




Maths and Me: 2nd Class – Short-Term Plan, Unit 7: Numbers to 200 (December: Weeks 1&2)

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|--------------------------------------|--|
| Strand(s) > Strand Unit(s) | Number > Numeration and Counting. |
| Learning Outcome(s) | Through appropriately playful and engaging learning experiences children should be able to demonstrate proficiency in using and applying different counting strategies |

| Lesson | Focus of Learning (with Elements) | C.M | Learning Experiences | Assessment |
|--------|---|-----|---|--|
| 1 | Counting: Uses strategies to estimate and count quantities within at least 200 (R); Describes strategies used to count (C) | | Choral Counting L1–3 Think-Pair-Share L1, 3–6 P Three-Act Task L1 Reason & Respond L2–7 Write-Hide-Show L2, 4–7 D Would This Work? L3–5 Build it; Sketch it; Write it L3–4 D Quick Images L4–5 D Notice & Wonder L4 C Games Bank L5 D Concept Cartoon L6 C I Do, We Do, You Do L6 C Number Hunt in a Toy Catalogue L7 | Intuitive Assessments: responding to emerging misconceptions Planned Interactions: responding to insights gleaned from children's responses to learning experiences |
| 2 | Counting Groups: Practises repeated addition and group or skip counting (U&C); Uses number lines, benchmark numbers (2s, 10s, 5s and 20s), and patterns to count forward and backwards (A&PS) | | | |
| 3 | Representing Numbers: Represents numbers using different models, illustrations and number expressions (C) | | | |
| 4 | Hundreds, Tens and Ones: Demonstrates an ability to estimate various arrangements or models of numbers to 199 (U&C); Composes and decomposes the structure of 3-digit whole numbers up to at least 199 (U&C); Identifies place value in 3-digit whole numbers up to at least 199, including zero as a placeholder (U&C) | | | |
| 5 | Comparing and Order Numbers: Compares two 3-digit numbers up to at least 199, and represents the relationship between these numbers using symbols and language (e.g. <, > and =) (U&C); Compares and records equivalent and non-equivalent sets up to 99 using <, > and = (U&C) (C); Orders 3-digit numbers up to at least 199 (R) | | | |
| 6 | Estimating Numbers: Rounds numbers to the nearest ten and/or hundred (R) | | | |
| 7 | Number Hunts: Identifies and recognises numbers up to 200 in the environment (U&C) | | Print resources Pupil's Book pages 45–51 Home/School Links Book pages 18–19 PCM 25 | Assessment Events: information gathered from completion of the unit assessment in the Progress Assessment Booklet pages 15–16 |
| 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 '2nd Class <i>Maths and Me</i> Progression Continua Overview' for a detailed breakdown of how all progression continua are covered. |
|  Maths Language | See '2nd Class <i>Maths and Me</i> Maths Language Overview', individual lesson plans and Unit 7 Maths Language Cards. |
|  Equipment | See '2nd Class <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

- As in Unit 1 (Numbers to 100), in order to help the children make rich and meaningful connections between learning experiences in different Strand Units, this unit combines learning experiences primarily from Numeration and Counting and Place Value and Base Ten – and to a lesser extent, Sets and Operations and Patterns, Rules and Relationships.
- The progression continua statements for this unit largely refer to skills relating to three-digit numbers up to 199. This unit revises the content of Unit 1, and extends it to apply to numbers beyond 100, up to 200.
- As mentioned in Unit 1, consider incorporating a quick 1–2-minute counting practice (forwards, backwards, various starting points and/or intervals and bridging/counting through decade numbers), focused on a range appropriate to the needs of your class, as part of your daily classroom routine, both within and outside Maths lessons.
- Counting collections: For the children to embed their counting skills, they need to experience meaningful counting with a purpose, i.e. counting things. Ensure that there are plenty of inexpensive materials available in advance that allow the children to count sets of between 100 and 200 objects. Try to strike a balance with materials that are exciting to count, but not distracting. Intriguing items like collector/trading cards can be fun to count, but may also distract children from the task.
- As mentioned in Unit 1, the terminology of tens and ones is used, as opposed to tens and units. That said, it would be beneficial to explicitly explain that 'units' and 'ones' are interchangeable, especially as they will likely encounter the term 'units' elsewhere.

The overarching theme of **The Toy Shop** has been carefully chosen as it's likely to be very engaging for the children given the time of year (the first two weeks of December), while also providing other examples of how Maths is relevant to them. (Consult the Maths Eyes activities in the unit.)

Common misconceptions and difficulties

Many of the common misconceptions and difficulties highlighted in Unit 1 (Numbers to 100) are also applicable here (see page 26). In addition:

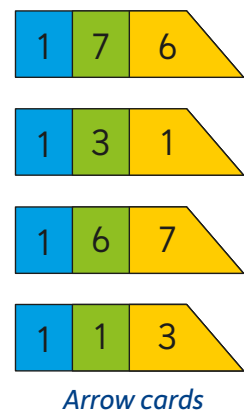
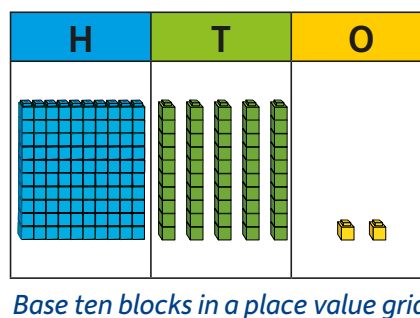
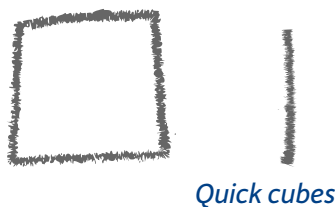
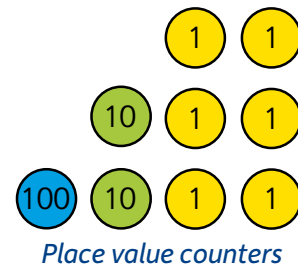
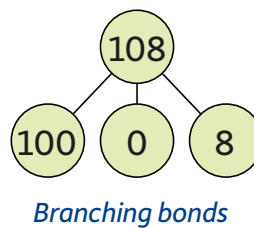
- The children may require further practice counting within 100 before progressing to counting within 200.
- They may confuse the hundreds, tens and ones places.
- They may incorrectly bundle/compose 9 or 11 tens together as a 'hundred'.

