Maths and Me: 1st Class – Short-Term Plan, Unit 12: Addition and Subtraction 3 (March Weeks 1&2)

Strand(s) > Strand Unit(s)	Number > Sets and Operations; Place Value and Base Ten; Numeration and Counting. Algebra > Patterns, Rules and Relationships; Expressions and Equations.
Learning Outcome(s)	Through appropriately playful and engaging learning experiences children should be able to select, make use of and represent a range of addition and subtraction 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; demonstrate proficiency in using and applying different counting strategies; identify and express relationships in patterns, including growing or shrinking shape patterns and number sequences; interpret the meaning of symbols or pictures in number sentences.

Lesson	Focus of Learning (with Elements)	CM	Learning Experiences	Assessment
1	**Adding without Renaming 1 (2-digit + 1-digit):** Adds within 100 including 2-digit + 1-digit, without renaming and introducing the column method (U&C); Tells the story of simple number sentences or expressions, verbally or using appropriate models (e.g. diagrams or concrete materials) (A&PS)		D C Reason & Respond L1–5, 7 D Write-Hide-Show L1 D C I Do, We Do, You Do L1, 5–6 D Notice & Wonder L2, 5, 7 D C Think-Pair-Share L2–5, 7 D C Build it; Sketch it; Write it L2–3, 7 D Give the Dog a Bone! L4 C Game: Stand Up, Sit Down L6 **Print resources** Pupil's Book pages 76–82 Home/School Links Book pages 28–29 PCMs 5, 35, 46	**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 page 22
2	**Subtracting without Renaming 1 (2-digit – 1-digit):** Subtracts numbers within 99 without renaming (U&C); Estimates differences within 99 (R)			
3	**Adding without Renaming 2 (2-digit + 2-digit):** Adds within 100 including 2-digit + 2-digit (U&C); Estimates totals within 99, (R)			
4	**Subtracting without Renaming 2 (2-digit – 2-digit):** Subtracts numbers within 99, without renaming (U&C)			
5	**Renaming Ones as Tens:** Adds within 100 renaming ones as tens (U&C)			
6	**Adding with Renaming 1 (2-digit + 1-digit):** Adds within 100 including 2-digit + 1-digit, with renaming (U&C)			
7	**Adding with Renaming 2 (2-digit + 2-digit):** Adds within 100 including 2-digit + 2-digit, with renaming (U&C)			
8	**Review and Reflect:** Reviews and reflects on learning (U&C)			

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

Additional information for planning

Progression Continua	See '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 12 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 12 Let's Strengthen Suggestions for Teachers. (These address the Common Misconceptions and Difficulties listed below.) • See Unit 12 Let's Strengthen PCM. • See Unit 12 Let's Deepen PCM.
Integration	See individual lesson plans.

Background and rationale

- This is a two-week block of content located in March. This unit allows for lots of real-life, indoor and outdoor teaching and learning, including plenty of scope for integration with other curricular areas such as Science, Language and the Visual Arts.
- This unit follows on from those that cover numbers to 100 and pattern.
- In Addition and Subtraction 1, the children built a good foundational knowledge of various strategies, including: number bonds of 10; the commutative property of addition; strategising with doubles and near doubles; and subtraction as take away. This was further strengthened in Addition and Subtraction 2 by introducing: fact families; adding and subtracting 10 and 9; subtraction as difference; and adding and subtracting multiples of 10. The children were also introduced to the column method. In Addition and Subtraction 3, that learning is incorporated and built upon as the children develop their knowledge and skills: adding a two-digit number to a two-digit number with renaming; and subtracting a one-digit number from a two-digit number. Subtraction (with renaming) will be introduced in Addition and Subtraction 4 and will be revisited in *Maths and Me* for 2nd Class.
- As in Addition and Subtraction 1 and 2, this unit is largely concerned with the strand unit of Sets and Operations, but includes learning experiences from Place Value and Base Ten, Numeration and Counting, Patterns, Rules and Relationships, and Expressions and Equations.
- Familiar models and representations, such as branching bonds, number lines (including open lines) and ten frames continue to be used, which inspires confidence and fluency. The emphasis is on conceptual knowledge rather than simply procedure, with constant prompting to explain and justify answers and approaches.
- The children continue to use a range of *MAM* Routines, including: Reason & Respond; Build it; Sketch it; Write it; and I Do, We Do, You Do, which inspires confidence in tackling new concepts. The emphasis is on mental calculation skills and confidence in exploring and determining the most efficient strategies.
- Again, consider incorporating a 1–2-minute counting practice (forwards, backwards, various starting points and/or intervals), within a range appropriate to your class as part of your daily routine, both within and outside of maths lessons (e.g. include counting sessions in the morning welcome, transitions between lessons, en route to the hall or yard, and while tidying up after breaks and/or to go home).

The theme of this unit is **Hello Spring**.

Common misconceptions and difficulties

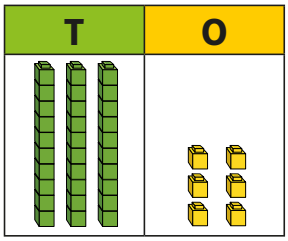
Asking children to explain and justify their approaches and strategies when engaging in addition and subtraction activities can reveal a lack of sufficient depth in their knowledge.

