Unit 19: Addition and Subtraction 4 (June: Week 2)

Maths and Me: 1st Class – Short-Term Plan, Unit 19: Addition and Subtraction 4 (June: Week 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	**Renaming Tens as Ones:** Decomposes the structure of 2-digit whole numbers, up to at least 99 (U&C)		**D** Reason & Respond L1–3 **D** Think-Pair-Share L1–3 **C** I Do, We Do, You Do L1 **D** Notice & Wonder L2–3 **D** **C** Build it; Sketch it; Write it L2–3 **Print resources** Pupil's Book pages 110–111 Home/School Links Book page 39 PCMs 67–70	**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 30
2	**Subtracting with Renaming (2-digit – 1-digit):** Subtracts numbers within 99, with renaming (U&C)			
3	**Subtracting with Renaming (2-digit – 2-digit):** Subtracts numbers within 99, with renaming (U&C)			
4	**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 19 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 19 Let's Strengthen Suggestions for Teachers. (These address the Common Misconceptions and Difficulties listed below.) • See Unit 19 Let's Strengthen PCM. • See Unit 19 Let's Deepen PCM.
Integration	See individual lesson plans.

Background and rationale

- This is a one-week block of content in June.
- There is lots of scope to integrate other curricula areas, e.g. Language, PE and STEM subjects.
- Through the Addition and Subtraction lessons so far, the children have built a foundational knowledge of strategies. They have learned to subtract 1-digit and 2-digit numbers from 2-digit numbers and to use the column method – without renaming. The progression is now to subtract 1-digit and 2-digit numbers (up to 99) from 2-digit numbers with renaming. To this end, they will rename tens as ones. A very concrete working approach is taken in order to build deep foundational knowledge through which the children gain procedural fluency. In *Maths and Me* for 2nd Class the children will revisit these concepts in depth.
- While this unit is largely concerned with the strand unit of Sets and Operations, it also includes learning experiences from Numeration and Counting; Place Value and Base Ten; Patterns, Rules and Relationships; and Expressions and Equations.
- Models and representations familiar to the children, such as the place value grid and base ten blocks, will be used. The emphasis is very much on conceptual knowledge and not simply procedures, with children constantly being prompted to explain and justify their answers and approaches.
- The *Maths and Me* routines, including Build it; Sketch it; Write it, and I Do, We Do, You Do, incorporate lots of hands-on activities that are integral to the unit. Concrete activities inspire confidence in tackling new concepts.
- As mentioned in previous Number units, 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 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 **The Funfair**.

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 not grasp that the value of each digit is determined by its place.
- They may not grasp the need for zero as a place holder.
- They may misread numbers (e.g. 71 as 17).
- They may struggle with place value and therefore find the layout of the column method for addition and subtraction challenging.
- They may have insufficient fluency in strategies such as number bonds for subtraction, thereby slowing their progress.
- They may struggle to recognise the parts and whole amount in operational relationships and get them confused.
- They may struggle with the concept of subtraction, even in its simplest form of take away.
- They may use an incorrect procedure when using the column method for subtraction. 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 a horizontal to a vertical format and vice versa
  - When subtracting, forget altogether to rename; subtract the smaller digit (on top) from the larger digit (on the bottom); rename incorrectly; rename when not required.
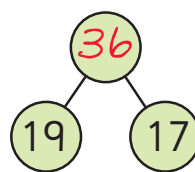
The Unit 19 Let's Strengthen Suggestions for Teachers address the common misconceptions and difficulties listed above.

Mathematical models and representations

- Assorted countable resources in the classroom
- Base ten blocks
- Bar models
- Branching bonds
- Number lines
- Place value grid
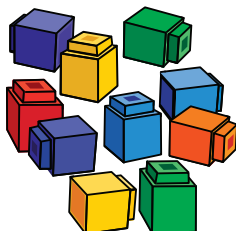- Column method
- Number sentence
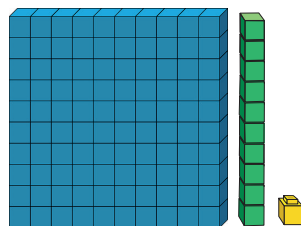
Base ten blocks

Branching bond

	T	O
	3	6
+	2	9
	6	5

Column method

Interlocking cubes

Open number line

$6 + 9 = 15$

Number sentence

Teaching tip

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

Day 1, Lesson 1

Renaming Tens as Ones

Focus of learning (with Elements)

- Decomposes the structure of 2-digit whole numbers, up to at least 99 (U&C)

Learning experiences

- **D** Digital activity: Which One Doesn't Belong? (3)
  MAM Routines: Reason & Respond, with Think-Pair-Share
- **C** Concrete activity: Renaming 2-digit numbers
  MAM Routine: I Do, We Do, You Do

Equipment

- Interlocking cubes, number shapes, ten frames and other base ten resources
- PCM 67

Maths language

- number, place value, rename, ten, one, how many?