- They may incorrectly record numbers with hundreds (e.g. one hundred and twenty-one as 10021).
- They may not recognise that any number can be partitioned in multiple ways (e.g. 156 as 15 tens and 6 ones; 14 tens and 16 ones; 13 tens and 26 ones). This is a very important foundational concept leading to regrouping/decomposing tens for the purpose of subtraction.
- They may incorrectly compare numbers by looking only at the first digit and not considering the place value of that digit. For example, when considering 134 and 86, a child may incorrectly assume that 86 is greater than 134, as 8 is greater than 1.
- They may not appreciate that, if approximating 145, it is perfectly legitimate to round it to 140 or 150 as it is an equal distance from both, and that in real-life situations, either option can be chosen to suit the numbers involved (see Lesson 6).

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

Mathematical models and representations

- Assorted countable resources in classroom
- Interlocking cubes
- 100 square
- Quick cubes
- Number lines
- Number paths
- Branching bonds (an example of part-whole models)
- Place value grids (HTO)
- Place value counters
- Place value arrow cards
- Base ten blocks
- Base ten money (i.e. €1, €10 and €100 denominations)



Teaching tip

The following manipulative printables are available to support this unit: 100 Square, 0–100 Number Line, 0–10/0–20 Number Path, Branching Bond, Place Value Grid (HTO), Place Value Counters, Place Value Arrow Cards, Base Ten Blocks and Euro Notes. Click on the resources icon on the *Maths and Me* book cover on edcolearning.ie

Day 1, Lesson 1

Counting

Focus of learning (with Elements)

- Uses strategies to estimate and count quantities within at least 200 (R)
- Describes strategies used to count (C)

Learning experiences

- P** Counting Beyond 100
MAM Routine: Choral Counting
- D P** Digital activity: Jigsaw Pieces
MAM Routine: Three-Act Task
- P** Pupil's Book page 45: Counting

Equipment

- Any available countable resources, such as jigsaw puzzle pieces, uninflated balloons, marbles, buttons, elastic bands, drinking straws, lollipop sticks, disposable cutlery, metal washers, craft supplies (e.g. pipe cleaners, small pompoms, beads, art sequins, googly eyes), pieces of pasta, paper clips, paper fasteners, etc.
- Counting aids, such as 100 squares, 200 squares, number lines
- PCM 26

Maths language

- numbers zero to two hundred, count up, count forwards, count back/backwards, ones (units), tens, fives, twenties, hundreds, estimate

Warm-up

P **Counting Beyond 100**
MAM Routine: Choral Counting

- Say it! Ask the children to start counting forwards in ones from 90. Pay particular attention to what they say after '99, 100 ...'. Can they confidently count beyond 100?
- See it, then say it! Navigate the children towards the 100–200 square on the inside cover of the Pupil's Book. Choose two numbers and use the numbers square to count forwards/backwards. Ask the children if they can spot any patterns. Repeat as required.

Let's deepen

As the children become more confident and competent, challenge them further by asking them to:

- Count forwards from various starting points, without the aid of the number square
- Count backwards from various starting points, without the aid of the number square.

Teaching tip

Oral counting is a key skill required to develop a solid understanding of our number system. Consider incorporating a quick 1–2-minute counting practice (forwards, backwards, various starting points and/or intervals), focused on a range appropriate to the needs of your class, as part of your daily classroom routine, both within and outside Maths lessons. For example, you could have brief counting sessions as part of morning welcome, transitions between lessons, en route to the PE hall or yard, while children are tidying up after breaks and/or when they are going home.

To emphasise the importance of oral counting, Choral Counting is the warm-up for the first three lessons, but it could also be added to the warm-up for every lesson in this and subsequent units, as needs be. For variation, other strategies could also be used, e.g. counting can or counting stick.

Main event



D P Three-Act Task: Jigsaw Pieces

MAM Routine: Three-Act Task

Act 1: Notice & Wonder

Play the video, in which a store assistant knocks a 200-piece jigsaw puzzle off a shelf and onto the floor. The jigsaw pieces spill out of the box, with some landing underneath the shelves. Click to play or ask:



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

Use Think-Pair-Share to collect feedback. Record the children's responses to both questions on the board. Allow the children the opportunity to agree/disagree with or query others' responses, but don't confirm or reject any of the ideas.)

- (Reveal the focus question.) How many jigsaw pieces have gone under the shelves?

Act 2: Productive Struggle

Look at the image and click to play or ask:

- Write an estimate that is too high on your MWB.
- Write an estimate that is too low.
- Write a reasonable estimate.

The children work in pairs or small groups to answer the focus question. If necessary, prompt them by clicking to play or asking:

- Do you have enough information? What else do you need to know?

