ones place on your grid.
- Why have you put that many ones there?
- What is the number?

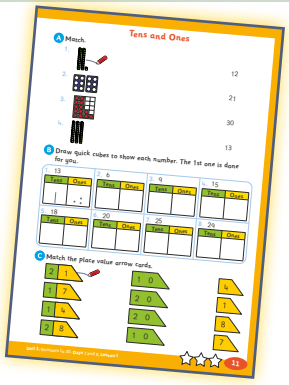
Let's strengthen

Provide some children with classroom resources for counting.

Let's deepen

As you conference, challenge some children to show numbers more than 30 in the grid.

P **Pupil's Book page 11: Tens and Ones**



Optional consolidation and extension possibilities

Estimation Station Remind the children to make estimates or set up a new station.

Target Board Use PCM 6: Target Board (Numbers to 30).

Maths Journal Make a target board for numbers to 30 using different representations.

Let's Deepen Use the Unit 1 Let's Deepen PCM.

Review and Reflect Use the Prompt Questions Poster.

Day 9, Lesson 6

Comparing and Ordering

Focus of learning (with Elements)

- Compares two 2-digit numbers and represents the relationship between these numbers by selecting and using relational symbols and language (e.g. <, > and =) (U&C)
- Orders 2-digit numbers (For example: from least to most, most to least) (R)

Learning experiences

- C Concrete activity: The Sound of a Number
- C Concrete activity: More and Less
- D Video: Greater Than or Less Than
  MAM **Routines: Notice & Wonder; Reason & Respond**
- C Concrete activity: Grab
- P Pupil's Book page 12: Comparing and Ordering

Equipment

- Jar or can
- 1c, 2c and 5c coins
- Base ten blocks
- Number shapes
- Ten frames
- Links
- Cubes
- Beads
- Counters
- Lollipop sticks
- Sorting circles

Maths language

- sign, symbol, more than (>), less than (<), order

Warm-up

C Concrete activity: The Sound of a Number

The children close their eyes, listen, and count silently as you drop 1c coins, one by one, into the jar.

Ask:

- How many coins altogether?
- Write the number on your MWBs.

Repeat several times for quantities up to 30.

Drop 2c/5c coins, one by one, into the jar.

Ask:

- How many coins altogether?
- Write the number on your MWBs.
- How much money altogether?
- How did you count? Why?
- Did anyone count differently?

Repeat several times for money totals to 30c.

Main event

C Concrete activity: More and Less

This is an activity in which multiple correct answers are possible.

Write a number between 1 and 20 on the board and ask the children to write a number that is *more* on their MWBs. Ask:

- What is your answer?
- Did anyone get a different answer?
- Why is there more than one correct answer?
- Who chose an answer which is just a little more?
- Who chose an answer which is a lot more?
- What is the greatest number chosen?
- What is the smallest number chosen?
- Here are three of the numbers chosen. Write them in order on your MWBs. Start with the smallest/greatest.
- I choose the number 24. Can you show it in tens and ones using classroom resources?

Repeat the activity with numbers between 10 and 30 and challenge the children to write a number which is *less* than the number on the board. Use these scenarios and incorporate the vocabulary: *least*, *smallest*. Ask/say:

- Write an age which is more/less than your age.
- Write a number which is more/less than the number of children in the class.
- Write a number which is more/less than the numbers of fingers and toes you have.
- Write a number which is more/less than the number of tables in the classroom.
- Show a chosen number (less than 30) in tens and ones using classroom resources.
- Write the numbers in order, starting with the smallest/greatest.