- The children may lack procedural fluency in counting and struggle with one-to-one correspondence.
- They may struggle with place value and therefore find the layout of column addition challenging.
- They may have insufficient fluency in number bonds of ten, doubles and near doubles and the commutative property of addition, thereby slowing their progress.
- They may struggle to recognise the parts and whole amount in operational relationships and get them confused.
- They may use an incorrect procedure when using the column method for addition. For example, they may:
  - Consider each digit as a separate number rather than as a representation of the number of tens or ones
  - Mistranslate a calculation from horizontal to vertical format and vice versa
  - Forget to rename
  - Reverse the digits when they rename (i.e. carry over the ones value, not the tens)
  - Rename correctly but forget to add new ten(s)
  - Rename when not required.

The Unit 12 Let's Strengthen Suggestions for Teachers address the common misconceptions and difficulties listed above.

Mathematical models and representations

- Assorted countable resources in the classroom, such as bears, links, beads, lollipop sticks, and counters
- Interlocking cubes
- Base ten blocks
- Quick cubes (pictorial representation of base ten blocks)
- Ten frames
- 100 squares
- Number lines (including open number lines)
- Number sentences
- Branching bonds (an example of part–whole models)
- Bar models
- Place value grids
- Column method
- Place Value Arrow Cards



Place value grid

Column method

Teaching tip

The following manipulative printables are available to support the unit: Number Path, Number Line, Branching Bonds, Base Ten Blocks, Bar Model, Place Value Grid, Ten Frames, and 100 Square. Click on the resources icon on the *Maths and Me* book cover on **edcolearning.ie**

Day 1, Lesson 1

Adding without Renaming 1 (2-digit + 1-digit)

Focus of learning (with Elements)

- Adds within 100 including 2-digit + 1-digit, without renaming and introducing the column method (U&C)
- Tells the story of simple number sentences or expressions, verbally or using appropriate models (e.g. diagrams or concrete materials) (A&PS)

Learning experiences

- (D) (C) Digital activity: Place Value Flash
  ***MAM* Routines: Reason & Respond, with Write-Hide-Show**
- (C) Concrete activity: Place Value
  ***MAM* Routine: I Do, We Do, You Do**
- (P) Pupil's Book page 76: Adding without Renaming 1

Equipment

- Countable resources, such as interlocking cubes, place value grids, counters, and base ten blocks
- Counting aids, such as 100 squares and number lines, including open number lines
- Place Value Arrow Cards
- 0–9 spinners

Maths language

- How many altogether?, digit, estimate, big, small, count, grid, tens, ones, add, take away, strategy, number sentence, sign, symbol, calculation, column

Warm-up

(D) (C) Digital activity: Place Value Flash
***MAM* Routines: Reason & Respond, with Write-Hide-Show**

Play the slideshow. Ask the children to model the number with base ten blocks and then write the number on the place value grid on their MWBs. After each response, ask individual children to justify/prove their answer. Ask/say:

- How did you count?
- How many tens did you count?
- How did you know it was a ten?
- Show me a ten.
- What digit did you write to show the tens?
- Where did you write it?
- How many ones did you count?
- How did you know which were the ones?
- Show me a one.
- What digit did you write to show the ones?
- Where did you write it?
- What number have you written down?
- Can you count to that number?
- Write that number on the number line on your MWB.
- Write the number before/after it.
- Find the number on the 100 square. What number is 10 more/less?
- Use your Place Value Arrow Cards to make the number.

Let's strengthen

Some children will benefit from having PCM 5 for 'Place Value Flash'.

Main event

(C) Concrete activity: Place Value
***MAM* Routine: I Do, We Do, You Do**

Display the Place Value Grid printable manipulative on the board. Use I Do, We Do, You Do to demonstrate how to use the place value grid to add a 2-digit and a 1-digit number. Use randomly generated numbers or those on page 76 of the Pupil's Book.

I Do:

Use both a place value grid and sketches of quick cubes as a visual support. Talk the children through the method (example: 24 + 5):

- I know 'T' is for Tens and 'O' is for Ones.
- I can show 24 by putting the 4 in the ones column and 2 in the tens column of the grid.
- I can show 5 by putting 5 in the ones column of the grid.
- To show it is adding, I put a + sign and I draw a line below the two numbers to separate the answer.
- I start with the ones first. I add all the ones together. 4 and 5 more is a near double – that's 9. I write it beneath the line and under the ones.
- Now for the tens. I have only 2 tens. I write it beneath the line and under the tens.
- I have added 24 and 5. I can read the answer below the line – that's 29.
- I can do this without the grid, simply using 'T' and 'O'.

Go through the routine again but without the place value grid.

We Do:

Complete another calculation of a 2-digit and a 1-digit number with the children working along with you.

You Do:

The children work independently to complete similar addition calculations, with and without the place value grid. Use the spinner to randomly generate each 2-digit and 1-digit number, specifying that the 2-digit number must be less than 90.