Once they explain that they need to find out the number of visible pieces in order to know how many pieces are underneath the shelves, click to reveal the second image and/or distribute a copy of PCM 26: Jigsaw Puzzle Pieces to each pair. The children count the visible pieces on the PCM. Ask them to consider how they might organise their count to do it in an efficient way. Then click to play or ask:

- What information do you have now?
- To get an answer, what needs to be done?
- What strategies can you use?

Using Build it; Sketch it; Write it, the children use their own preferred way to mathematically model their strategies/solution(s).

Act 3: The Big Reveal

The children share and discuss their strategies, solutions and models. Click to play or ask:

- What answer did you get?
- What strategies did you use to get the answer?
- What do you think was the most efficient strategy?

Click to flip the image and play the video, which shows the jigsaw pieces organised into bundles of 10s and ones. The number of visible pieces is revealed (191), then a number sentence reveals the number of pieces that went under the shelves (9). Click to play or ask:

- Is that the answer you expected? Why or why not?
- What 'I wonder' questions did you answer?
- Do you have any new 'I wonder' questions?

Teaching tip

In their maths journals, the children could use images/words to record what they built, sketched or wrote.

Let's strengthen

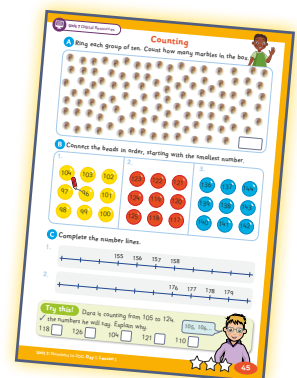
Some children may benefit from counting aids, such as the 100–200 square on the inside cover of the Pupil's Book, number lines, etc.

Encourage the children to use available counting aids, such as the 100–200 square (inside back cover of Pupil's Book) or open number line (MWB).

Let's deepen

Challenge some children to count in groups of 20 and/or to organise a group of 100 to improve counting efficiency.

P Pupil's Book page 45: Counting



Optional consolidation and extension possibilities

Integration English: Language and vocabulary development using the themes of The Toy Shop, Shopping, Christmas. Gaeilge: Na téamaí: Ag Siopadóireacht, Caitheamh Aimsire (m.sh breagáin), Ocaídí Speisialta (An Nollaig), Ag comhaireamh. STEM: Designing and making toys. Geography: Shops and shopping centres, play, local environments, towns and cities, people at work. History: toys and play in the past.

Let's strengthen Some children may benefit from extra practice at counting within 50 or 100 initially, and/or distinguishing between -ty and -teen numbers. Consult the Unit 7 Let's Strengthen Suggestions for Teachers.

Counting Collections Using various countable resources in the classroom, the children take a handful, count how many and record the total on their MWBs.

Estimation Station Fill a transparent container with an amount of small items between 100 and 200. Leave a box close by, where children can 'post' their estimates. After two or three days, ask a group to count the items and identify who had the closest estimate. The children can then set up the station again with more/less items or different items.

Review and Reflect Use the Prompt Questions Poster.

Days 2 and 3, Lesson 2

Counting Groups

Focus of learning (with Elements)

- Practises repeated addition and group or skip counting (U&C)
- Uses number lines, benchmark numbers (2s, 10s, 5s and 20s), and patterns to count forwards and backwards (A&PS)

Learning experiences

- D** Digital activity: Skip Counting in 2s, 10s, 5s and 20s
MAM Routine: Choral Counting
- C** Skip Counting in 2s, 10s, 5s and 20s
MAM Routine: Choral Counting
- D** Digital activity: The Toy Shop
MAM Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond, with Write-Hide-Show
- P C** Pupil's Book page 46: Counting Groups

Equipment

- Countable resources, such as buttons, lollipop sticks, counters, links, pegs, paper clips, paper fasteners, pieces of pasta, etc.
- Large empty container per group
- Counting aids, such as 100 squares, number lines, etc.

Maths language

- twos

Teaching tip

Counting large collections of objects is an essential learning experience, but it can be time-consuming. Therefore, this lesson has been allocated two days.

Warm-up

- D** Digital activity: Skip Counting in 2s, 5s, 10s and 20s **MAM Routine: Choral Counting**

(Day 2) **See it, then say it!** Depending on the needs of the children, you might wish to reinforce 2s, 5s and/

or 10s, before moving on to 20s. Play the PowerPoint presentations. The children count aloud along with the text/images. Ask them if they can spot any patterns. Repeat as required.



Let's deepen

Split the class into two (or more) groups. One group starts the count, and, upon a signal from the teacher, the other group takes over. Continue, moving from one group and back to the other. This encourages the children to concentrate and listen better.

C Skip Counting in 2s, 10s, 5s and 20s**MAM Routine: Choral Counting**

(Day 3) **See it, then say it!** Without revealing it to the children, decide to count in 2s, 10s, 5s or 20s. On the board, record the first five multiples. Pause and ask:

- What comes next? How do you know?
- What patterns do you spot?

Continue by adding the next terms underneath.

Teaching tip

Record the numbers as horizontal lines of 5 (or

10), so that patterns within the numbers are more noticeable (e.g. see image below). Use different colours to record and highlight the patterns that the children notice. Pause the count at strategic moments to encourage discussion and thinking.

**Let's deepen**

As the children become more confident and competent, challenge them further by starting on:

- A number other than the first term
- A suitable multiple and counting backwards
- A number between 100 and 200.