Warm-up

D Digital activity: Which One Doesn't Belong? (3)
***MAM* Routines: Reason & Respond, with Think-Pair-Share**

Play the slideshow. Pause at each slide and ask/say:

- Which one doesn't belong? Why?
- Which ones do belong?
- Why?
- Which image(s) show(s) the number represented as tens and ones?
- Which image represents the number as ones only?
- What is the difference?
- Use interlocking cubes and the place value grid to build your own tens and ones representation of the number.

- Now rename it – take the ten apart so the number is represented as ones only on the place value grid.
- How could you record renaming the tens and ones representation into ones only, using written numbers?

If not suggested by the children, introduce the format:

$$\cancel{1} \qquad \cancel{6} \qquad 16$$

Ask:

- Why have I crossed out the 1 ten?
- Why have I crossed out the 6 ones?
- Why have I written '16' beside the ones and not the ten?
- Write '18' on your MWB. Rename it in this way.

Main event

C Concrete activity: Renaming 2-digit numbers
***MAM* Routines: I Do, We Do, You Do**

Use I Do, We Do, You Do to show the children how to use base 10 resources and a place value grid (on the IWB) to demonstrate renaming larger numbers.

Assessment Opportunity

I Do:

- I've used interlocking cubes to represent the number 29 on the place value grid. Now I will rename 1 ten. I still have 29 but now it is represented as 1 ten and 19 ones on the grid.

I can record this in writing like this:

$$\overset{1}{\cancel{2}} \qquad \overset{19}{\cancel{9}}$$

We Do:

- Working together, use interlocking cubes to represent 36.
- Now, let's rename 1 ten. How many tens are there now? How many ones are there now?
- On your MWB, record that in writing.

You Do:

- Use interlocking cubes to represent 43.
- Rename 1 ten. How many tens are there now? How many ones are there now?
- On your MWB, record that in writing.

The children work independently to rename more 2-digit numbers.

$$\overset{1}{\cancel{2}}\quad\overset{19}{\cancel{9}}$$

and ask them to create the tens and ones representations. The children may work on this independently and in pairs.

Let's deepen

Challenge some children to work in reverse – provide them with written representations of renaming (e.g.

Let's strengthen

The children may benefit from working within 11 to 20 only. Provide the children with pre-made representations of the numbers for I Do, We Do, You Do. This allows them to focus solely on renaming.

Optional consolidation and extension possibilities

Integration Language: English: Festivities and celebrations; Gaeilge: Ócáidí Speisialta. Maths: Calendar. SPHE: Diversity of celebrations in the school and local community.

Investigation Station Provide tens and ones resources for an investigation station to further explore renaming 2-digit numbers. Incorporate a

'Number of the Day' for which the children make their own slide, including renaming, to answer: 'Which One Doesn't Belong?'

Story Read *The Shark Swimathon* by Stuart J. Murphy or listen to a recording at: edco.ie/4anr

Home/School Links Book Page 39 can be completed at any stage after this lesson.

Day 2, Lesson 2

Subtracting with Renaming 1 (2-digit – 1-digit)

Focus of learning (with Elements)

- Subtracts numbers within 99, with renaming (U&C)

Learning experiences

- **D** Video: Subtracting with Renaming (2-digit – 1-digit) *MAM Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond, with Think-Pair-Share*
- **D** Digital activity: Fun at the Fair *MAM Routines: Reason & Respond; Build it; Sketch it; Write it*
- **P** Pupil's Book page 110: Subtracting with Renaming 1

Equipment

- Groupable base ten materials: base ten blocks, counters, beads, shapes, coins and other classroom resources
- Counting aids, such as place value grids, bar models, and branching bonds
- PCM 67
- PCM 69

Maths language

- Addition (+), subtraction (-), take away, first, symbol, number sentence, rename, answer, column, how much? cents, more, less, change, reasonable, unreasonable, estimate, answer, strategy, model

Warm-up

D **Video: Subtracting with Renaming (2-digit – 1-digit)** *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 Video: Subtracting with Renaming (2-digit – 1-digit) *MAM Routines: Reason & Respond, with Think-Pair-Share*

The video shows 15 – 8. Distribute PCM 67: Place Value Grid and groupable base ten resources. Play the video again. Ask the children to answer the questions below and to give reasons for their responses (some of these questions may have already been answered in the warm-up):

Assessment Opportunity

- 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 place value grid? Show me.
- How many were to be taken away?
- What symbol was used?
- Can you say the number sentence?
- Why was the ten renamed?
- How did that number sentence look using a place value grid and written numbers? 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?
- Should I rename a ten?
- How will I record that in writing?
- 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?
- Choose a bar model, open number line, branching bond or make your own model and show the calculation again.

Repeat the exercise for another 2-digit number (e.g. 25 – 8).

D Digital activity: Fun at the Fair *MAM Routine: Reason & Respond*

Display the poster, which shows the ticket booth at the local fair. Click to play or ask 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 play the tombola once?
- How much is it to play the hoopla once?
- How many cents is it to do archery once?
- How many cents is it to play Shoot for the Hoop once?
- Is that more or less than 20c?
- If I had 15c, could I pay for one turn on the hoopla?
- Would I get change?
- I have 15c. I pay 8c. Will I use addition or subtraction to work out what I have left?
- Make a reasonable/unreasonable estimate of the answer.