As the children work, conference with them to check for understanding of key language and concepts. Ask them to check their answers using both the open number line on their MWBs, the 100 square and/or ten frames and other models.

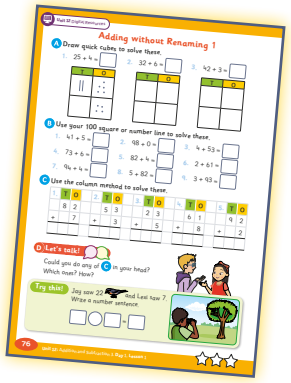
Let's strengthen

The children may benefit from using PCM 5 for the 'I Do, We Do, You Do' routine.

Let's deepen

Challenge the children to work with three addends.

Pupil's Book page 76: Adding without Renaming 1



Optional consolidation and extension possibilities

Counting in 1s See it, then say it! Using a visual support (e.g. a physical or digital number line) the children practise counting forwards and backwards in unison in 1s. Choose different starting and end points (e.g. 40–60). Ask the children if they can spot any patterns. Challenge them by removing/hiding some of the numbers until there are almost none left.

Board Games Play games that involve counting on (e.g. 'Snakes and Ladders').

Games Bank Play 'Pass it On' or 'Pass on Double'.

Review and Reflect Use the Prompt Questions Poster.

Addition Station Provide two containers of classroom resources (bears, shapes, counters, beads, etc.) to a maximum of 10 in one container and 20 in another. In one container, group the resources that share an attribute (e.g. all the red bears). The children take turns to 'grab' a handful of each and record the addition of the two amounts on a tens and one grid and/or an empty number line. Provide a third container for children who are ready to explore three addends.

Day 2, Lesson 2

Subtracting without Renaming 1 (2-digit – 1-digit)

Focus of learning (with Elements)

- Subtracts numbers within 99 without renaming (U&C)
- Estimates differences within 99 (R)

Learning experiences

- (D) (C) Video: Subtracting Without Renaming
  ***MAM* Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond, with Think-Pair-Share**
- (D) (C) Digital activity: The Spring Plant Sale
  ***MAM* Routines: Reason & Respond; Build it; Sketch it; Write it**
- (P) Pupil's Book page 77: Subtracting without Renaming 1

Equipment

- Countable resources, such as interlocking cubes, place value grids, place value counters, and base ten blocks
- Counting aids, such as 100 squares and number lines, including open number lines
- Transparent bag/container
- Clothes line and pegs
- Two dice
- PCM 5
- PCM 46

Maths language

- addition, subtraction, take away, how much?, cents, buy, more, less, pay

Warm-up

(D) **Video: Subtracting Without Renaming**
***MAM* Routines: Notice & Wonder, with Think-Pair-Share**

Play the video and, using Think-Pair-Share, ask:

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

Record the children's responses to both questions on the board. Allow the children the opportunity to respond to (agree/disagree with or query) others' responses, but do not confirm or reject any of the ideas. Note any 'wonderings' that could become the basis for a subsequent maths investigation.

Main event

(D) (C) **Video: Subtracting Without Renaming**
***MAM* Routines: Reason & Respond, with Think-Pair-Share**

The video shows 18 – 5. The children need place value grids (see PCM 5 or they can draw on their MWBs) and groupable interlocking cubes.

Play the video again. If not brought up by the children during Notice & Wonder, ask/say:

- Does this video show addition or subtraction? How do you know?
- What number did you first see in the video?
- How did that look using tens and ones and a grid? Show me using interlocking cubes.
- How many were to be taken away?
- What sign/symbol was used?
- Can you say the number sentence?
- How did that number sentence look written in a place value grid? Show me.
- Do I work with the tens first or the ones first?
- There are 8 ones in the number 18. How can I take away 5 ones?
- What strategy did you use? (Refer to the Calculation Strategy Wall Cards for Count Back to Subtract, and Count On to Subtract.)
- Show me using your grid and interlocking cubes.
- How can I write that in a place value grid?
- Where will I write the answer?

- Can you write the calculation again using the column method and without using a grid? (Refer to the Calculation Strategy Wall Card for the Column Method.)
- Choose a bar model, open number line, ten frames, branching bond or any other model and show the calculation again.

D Digital activity: The Spring Plant Sale
***MAM* Routine: Reason & Respond**

Display the poster, and ask or click to play the questions below. Ask the children to give reasons for their responses.

- Where are the children and what are they doing?
- How much is it to buy a crocus?
- How many cents to buy a daffodil?
- How many cents to buy a hyacinth?
- How many cents to buy a freesia?
- Is that more or less than (for example) 20c?
- What type of flower is the most expensive?
- If I had 15c, could I pay for one crocus?
- How much is it for two crocuses? Do you think that is a good deal/a bargain?
- If I had 13c, could I pay for two daffodils?

D C Digital activity: The Spring Plant Sale
***MAM* Routine: Build it; Sketch it; Write it**

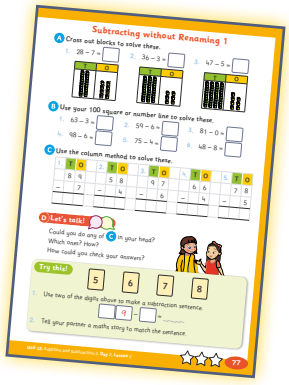
The children work in pairs or groups. Remind them that Lexi, Mia, Jay, Dara and Monty are at the plant sale and want to buy some spring plants.