Main event**D Digital activity: The Toy Shop MAM Routines:****Notice & Wonder, with Think-Pair-Share; Reason & Respond, with Write-Hide-Show**

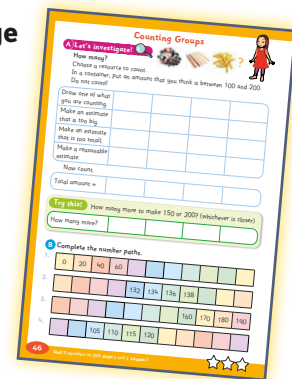
Display the poster and, using Think-Pair-Share, ask:

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

Note any 'wonderings' that could become the basis for a subsequent maths investigation.

Then ask the children to use Write-Hide-Show on their MWBs to respond to the following questions. Click to play or ask:

- How many packets of batteries are there?
- How many batteries is that? How do you know?
- How many packs of superheroes are there?
- How many superheroes is that? How do you know?
- How many packs of cars are there?
- How many cars is that? How do you know?
- How many packets of markers are there?
- How many markers is that? How do you know?
- How many jigsaw pieces in two boxes? How do you know?
- What other 'how many' questions could you ask?

P C Pupil's Book page 46: Counting Groups

Activity A: Let's investigate! Allow each group to choose a collection of countable resources to have at their table. Distribute a large empty container to each group. Say/ask:

- Pour/place into the empty container an amount of resources that you think is between 120 and 180.
- Draw the resource that you chose (in the first column).
- Write a reasonable estimate.
- Write an estimate that is too big.
- Write an estimate that is too small.

Let's strengthen

Some children may benefit from choosing an initial amount of resources that is less than 100.

When ready, ask the children to count their resources and write the number in the 'count' part of the table.

Try this! The children count orally from the number in the 'count' part of the table to 150 or 200 (whichever is closest).

Let's deepen

Try this! Challenge some children to count back from 200 to this number.

Let's deepen

Try this! Challenge some children to calculate how many more are needed to make 150 or 200 (whichever is closest).

Repeat the activity up to three times by rotating the collections of resources between groups.

Take note of the counting strategies being used. If the children are not using efficient strategies (e.g. making groups of 10, 5 or 20), prompt them to reconsider their strategy.

Teaching tip

In their maths journals, the children could use images/words to record what they investigated.

Optional consolidation and extension possibilities

Counting collections Set up containers or bags labelled A, B, C, D, etc. Add a collection of objects to each (e.g. A contains beads, B contains buttons, C contains paper clips). In pairs or small groups, the children take a collection, count it and record the amount in their copy or on their MWBs. After a set amount of time, the pairs/groups confer to compare the totals they got for each labelled collection.

Games Bank Play 'Eight Throws to 200'.



Story Read *Count on Pablo* by Barbara deRubertis, or listen to a reading at: edco.ie/gbue

Estimation Station Remind the children to submit estimates, count the items and/or set up a new station.

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

Open number line Working in pairs, the children use the top open number line on the back of their MWBs to write a set of multiples in order (e.g. 100, 102, 104, 106 ... 120). When all the multiples are written, the children recite them together forwards, and then backwards. Then Child A rubs out one of the multiples. The pair recite the multiples again, including the missing number. They repeat this until all the numerals that were written have been removed. They can also repeat this using a different set of multiples (e.g. in 5s or in 10s).

Review and Reflect Use the Prompt Questions Poster.

Day 4, Lesson 3

Representing Numbers

Focus of learning (with Elements)

- Represents numbers using different models, illustrations and number expressions (C)

Learning experiences

- D** Digital activity: Skip Counting in 2s, 10s, 5s and 20s
MAM Routine: Choral Counting
- D** Digital activity: Same But Different – Representing Numbers
MAM Routines: Reason & Respond, with Think-Pair-Share
- D** Digital activity: Representing 191 **MAM Routine: Would This Work?, with Build it; Sketch it; Write it**
- C** Concrete activity: Representing Three-digit Numbers
MAM Routine: Build it; Sketch it; Write it
- P** Pupil's Book page 47: Representing Numbers

Equipment

- Countable resources
- Base ten blocks (or Base Ten Blocks manipulative printable)
- Base ten money (i.e. €1, €10 and €100 denominations)
- Counting aids, such as 100 squares and number lines

Maths language

- There is no new maths language for this lesson.

Warm-up

D Digital activity: Skip Counting in 2s, 10s, 5s and 20s *MAM Routine: Choral Counting*

See it, then say it! Depending on the needs of the children, you might wish to reinforce 2s, 5s, 10s and/or 20s. Display the PowerPoint presentations. The children count aloud along with the text/images. Ask them if they can spot any patterns. Repeat as required.

or

D Digital activity: Same But Different - Representing Numbers *MAM Routines: Reason & Respond, with Think-Pair-Share*

Play the slideshow and, using Think-Pair-Share, ask the children to propose reasons for why the images are the same or why they are different.

Main event

D Digital activity: Representing 191
MAM Routine: Would This Work?, with Build it; Sketch it; Write it

Display the activity, which follows on from the Three-Act Task in Lesson 1. Ask the children to use Build it; Sketch it; Write it to demonstrate various ways to represent the number 191, before revealing the ways used by the programme characters. Prompt the children to identify if each representation is accurate, justify their reasoning, and if not correct, to suggest how the representation might be changed to make it correct.

C Concrete activity: Representing Three-digit Numbers

MAM Routine: Build it; Sketch it; Write it

In pairs/groups, ask the children to represent various numbers (from 100 to 200, including numbers with zero in the tens and/or ones place), using at least one mathematical model in each of the three categories below.



- Build it! Can you use classroom resources in the 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.

Optional: Following this task, create a 2-D and/or 3-D display for a particular number (e.g. 103), illustrating all the different ways to represent that number. This

display could be changed regularly to represent other numbers and could be incorporated with, or become, a Number of the Day activity.