D Video: Greater Than or Less Than *MAM* Routines: Notice & Wonder; Reason & Respond

Play the video. Ask:

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

Play the video again, allowing the children time to respond to the questions and to give reasons for their answers. Pause the video at the very end, leaving the two signs (greater than and less then) on the IWB. Ask/say:

- Which sign told me the numbers were equal/the same? Write it on your MWBs.
- Tell me a number sentence using this sign/symbol. Mine is: 2 + 2 equals/is the same as 4.
- Which sign/symbol tells me that the first number is the greater/bigger? Write it on your MWBs.
- Tell me a number sentence using this sign/symbol. Mine is: 2 is greater than 1.
- Which sign/symbol tells me that the first number is the lesser/smaller? Write it on your MWBs.
- Tell me a number sentence using this sign/symbol. Mine is: 1 is less than 2.

When ready to move on to the next activity, leave the still image of the two signs on the IWB.

C Concrete activity: Grab

The children work in pairs. Each pair has a container or bag of classroom resources (e.g. coins, counters, links and beads) up to 30. In turn, they each 'blind-grab' a handful from the container. Once both children have a handful, they count into their sorting circles and compare, asking:

- Do we have the same?
- Who has more?
- Who has less?

The children use lollipop sticks to make the correct symbol.

They return the resources to the container and play again. Conference as the children play, checking for understanding of key language, of counting strategies and the correct formation of the symbols.

Teaching tip

To enliven the game, the children could swap partners and resources.

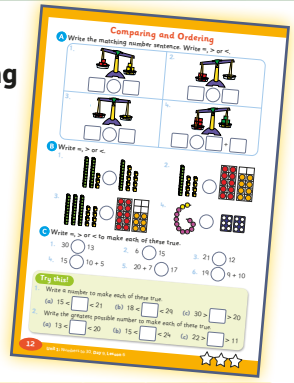
Let's strengthen

Provide some children with individual cards showing the four symbols (see PCM 7: Symbol Cards).

Let's deepen

Some children will work with numbers more than 30.

P Pupil's Book page 12: Comparing and Ordering



Optional consolidation and extension possibilities

Estimation Station Remind the children to make estimates, or set up a new station.

Story Read *Balancing Bears: Comparing Numbers* by Megan Atwood, or listen to a reading at: edco.ie/uvk3

Integration Language, Gaeilge: Introduce the terms '*níos mó*' and '*níos lú*'. Take the top card from a pack arranged face down. Ask the children to guess whether the next card will be '*níos mó*' nó '*níos lú*'.

Day 10, Lesson 7

Review and Reflect

Focus of learning (with Elements)

- Reviews and reflects on learning (U&C)

Warm-up

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

Main event

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

Let's talk!	Let's play!
Use Think-Pair-Share to review the unit. Individual children could present examples of their own drawings/work/constructions to the class, and talk about what they have learned.	'Order, Order!' Give each child a number card (randomly). Arrange the children in two parallel lines. Stand at the top facing the children. Each child holds their number card so that the number cannot be seen. In silence and in turn, the first child in each line stands beside you and shows their card to the lines. Elicit from the children which is the higher number (could also be played as lower number) and put the correct symbol card between the numbers. The child with the highest number 'wins' the other child for their own line. The winning team is the one with the greater number of children at the end of the game. This game could also be played with three lines of children.
Maths language	**Maths strategies and models**
Ask the children to explain the following terms (perhaps using drawings on their MWBs): counting strategy, number stack, number path, number line, estimate, tens and ones, models, compare, order, equals, not equals. 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? Complete the My Maths Fact File on page 120 of the Pupil's Book.	Using various 2-digit numbers up to 30 (of teacher's or children's choosing), ask the children to show how they can model/represent the numbers. This could include: concrete materials, place value arrow cards, number lines/paths, base ten blocks, place value grids, branching bonds, etc. Ask the children which strategies and models did they prefer and why.
Progress Assessment Booklet	**Maths eyes**
Complete Questions 1–5 on pages 8–9. Alternatively, these can be left to do as part of a bigger review during the next review week.	Collect chestnuts and compare quantities collected.
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. Use the Unit 1 Let's Strengthen PCM. Consult the Unit 1 Let's Strengthen Suggestions for Teachers.	Use the Unit 1 Let's Deepen PCM.

Notes