Using Build it; Sketch it; Write it, the children have to work out how much each character has left, after paying for their plants. Give each pair a set of work cards (see PCM 46: The Spring Plant Sale). Display the poster price list on the IWB for the children to refer to. Ask/say:

- Build it! Can you use classroom resources to represent the numbers and work out how much money each character has left after they buy their plant?
- Sketch it! Can you represent your work as a sketch? Show us.
- Write it! Can you write it using the column method? Show us.

Estimation Station: Place some classroom resources of two different colours (e.g. bears) in a transparent bag or container. Ensure that, when the quantities are added together, renaming is required (e.g. 18 of one and 25 of another). (Alternatively, use two different types of classroom resources.) The children estimate how many of each and use the column method to show the estimated total. Set up a 'clothes line' nearby, where children can peg their estimated number sentences, using the column method. When the line is nearly full, ask a pair/group to count the items and identify the closest estimate. Set up the station again using a different number of items.

P Pupil's Book page 77: Subtracting without Renaming 1



Optional consolidation and extension possibilities

Subtraction Station Provide a container of classroom resources (bears, shapes, counters, beads, etc.) to a maximum of 20. The children take turns to 'grab' a handful and record the subtraction of that amount from the total in the container on a place value grid and/or an empty number line to 20.

Board Games Play backwards Snakes and Ladders, starting at 99 or 50.

Review and Reflect Use the Prompt Questions Poster.

Tens and Ones Station This station needs two dice and Place Value Arrow Cards. The children throw the two dice. The highest number is tens, the lowest is ones (or vice versa). The children make that number using the Place Value Arrow Cards. Can they organise the numbers from highest to lowest (or vice versa)?

Day 3, Lesson 3

Adding without Renaming 2 (2-digit + 2-digit)

Focus of learning (with Elements)

- Adds within 100 including 2-digit + 2-digit (U&C)
- Estimates totals within 99 (R)

Learning experiences

- (D) (C) Video: Adding Without Renaming
  ***MAM* Routines: Reason & Respond, with Think-Pair-Share**
- (C) Concrete activity: Stations
  ***MAM* Routine: Build it; Sketch it; Write it**
- (P) Pupil's Book page 78: Adding without Renaming 2

Equipment

- Countable resources, such as interlocking cubes, place value grids, and base ten blocks
- Counting aids, such as ten frames, 100 squares and number lines, including open number lines
- PCM 5

Maths language

- horizontal

Warm-up

(D) (C) Video: Adding Without Renaming

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

The video shows 14 + 13. The children need place value grids (see PCM 5 or they can draw on their MWBs) and groupable interlocking cubes. Play the video, then ask/say:

- Does this video show addition or subtraction? How do you know?
- What number did you first see in the video?
- How did that look using tens and ones and a grid? Show me using the interlocking cubes.
- How much more is added?
- How did that look using tens and ones and the grid? Show me.
- What sign/symbol was used?
- Can you say the number sentence?
- How did that number sentence look written in a place value grid? Show me.
- When adding, do I work with the tens first or the ones first?
- How many ones altogether? What strategy did you use? (Refer to the Calculation Strategy Wall Cards for Count On, Count On from Larger Number, and Turnaround Facts.)
- How many tens altogether?
- What strategy did you use?
- Where will I write the answer?
- Can you write the calculation again using the column method and without using a grid?
- What did you notice about the horizontal method?
- What do the lines tell you?
- Can you write the calculation again using partitioning? (Refer to the Calculation Strategy Wall Card for Adding and Subtracting using Partitioning.)
- Choose a bar model, empty number line, branching bond or any other model and show the calculation again.

Main event

C Concrete activity: Stations

***MAM* Routine: Build it; Sketch it; Write it**

At each station, the children use Build it; Sketch it; Write it to model their approach to adding a 2-digit number to a 2-digit number without renaming. The children need a place value grid (see PCM 5). They check their answers using the open number line on their MWBs, the 100 square and other models.

- Station 1: Place Value Grid
- Station 2: Interlocking Cubes
- Station 3: Base Ten Blocks
- Station 4: Ten Frames

Assessment Opportunity

The children work in groups/pairs. They have used manipulatives/models to show the addition of a 2-digit number to a 2-digit number, without renaming. Ask/say:

- Build it! Use the manipulatives and models to show how you would add the two numbers together.
- Sketch it! Draw it.
- Write it! Use words or number sentences.

Conference with the children as they work, checking for understanding of key language and concepts. Ask/say:

- What do you estimate your answer will be?
- Tell me an estimate that is too big. Why?
- Tell me an estimate that is too small. Why?
- How many ones in this number?
- How many tens in this number?
- When you add/put the ones/tens together, what strategy do you use? (Refer to the Calculation Strategy Wall Cards.)
- Can you write that using the column method?
- Can you write that as a horizontal calculation?
- Can you check that answer using the open number line on your MWB, the ten frames and other models?