Teaching tip

In their maths journals, the children could use images/words to record what they built, sketched or wrote.

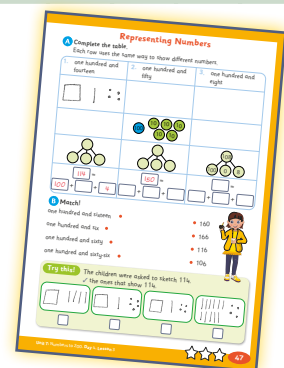
Let's strengthen

Some children may struggle with 'Write it' and should be allowed to build and/or sketch only. The Unit 7 Let's Strengthen PCM: Numbers to 200 could be used to reinforce this lesson.

Let's deepen

Challenge some children to express the number using word form and/or non-canonical arrangements (i.e. $150 + 15$ or $140 + 25$ for 165).

P Pupil's Book page 47: Representing Numbers



Optional consolidation and extension possibilities

Games Bank Play 'Eight Throws to 200'.



Story Read *100 Days of Cool* by Stuart J. Murphy, or listen to a reading at: edco.ie/7tu6. (This book already appeared in Unit 1.)

Number of the Day Select a number. Using Build it; Sketch it; Write it, ask the children to represent the number. Encourage the children to choose their own preferred way to do this. This can also be incorporated as part of the general Number Display.

Number Display Set up (or add to) a classroom Number Display. Include representations of numbers (e.g. Number of the Day), images of numbers sourced

in print media and online, as well as appropriate labels (see Maths Language Cards). The children could contribute samples of their own work from this lesson and label them.

Estimation Station Remind the children to submit estimates, count the items and/or set up a new station.

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

Review and Reflect Use the Prompt Questions Poster.

Day 5, Lesson 4

Hundreds, Tens and Ones

Focus of learning (with Elements)

- Demonstrates an ability to estimate various arrangements or models of numbers to 199 (U&C)
- Composes and decomposes the structure of 3-digit whole numbers up to at least 199 (U&C)
- Identifies place value in three-digit whole numbers up to at least 199, including zero as a placeholder (U&C)

Learning experiences

- D** Digital activity: How Much Is Here? (3)
MAM Routines: Quick Images, with Write-Hide-Show
- D** Digital activity: Collector Cards (1)
MAM Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond, with Write-Hide-Show
- D** **C** Digital activity: Hundreds, Tens and Ones
MAM Routine: Would This Work?
- C** Concrete activity: Representing Three-digit Numbers
MAM Routine: Build it; Sketch it; Write it
- P** Pupil's Book page 48: Hundreds, Tens and Ones

Equipment

- Countable resources
- Base ten blocks
- Base ten money
- Counting aids such as 100 squares and number lines
- Place value counters (pupil pack)
- Place value arrow cards (pupil pack)

Maths language

- ones, tens, hundreds, one-digit number, two-digit number, three-digit number, 'teens', place value

Warm-up



D **Digital activity: How Much Is Here? (3)** **MAM Routines: Quick Images, with Write-Hide-Show**

Briefly reveal and then hide the image(s). Ask the children to record the total on their MWBs. Next, ask them to show their answers, and record these on the board. Be careful not to confirm the correct answer. Ask:

- Are there any answers that are unreasonable/not likely because they don't make sense? Which ones? Why do you think this?
- Which answer do you agree with? Explain the strategy you used to get your answer.
- Did anybody use a different strategy?

When there are no new strategies to discuss, reveal the image again and confirm the answer, using a variety of possible strategies.

Teaching tip

There are 10 slides in this activity. It is not necessary or advised to do all of these. Choose a selection that best suits the ability of your class.

Main event

D Digital activity: Collector Cards (1)

MAM Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond, with Write-Hide-Show

The characters are organising their collector cards into albums. Display the poster and, using Think-Pair-Share, ask:

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

Note any 'wonderings' that could become the basis for a subsequent maths investigation.

Then, using Write-Hide Show to collect feedback, ask or click to play the following questions:

- How many cards does each page hold?
- Each album has ten pages. How many cards does each album hold?
- Mia has 172 cards. How many full albums of 100 is that?
- How many full pages of ten is that? (If the children correctly answer 7 tens, ask them to also consider if there is an alternative correct answer, such as 17 pages of tens, since there are 7 tens and 10 tens.)
- How many ones is that? (If the children correctly answer 2 ones, ask them also to consider if there is an alternative correct answer, such as there are 172 ones altogether.)
- Jay has 160 cards. How many full albums of 100 is that?
- How many full pages of ten is that?
- How many ones is that?
- Dara has 118 cards. How many hundreds, how many tens and how many ones is that?
- Lexi has 109 cards. How many hundreds, how many tens and how many ones is that?

D C Digital activity: Hundreds, Tens and Ones

MAM Routine: Would This Work?, with Build it; Sketch it; Write it

Display the activity and begin by asking the children to show 118 as hundreds, tens and ones, in various ways (e.g. they can use concrete materials and/or write on their MWBs). Then play the activity, in which

the characters show a variety of ways to make 118. Do they work?

C Concrete activity: Representing Three-digit Numbers

MAM Routine: Build it; Sketch it; Write it

Distribute place value counters and place value arrow cards to each pair/group (see pupil pack).

Ask the children to represent various numbers (from 100 to 200, including numbers with zero e.g. 160, 109 etc.)

using at least one mathematical model in each of the following three categories:

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



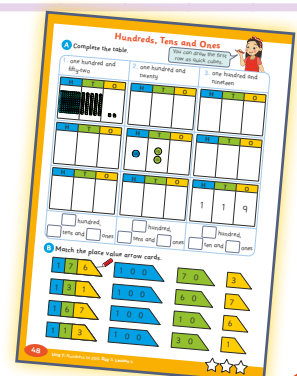
Teaching tip

In their maths journals, the children could use images/words to record what they built, sketched or wrote.