Let's strengthen

In general, the children will benefit from extended access to concrete materials.

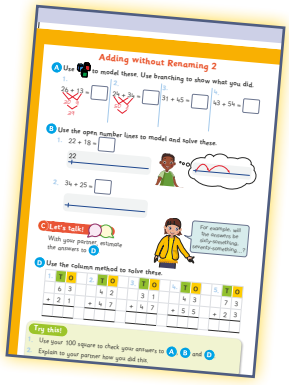
Let's deepen

Challenge the children to 'flip' the number sentences, demonstrating the commutative property of addition. Ask them to use the same numbers in a subtraction sentence.

Teaching tip

The children may have their own informal models and strategies for addition – accept and validate these where appropriate. If incorrect or very inefficient, show the child another model or strategy.

P Pupil's Book page 78: Adding without Renaming 2



Optional consolidation and extension possibilities

Maths Journals Ask the children to write or draw their response to this prompt: *Tell me everything you know about adding a 2-digit number to another 2-digit number.*

Home/School Links Book Page 28 can be completed at any stage after this lesson.

Estimation Station Fill two bags with manipulatives of two different colours, where the two amounts can be added together without renaming. For example: 22 in one bag and 17 in another. Tell the children that altogether there are 39. How many in each bag? Write an estimated number sentence. Set up a 'clothes line' nearby, where children can peg their estimated number sentences, using the column method. When the line is nearly full, ask a pair/group to count the items and identify the closest estimate.

Days 4 and 5, Lesson 4

Subtracting without Renaming 2 (2-digit – 2-digit)

Focus of learning (with Elements)

- Subtracts numbers within 99, without renaming (U&C)

Learning experiences

- (D) Digital activity: Give the Dog a Bone!
- (D) (C) Video: Subtracting Without Renaming
  ***MAM* Routines: Reason & Respond, with Think-Pair-Share**
- (D) (C) Digital activity: On the Farm in Spring
  ***MAM* Routine: Think-Pair-Share**
- (P) Pupil's Book page 79: Subtracting without Renaming 2

Equipment

- Countable resources, such as interlocking cubes, place value grids, place value counters, and base ten blocks
- Counting aids, such as ten frames, 100 squares and number lines, including open number lines
- PCM 35

Maths language

- biggest, smaller

Warm-up

(D) Digital activity: Give the Dog a Bone!

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 finds 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.
- Another child can then have a turn: the starting point is where the last turn finished (counting on).

Assessment Opportunity

Let's strengthen

The children may benefit from counting aids.

Main event

(D) (C) Video: Subtracting Without Renaming
***MAM* Routines: Reason & Respond, with Think-Pair-Share**

Revise the concept of subtraction (2-digit – 1-digit) with the children, using the video from Lesson 2. Play the video, then ask/say:

- Does the video show addition or subtraction?
- How many digits in the biggest number?
- How many digits in the smaller number?
- Which was subtracted first: the ones or the tens?
- Show me 19 – 7 using the place value grid, the open number line on your MWB, the ten frames or the 100 square.
- Write it using the column method or as a horizontal calculation.

Digital activity: On the Farm in Spring
***MAM* Routine: Think-Pair-Share**

Explain to the class that Dara, Mia, Lexi and Jay visited a local farm. Ask the children to look at the various scenes they encountered with their Maths Eyes. Begin by asking:

- Can we use the column method to do take away?

The children need base ten blocks and a place value grid. Click to play the audio questions for each slide and, using Think-Pair-Share, ask the children to respond to the questions.

In the activity below, the children choose and vary their models to include the place value grid, the open number line on their MWBs, the ten frames, and the 100 square. Ask/say:

- What if the farmer dropped 15 urns to the milking parlour? What is 19 – 15?
- Think: Show how this can be done.
- Pair: Turn and talk to your partner.
- Share: Share your ideas and methods with the class.

Once the various models have been discussed, model how the calculation may be recorded using the column and horizontal methods. Repeat the activity using the items in the other slides.

Let's strengthen

The children may prefer one model and one method of recording.

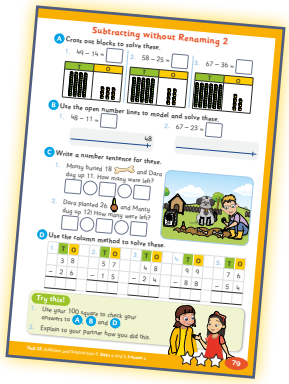
Let's deepen

The children may be ready to explore subtraction with renaming.

Teaching tip

As you work, take care to vary the vocabulary used to describe subtraction: take away, subtract, minus.

Pupil's Book page 79: Subtracting without Renaming 2



Optional consolidation and extension possibilities

Science The pattern of seasons; Life cycles.

Story Read *Rosie's Walk* by Pat Hutchins, or listen to a reading at: edco.ie/5hut

Free Play The children free-play with farm animals, etc.

Strategy Wall Add the Calculation Strategy Wall Card for Add and Subtract using Partitioning to the class Strategy Wall.

Day 6, Lesson 5

Renaming Ones as Tens

Focus of learning (with Elements)

- Adds within 100 renaming ones as tens (U&C)

Learning experiences

- (D) (C) Video: Working with Tens and Ones
  ***MAM* Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond**
- (C) Concrete activity: Renaming Ones as Tens
  ***MAM* Routine: I Do, We Do, You Do**
- (P) Pupil's Book page 80: Renaming Ones as Tens

Equipment

- Countable resources, such as interlocking cubes, place value grids, place value counters, and base ten blocks
- Counting aids, such as ten frames, 100 squares and number lines, including open number lines
- 0–9 spinners

Maths language

- rename

Warm-up

(D) Video: Working with Tens and Ones
***MAM* Routines: Notice & Wonder, with Think-Pair-Share**

Play the video to the end and, using Think-Pair-Share, ask:

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

Record the children's responses to both questions on the board. Allow the children the opportunity to respond to (agree/disagree with or query) others' responses, but do not confirm or reject any of the ideas. Note any 'wonderings' that could become the basis for a subsequent maths investigation.

Main event

(D) (C) Video: Working with Tens and Ones
***MAM* Routine: Reason & Respond**

Play the video again. Pause when the grid is shown but the interlocking cubes have not yet been added. Say/ask:

Assessment Opportunity

- Tell me how we might use this grid.
- What does the 'T' tell you?
- What does the 'O' tell you?
- Draw a grid like this on your MWB.

Continue to play the video, pausing when the 6 interlocking cubes have been added. Ask/say:

- How many interlocking cubes are here?
- Why are they placed under the 'O' and not under the 'T'?
- Place the same number of ones on your grid.

Continue to play the video, pausing when the 7 green and 10 yellow interlocking cubes have been added. Ask/say:

- How many more interlocking cubes were added?
- Place that number of interlocking cubes (in a different colour) on your grid.
- How many ones is that altogether?
- How did you find out?
- What strategy did you use?

Continue to play the video, pausing when the 10 is complete. Say/ask:

- Tell me what has happened now.
- Have I still got the same number of interlocking cubes?
- How are they arranged now? (Introduce the term *renaming* to the children.)

- Does that make them easier to count?
- How many are there altogether?
- Did you have to count all the ones in the ten?
- Show the same on your MWB.
- Can you write a number sentence for that?

C Concrete activity: Renaming Ones as Tens

***MAM* Routine: I Do, We Do, You Do**

Demonstrate to the children how to rename ones as tens. Use randomly generated numbers (2-digit + 1-digit, with renaming).

I Do:

Model the approach in a manner similar to the Reason & Respond activity, explaining your thinking process and using key language. Draw a place value grid and the base ten blocks on the IWB to support your approach.

We Do:

Work with the children to complete another calculation of a 1-digit + a 1-digit number, with renaming. The children use their MWBs to sketch the grids and tens and ones.

You Do:

The children work independently to complete another calculation. They can use their 0–9 spinners to generate numbers to add, by spinning twice. Conference with the children as they work, checking for understanding of key language and concepts.

Let's strengthen

For the 'You Do' stage, distribute PCM 47: Place Value Grid Cards. The children may then spin, collect the ones and place them on the appropriate place value grid card.

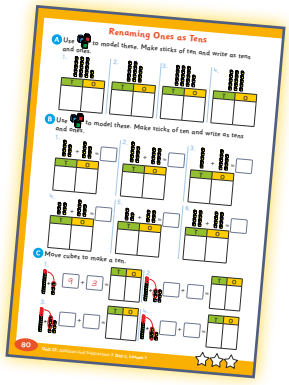
Let's deepen

Some children will be ready to work with three addends (spinning three times).

Teaching tip

Vary the vocabulary used to describe addition: and, add, plus. The children may have their own informal models and strategies for addition – accept and validate these where appropriate. If incorrect or very inefficient, show the child another model or strategy.

P Pupil's Book page 80: Renaming Ones as Tens



Optional consolidation and extension possibilities

Concept Map The children make a concept map of renaming ones as tens.

Day 7, Lesson 6

Adding with Renaming 1 (2-digit + 1-digit)

Focus of learning (with Elements)

- Adds within 100 including 2-digit + 1-digit, with renaming (U&C)

Learning experiences

- C Game: Stand Up, Sit Down
- D C Digital activity: Spring in the School Garden
  MAM **Routine: I Do, We Do, You Do**
- P Pupil's Book page 81: Adding with Renaming 1

Equipment

- Countable resources, such as interlocking cubes, place value grids, place value counters, and base ten blocks
- Counting aids, such as ten frames, 100 squares and number lines, including open number lines

Maths language

- There is no new maths language for this lesson.

Warm-up

C Game: Stand Up, Sit Down

Play 1: Ask the children to stand. Tell them you are going to count (e.g. to 50) but you may miss a number in the counting pattern. If they think you have, then they should sit. Ask, 'What mistake did I make?' Count forwards and backwards, use skip counting in 2s, 5s and 10s. If confident, a child could lead this activity for the whole class or in groups.