Let's strengthen

Some children may not fully grasp the concept of tens and ones, i.e. that ten ones = one ten. For example, for 63, when using a place value grid, the child may write 60 tens and 3 ones; when using branching bonds, the child may write 6 + 3. Place value arrow cards (along with concrete materials) could be very useful in this case. For more practice activities, see the the Unit 7 Let's Strengthen PCM: Numbers to 200 and/or Unit 7 Let's Strengthen Suggestions for Teachers.

P Pupil's Book page 48: Hundreds, Tens and Ones



Optional consolidation and extension possibilities

Games Bank Play 'Dip, Dip!' and include the 100s and 200s strips in the bag along with the tens strips.

Story Read *The Case of the Missing Birthday Party* by Joanne Rocklin.

Estimation Station Remind the children to submit estimates, count the items and/or set up a new station.

Maths Eyes Can you think of other examples of items that come in packages of tens or hundreds?

Review and Reflect Use the Prompt Questions Poster.

Days 6 and 7, Lesson 5

Comparing and Ordering Numbers

Focus of learning (with Elements)

- Compares two 3-digit numbers up to at least 199, and represents the relationship between these numbers using symbols and language (e.g. $<$, $>$ and $=$) (U&C)
- Compares and records equivalent and non-equivalent sets up to 99 using $<$, $>$ and $=$ (C)(U&C)
- Orders 3-digit numbers up to at least 199 (R)

Learning experiences

- D** Digital activity: How Much Is Here? (4)
MAM Routines: Quick Images, with Write-Hide-Show
- D** Digital activity: Same But Different – Comparing Numbers
MAM Routines: Reason & Respond, with Think-Pair-Share
- D** Digital activity: Collector Cards (2)
MAM Routines: Reason & Respond, with Write-Hide-Show
- D** **C** Digital activity: Comparing Numbers
MAM Routine: Would This Work?, with Build it; Sketch it; Write it
- C** Games Bank: 'Win Big!'/ 'Less Is Best!'
- P** Pupil's Book page 49: Comparing and Ordering Numbers

Equipment

- Countable resources
- All available base ten materials
- 0–9 spinner (pupil pack)

Maths language

- compare, order, less than, fewer, smaller, less, ($<$), greater than, larger, bigger, more, ($>$), equal to, ($=$), least, fewest, fewer, smallest, smaller, greatest, greater, most, largest, larger

Warm-up

Choose to do one or both activities over the two days.

- D** **Digital activity: How Much Is Here? (4)** **MAM Routines: Quick Images, with Write-Hide-Show**

Briefly reveal and then hide the image(s). Ask the children to record the total on their MWBs. Next, ask them to show their answers, and record these on the board. Be careful not to confirm the correct answer. Ask:

- Are there any answers that are unreasonable/not likely because they don't make sense? Which ones? Why do you think this?
- Which answer do you agree with? Explain the strategy you used to get your answer.
- Did anybody use a different strategy?

When there are no new strategies to discuss, reveal the image again and confirm the answer, using a variety of possible strategies.

D Digital activity: Same But Different – Comparing Numbers *MAM Routines: Reason & Respond, with Think-Pair-Share*

Play the slideshow and, using Think-Pair-Share, ask the children to propose reasons for why the images

are the same and why they are different.

Ask the children to suggest what symbol could be used to compare the relationship between the two representations.



Main event

D Digital activity: Collector Cards (2) *MAM Routines: Reason & Respond, with Write-Hide-Show*

Display the slideshow. The children use Write-Hide-Show on their MWBs to respond to the questions below. Ask them to give reasons for their responses.



- Who has more cards: Mia or Jay? How can you prove it?
- Who has more cards: Dara or Lexi? How can you prove it?
- Put the numbers in order starting with the smallest. How can you prove it?

D C Digital activity: Comparing Numbers *MAM Routine: Would This Work?, with Build it; Sketch it; Write it*

Display the activity. Begin by asking the children to use Build it; Sketch it; Write it to model and solve the question:

- Which is greater: 87 or 108?

Allow time for the children to share how they did it. Then, reveal how the programme characters show a variety of ways to compare the numbers. Do their strategies work?

Choose other random numbers, up to 200. Ask the children to use *greater than/less than/equals* and/or their corresponding symbols to record and communicate the relationship between the numbers, and to use concrete materials or sketches to justify their explanations.

Let's strengthen

Some children might benefit from revising the greater than/less than/equals symbols, and their purpose:

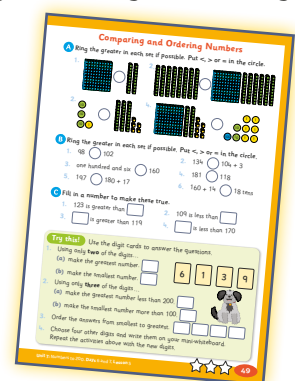
- What do these symbols mean?
- How could they be used to show how these amounts compare to each other?

Optional: To increase interest and engagement, add a competitive element! Organise the class into two groups: A and B. Use a random number generator (search online for 'random number generator') to select a number for the A players and another for the B players (suggested range of 70–200). Each team/group uses concrete materials or pictures to represent their allocated number. Encourage the children to use appropriate language and symbols (<, >, =) to explain the relationship between the numbers.

C Games Bank: 'Win Big!'/ 'Less Is Best!'

Play one or both games. Variation: Spin the spinner tree times. If a one is spun, this must be used as a hundred. If a one is not spun, the player chooses two of the numbers spun to make the biggest/smallest possible number, depending on which game is being played.

P Pupil's Book page 49: Comparing and Ordering Numbers



Optional consolidation and extension possibilities

Maths Eyes Use catalogues and flyers to find toys and games with up to 200 pieces/parts. Cut out the images and use them to compare and order the numbers.

Story Read *More or Less* by Stuart J. Murphy, or listen to a reading at: edco.ie/f7t2

Games Bank Play 'Place Value Domino Draw'.

Estimation Station Remind the children to submit estimates, count the items and/or set up a new station.

Review and Reflect Use the Prompt Questions Poster. The Unit 7 Let's Deepen PCM: Numbers to 200 can be completed at any stage after this lesson.

Day 8, Lesson 6

Estimating Numbers

Focus of learning (with Elements)

- Rounds numbers to the nearest ten and/or hundred (R)

Learning experiences

- C** Board activity: $>$, $<$ or $=$?
MAM Routines: Reason & Respond, with Write-Hide-Show
- D** Digital activity: Estimating
MAM Routines: Concept Cartoon, with Think-Pair-Share
- D** Animation: Rounding Numbers **MAM Routine: Write-Hide-Show**
- C** Concrete activity: Rounding with Number Lines
MAM Routine: I Do, We Do, You Do
- P** Pupil's Book page 50: Estimating Numbers

Equipment

- Counting aids, such as 100 squares, number lines, numeral rolls, measuring tapes or metre sticks

Maths language

- nearly, roughly, close to, about the same as, just over, just under, exact, exactly, round to the nearest ten

Warm-up

- C** **Board activity: $>$, $<$ or $=$? MAM Routines: Reason & Respond, with Write-Hide-Show**

Choose two random numbers from 70–200 (search online for 'random number generator'). Write these

numbers on the board, with a box in between, e.g. 114 91. The children rewrite what you have written and also insert the correct symbol. Ask them to provide reasons/models to prove their answer.

Main event

- D** **Digital activity: Estimating MAM Routines: Concept Cartoon, with Think-Pair-Share**

Display the image, which shows the characters estimating how many batteries there are altogether. Click to hear each character's thoughts. Then, using Think-Pair-Share, ask:

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

- D** **Animation: Rounding Numbers MAM Routine: Write-Hide-Show**

Play the animation. (This animation already appeared in Unit 1.) The children use Write-Hide-Show on their MWBs to respond to the questions. Say/ask:

- Explain how you could use this strategy to round 134 to the nearest ten. You can use your MWBs to demonstrate.



- Explain how you could use this strategy to round 134 to the nearest hundred. You can use your MWBs to demonstrate.
- Explain how you could use this strategy to round 145 to the nearest ten. You can use your MWBs to demonstrate.
- Explain how you could use this strategy to round 145 to the nearest hundred. You can use your MWBs to demonstrate.
- Can you think of another strategy to round numbers to the nearest ten or hundred?

Do the children recognise that 145 is an equal distance from both its neighbouring tens? Can they suggest a reason for rounding it to 140? Can they suggest a reason for rounding it to 150?

Teaching tip

If approximating 145, it is perfectly legitimate to round it to 140 or 150, as it is an equal distance from both. Traditionally, for any number

equidistant from both rounding options, an arbitrary convention has developed to round the number to the greater of the two, even though in consistently doing so, this will introduce a greater margin of error between the approximation and the actual answer. Help the children to realise that, in real-life situations, either option can be chosen to suit the numbers involved.

C Concrete activity: Rounding with Number Lines
MAM Routine: I Do, We Do, You Do

Choose a random number from 100 to 200 (ask a child to suggest one, or use a random number generator). Using I Do, We Do, You Do, demonstrate how to use the open number lines on the MWBs to round the number to the nearest ten. Next, choose a random number from 0 to 200. Using the same strategy as before, the children identify the nearest ten and the nearest hundred. Repeat as required, gradually reducing support until the children can do it independently.

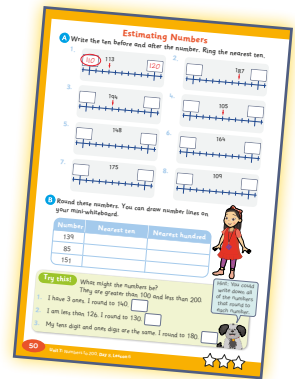
Let's strengthen

Some children may benefit from the additional support of a more detailed 0–200 number line (e.g. a numeral roll, measuring tape or metre stick).

Let's deepen

Challenge some children to calculate the answer by mentally visualising the number line and not actually sketching it.

P Pupil's Book page 50: Estimating Numbers



Optional consolidation and extension possibilities

Strategy Wall Add the Calculation Strategy Wall Card for Rounding to the Nearest Ten to the class Strategy Wall. Refer to it throughout this and subsequent units. The children could also add their own sketches of this strategy, both to the Strategy Wall and in their maths journals.

Games Bank Choose a game to play.

Story Read *How Many Seeds in a Pumpkin?* by Margaret McNamara. (N.B. While this book

incorporates the numbers 316, 340 and 350, the concepts themselves are not likely to be beyond the understanding of the children.) A reading of the story is available at: edco.ie/9b85

Estimation Station Remind the children to submit estimates, count the items and/or set up a new station.

Review and Reflect Use the Prompt Questions Poster.