Play 2: Write a number of your choosing on your MWB and ask the children to do the same. (Set a maximum number, e.g. 50 or 100.) Ask the children to stand. Tell them how many ones your number has. Any child who does not have that value in ones sits down. Tell them how many tens you have. There can be more than one winner and the children can also lead this activity.

Let's strengthen

The children may benefit from using a counting aid.

Main event

D C Digital activity: Spring in the School Garden

MAM **Routine: I Do, We Do, You Do**

Play the slideshow from start to finish. Ask:

- Where are the children?
- What signs of spring do you see in the school garden?

Display Slide 1. Tell the children that Dara and Mia want to build another large teepee and another small one. Ask:

- How many canes in the large teepee? (17)
- How many in the small teepee? (7)
- How many is that altogether?

Some children will readily know the answer. Reiterate that how you arrive at an answer is also important, and that you will model how to do it using tens and ones.

I Do:

Draw a place value grid on the IWB. Tell the children that you will show the 17 canes in the large teepee, using 1 ten and 7 ones. Ask:

- What number am I showing here?
- Why have I used 1 ten and 7 ones?
- Which digit shows the tens/ones?

Show 17 in tens and ones on your grid. Remind the children that Dara and Mia want to build another large and another small teepee. So far, you have shown the 17 canes for the large one. Now, represent the 7 canes for the smaller one, by adding 7 ones onto

the grid. Tell them you are using a different colour to help. Ask/say:

- What number do these ones represent?
- Why did I put them in the ones column?
- Show 7 more ones on your grid.
- How will I find out how many altogether?
- Can I rename ones and make a ten?

Cross out the 7 ones and draw them into the tens column. Cross out 3 of the ones from 17 and draw them into the tens column, building a ten. Tell the children that you have renamed the ones to make a ten. Ask/say:

- Now, how many ones are there?
- Write the number of ones below the grid.
- Let's look at the tens. How many tens have I?
- Show how this is done on your grid.

Write the number of tens below the grid. Go over the procedure again. Say:

- I wanted to find out how many canes altogether.
- I added the ones first.
- I could rename 10 ones as a ten and I put it in the tens column.
- I counted the ones again and wrote the number here. (Indicate where 4 is written.)
- Then I counted the tens and wrote the numbers here. (Indicate where 2 is written.)
- So, when I add 17 and 7, my answer is 24 – 2 tens and 4 ones.

We Do:

Display Slide 2. Follow the routine, as used for Slide 1, for how many birds altogether.

You Do:

The children follow the same routine to answer the questions below for the remaining slides:

Assessment Opportunity

- How many carrots altogether growing in the school garden? (12 + 9)
- How many daffodils and tulips altogether in the flower bed? (19 + 7)
- How many bees and butterflies can you see altogether? (14 + 8)
- How many spades and brushes can you see altogether? (19 + 8)

As they work, conference with the children and challenge them to show their work using base ten blocks and/or using the column method, writing a number sentence with and without partitioning. Ask/say:

- Tell me about the place value grid. How do you use it?
- What number have you shown here?
- How many tens? How many ones?
- Which will you add first: the ones or the tens?
- When added, how many ones are there altogether?
- Can you rename and make a ten?
- Where will you put the ten you made?
- Tell me about the column method for adding: Where do the ones go? Where do the tens go? Where does the answer go?
- Tell me about the horizontal method. Draw a line to show me which digits you are working with.
- Show me that using the open number line on your MWB, the ten frames, and other models.

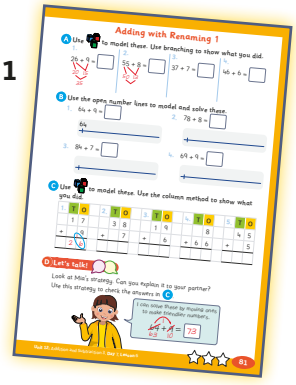
Let's strengthen

In general, the children will benefit from extended access to concrete materials.

Let's deepen

The children may be ready to draw their own place value grid, rather than using a pre-prepared one. They may also be ready to try adding three addends (2-digit + 1-digit + 1-digit).

P Pupil's Book page 81: Adding with Renaming 1



Optional consolidation and extension possibilities

Estimation Station Place classroom manipulatives (two colours) into a transparent bag/container: a larger amount of one colour to be expressed as tens and ones, and a smaller amount of the other colour as ones only. When adding together, renaming will be required (e.g. 12 of one colour and 9 of another). Set up a little 'clothes line' nearby, where children can peg their estimated number sentences, using the column method. When the line is nearly full, ask a pair/group to count the items and identify the closest estimate. Set up the station again using a different number of items.

Review and Reflect Use the Prompt Questions Poster.

Days 8 and 9, Lesson 7

Adding with Renaming 2 (2-digit + 2-digit)

Focus of learning (with Elements)

- Adds within 100 including 2-digit + 2-digit, with renaming (U&C)

Learning experiences

- (D) (C) Digital activity: Favourite Outdoor Activities in Spring ***MAM* Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond, with Think-Pair-Share**
- (C) Concrete activity: Finding Totals ***MAM* Routine: Build it; Sketch it; Write it**
- (P) Pupil's Book page 82: Adding with Renaming 2

Equipment

- Countable resources, such as interlocking cubes, place value grids, place value counters, and base ten blocks
- Counting aids, such as ten frames, 100 squares and number lines, including open number lines
- PCM 5
- PCM 35

Maths language

- There is no new maths language for this lesson.