Day 9, Lesson 7

Number Hunts

Focus of learning (with Elements)

- Identifies and recognises numbers up to 200 in the environment (U&C)

Learning experiences

- D** Digital activity: What Am I? (Numbers to 200)
MAM Routines: Reason & Respond, with Write-Hide-Show
- C** Concrete activity: Number Hunt in the Classroom
MAM Routine: Write-Hide-Show
- C** Concrete activity: Number Hunt in a Toy Catalogue
- P C** Pupil's Book page 51: Number Hunts

Equipment

- Selection of toy catalogues, brochures and flyers
- Children's own books
- Various print materials, such as newspapers, magazines and brochures

Maths language

- There is no new maths language for this lesson.

Warm-up



- D Digital activity: What Am I? (Numbers to 200)**
MAM Routines: Reason & Respond, with Write-Hide-Show

several clues to a number. They use Write-Hide-Show on their MWBs to respond to the instructions/questions. Then click to reveal the number.

Play the slideshow, in which the children are given

Main event

- C Concrete activity: Number Hunt in the Classroom**
MAM Routine: Write-Hide-Show

In pairs, ask the children to find a two-digit number and a three-digit number, both starting with the numeral 1, in the classroom. They record the two numbers on their MWBs. While they are hunting, draw a line the full length of the board, mark 0 at the start, 100 in the middle and 200 at the end. After sufficient time, ask/say:



- What number(s) did you find?
- Where did you find them?
- What was the meaning or purpose of these number(s)?
- Show me on the number line where these numbers would be located.

After all the numbers have been collected, ask:

- Was it easier to find a two-digit or a three-digit number? Why do you think this is so?
- To what multiple of ten would most of these numbers round?

- C Concrete activity: Number Hunt in a Toy Catalogue**

Using multiple copies of the same toy catalogue, the children work in pairs or small groups and race to be first to open the catalogue on the page number you call out (ranging from 50–200). Ask:

- What is the first word/sentence/picture on the page?

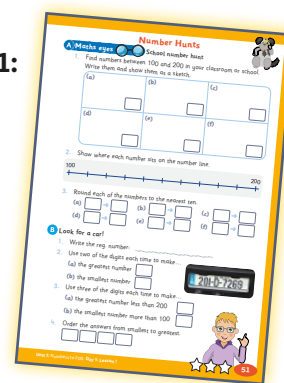
Teaching tip

If there are not enough toy catalogues, do this activity using any other book for which every child has a copy (e.g. a reader, textbook or dictionary).

Follow-up: Using the toy catalogues, the children find numbers up to 200, in standard or in word form (e.g.

the number of pieces in a jigsaw puzzle, numbers on a set of blocks). The children cut out the numbers, order them from smallest to greatest, and create a display.

- P C Pupil's Book page 51: Number Hunts**



Teaching tip

The purpose of this page is to encourage the children to 'switch on their Maths Eyes' and become more aware of the numbers in their environment. In advance, check out the environment to ensure there are actual numbers to be seen (on doors, car parks, signposts, etc.). If there are not many, it may be useful to add some! You could also enlist the help of other teachers and/or older children when working outside with the children. If it is not suitable to find a car registration plate, alternatively display a registration plate on the IWB (perhaps your own car) and/or ask the children to find out the registration number of a family member's car. If working in a multi-class situation, all the children could participate if they are organised into mixed class groupings, where the 2nd Class children, using their Pupil's Books, are the scribes for their group. Depending on the ability of the group as a whole, it may be necessary to differentiate the task (by outcome, by range of numbers available, etc.).

Optional consolidation and extension possibilities



Story Read *One Hundred Hungry Ants* by Elinor J. Pinczes, or listen to a reading at: edco.ie/xkv6. (This book already appeared in Unit 1.)

Games Bank Choose a game to play.

Estimation Station Remind the children to submit estimates, count the items and/or set up a new station.

Review and Reflect Use the Prompt Questions Poster.

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.

| | |
|--|--|
| <p>Let's talk!</p> <p>Use Think-Pair-Share to review the unit. The children record what they know in their maths journals (e.g. using a concept map).</p> | <p>Let's create!</p> <p>Create a 2-D and/or 3-D display illustrating all the different ways that numbers can be represented. Include examples of two-digit numbers found in print or online media.</p> <p>Estimation Stations: Each group of children creates their own Estimation Station for the other groups. When complete, each group rotates to the others to leave their estimate. Afterwards, count to reveal the totals.</p> |
| <p>Let's play!</p> <p>Play 'Eight Throws to 200', 'Dip, Dip!', 'Win Big!' or 'Less is Best!'</p> | <p>Maths strategies and models</p> <p>Using various numbers up to 200 (of teacher's or children's choosing), ask the children to show how they can model/represent numbers. This could include: concrete materials, place value counters, place value arrow cards, number lines/paths, base ten blocks, place value grids, branching bonds, etc.</p> <p>Ask the children to explain how they estimated and/or rounded numbers. Which strategies and models did they prefer and why?</p> |

| | |
|--|--|
| Progress Assessment Booklet | Maths eyes |
| Complete Questions 26–31 on pages 15–16. Alternatively, these can be left to do as part of a bigger review during the next review week. | Go for a walk around the school. Ask: <ul style="list-style-type: none">● Where can you see examples of numbers up to 200? Take photos to record. Create a number trail specific to your school. You could use the images collected previously. Enlist children from the older classes to create a trail for the younger classes. |
| 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. | Select one of the Cognitively Challenging Tasks on the Unit 7 Let's Deepen PCM (this could be displayed on the class board) and encourage the children to work together in groups to model solutions for the task. Alternatively, each group could choose their own preferred task to solve. |