Warm-up

(D) **Digital activity: Favourite Outdoor Activities in Spring *MAM* Routines: Notice & Wonder, with Think-Pair-Share**

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

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

Record the children's responses to both questions on the board. Allow the children the opportunity to respond to (agree/disagree with or query) others' responses, but do not confirm or reject any of the ideas. Note any 'wonderings' that could become the basis for a subsequent maths investigation.

Main event

(D) (C) **Digital activity: Favourite Outdoor Activities in Spring *MAM* Routines: Reason & Respond, with Think-Pair-Share**

The children need place value grids (see PCM 5), 100 squares (see PCM 35) and base ten materials. Display the poster. If not already suggested by the children, and ensuring that they can justify their answers, click to play or ask/say:

Assessment Opportunity

- How many children like cycling and football?
- Work with your partner to show the answer with a model of your choosing.
- Share your answer with the class. Explain how you got that answer.
- How many children like tennis and running?
- Work with your partner to show the answer with a model of your choosing. (The children record

the answer in their preferred way – column or horizontal method with partitioning.)

- Share your answer with the class. Explain how you got that answer.
- How many children like skipping and tennis?
- Does your answer look reasonable?
- What strategies did you use?
- Is there another strategy you could use?

Repeat, using Think-Pair-Share, for cycling and running (2-digit + 1-digit, with renaming). If your class would benefit, continue with other examples of 2-digit + 1-digit, with renaming.

C Concrete activity: Finding Totals
***MAM* Routine: Build it; Sketch it; Write it**

The children work in pairs or small groups to discover totals for two other activities (e.g. football and skipping).

- Build it! Choose models to represent and add the numbers.
- Sketch it! Represent the numbers and total in a sketch.
- Write it! Write the calculation using the horizonal method with branching, and the column method.

As the children work, conference with them and ask:

- Which did you add first: ones or tens?
- Did you rename ones as a ten?
- What did you do with the renamed ten?
- How did you show that in the written calculation?
- How did you get that number of tens altogether?
- Can you also show this calculation on the open number line on your MWB, the ten frames and other models?

Let's strengthen

- In the main event of 'Build Iit; Sketch it; Write it' some children will prefer to just 'Build it' and 'Write it', or 'Build it' and 'Sketch it'.
- Provide some children with alternative numbers to work with as they may not be ready yet for renaming or working with larger numbers.

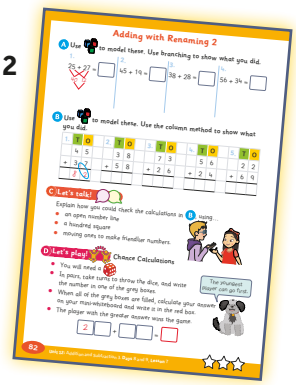
Let's deepen

The children may be ready to work with three addends.

Teaching tip

The children may have their own informal models and strategies for addition – accept and validate these where appropriate. If incorrect or very inefficient, show the child another model or strategy.

P Pupil's Book page 82: Adding with Renaming 2



Optional consolidation and extension possibilities

Investigation Station The children undertake their own data investigations among their classmates. Provide blank graphs for the children to work with.

Home/School Links Book Page 29 can be completed at any stage after this lesson.

Let's Deepen Use the Unit 12 Let's Deepen PCM.

Headline Stories 16 children cycled on Monday, and some cycled on Tuesday too. In a class, some children liked skipping, but more liked running. Altogether, more than 36 children liked tennis and football.

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.

Let's talk!	Let's play!
Review and Reflect Poster: Use Think-Pair-Share alongside the prompt questions to review the unit.	Choose from a variety of games in the Games Bank: • 'Take 2' • 'Number Path Take Away' • 'Difference Snap' • 'Doubles Snap'
Maths language	**Maths strategies and models**
Ask the children to explain the following terms (perhaps using examples or drawings on their MWBs): tens, ones, grid, column, horizontal, branching, rename. Use the Unit 12 Maths Language Cards to revise key terms. For example: If the image and text are cut apart, can the children match them? If not completed already, complete the My Maths Fact File on pages 120–122 of the Pupil's Book.	Ask the children to give examples of the strategies and models they used in this unit (e.g. grid, tens and ones, empty number line, 100 square, ten frames, column method, horizontal method, branching). Which strategies and models did they prefer and why? Do the children have any models that they came up with themselves?
Progress Assessment Booklet	**Let's create!**
Complete Questions 45–49 on page 22. Alternatively, these can be left to do as part of a bigger review during the next review week.	The children work in pairs or small groups to create posters showing all the different concrete materials, strategies and models they used in this unit. They should include examples of addition and subtraction calculations.
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 12 Let's Strengthen PCM. Consult the Unit 12 Let's Strengthen Suggestions for Teachers.	Use the Unit 12 Let's Deepen PCM.

Notes