D Digital activity: Fun at the Fair *MAM Routine: Build it; Sketch it; Write it*

The children work in pairs or groups. Using Build it; Sketch it; Write it, the children work out how much money each character has left, having paid for their activity. Give each pair PCM 69: Work Cards for Build it; Sketch it; Write it. On the IWB, display the price list from the fair. Ask the children to:

- Build it! Can you use classroom resources to represent the numbers and take away? Show us.
- Sketch it! Can you represent your work as a sketch? Show us.
- Write it! Can you write it using the column method? Show us.

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

- Which are the ones? How did you record that as a number?
- Which are the tens? How did you record that as a number? Where did you record it?
- How many ones make a ten?
- What does this symbol (−) tell you?
- What is your estimate of the answer? Why?
- Make an unreasonable estimate. Why is that unreasonable?

- Which did you work with first: the tens or the ones?
- Tell me how you did the take away, step by step.
- Did you/why did you rename a ten?
- What strategies did you use when taking away? Are there other strategies you could have used?
- Can you write this calculation in a different way (horizontal)? What symbol do you use this way that you also use/do not use in the column method? What does that symbol mean?
- Can you use another model (e.g. the open number line or your own model) to show the same calculation?
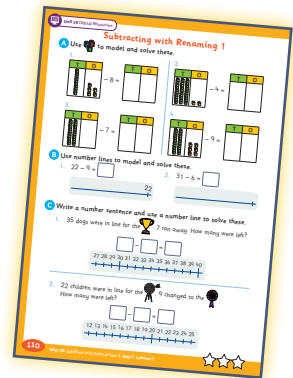
Let's strengthen

- In the main event, the children may work with 'Build it' only. Some will need support to record renaming.

- In Build it; Sketch it; Write it, the children may be ready to sketch and write only, or to simply write.

Let's deepen

Challenge the children to work out the change if they buy two turns.

P Pupil's Book page 110: Subtracting with Renaming 1

Optional consolidation and extension possibilities

Maths Journal The children draw pictures or otherwise explain renaming. Use prompts such as 'Something new I learned …'.

Subtraction Station Place tens and ones representations of numbers (up to 99) in trays or transparent bags. Throw a dice and subtract that number from one of the representations. Provide cards or sticky notes for recording the calculation in written form. Set up a 'clothes line' where the children peg their written work.

Tens and Ones Station This station needs two dice and place value arrow cards (see PCM 68: Place Value Arrow Cards). The children throw the dice. The highest number is tens, the lowest is ones (or vice versa). The children make that number using place value arrow cards. Can they order the numbers from highest to lowest or vice versa?

Review and Reflect Use the Prompt Questions Poster.

Home/School Links Book Page 39 can be completed at any stage after this lesson.

Days 3 and 4, Lesson 3

Subtracting with Renaming 2 (2-digit – 2-digit)

Focus of learning (with Elements)

- Subtracts numbers within 99, with renaming (U&C)

Learning experiences	Equipment
D Digital activity: Which One Doesn't Belong (4) *MAM Routines: Reason & Respond, with Think-Pair-Share* **D** Video: Subtracting with Renaming (2-digit – 2-digit) *MAM Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond, with Think-Pair-Share* **D** **C** Digital activity: Fun at the Fair *MAM Routine: Build it; Sketch it; Write it* **P** Pupil's Book page 111: Subtracting with Renaming 2	• Groupable base ten materials: base ten blocks, counters, beads, shapes and other classroom resources • Counting aids such as place value grids, bar models, open number lines and branching bonds

Maths language

- price, compare, highest, lowest

Warm-up

D Digital activity: Which One Doesn't Belong? (4)
MAM Routines: Reason & Respond, with Think-Pair-Share

Play the slideshow. Pause at each slide and ask:

- Think: Which one doesn't belong?
- Pair: Discuss why with your partner.
- Share: With the class.

Repeat Think-Pair-Share, asking: Which ones do belong?

Main event

D Video: Subtracting with Renaming (2-digit – 2-digit) *MAM Routines: Notice & Wonder, with Think-Pair-Share*

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

Assessment Opportunity

- 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.

Let's strengthen

The children will benefit from having a place value grid and groupable base ten materials to follow along with the video.

D Video: Subtracting with Renaming (2-digit – 2-digit) *MAM Routines: Reason & Respond, with Think-Pair-Share*

Distribute PCM 67: Place Value Grid and groupable base ten resources. The video shows 64 – 49. Play the video again. Ask the children to answer the questions below and to give reasons for their responses (some of these questions may have already been answered in the warm-up):

- 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 place value grid? Show me.
- How many were to be taken away?
- What symbol was used?
- Can you say the number sentence?

- Write an estimate for the answer on your MWB. Is that a reasonable estimate?
- How did that number sentence look using a place value grid? Show me.
- Do I work with the tens first or the ones first?
- There are 4 ones in the number 64. How can I take away 9 ones?
- Show me using your place value grid and base ten blocks.
- How can I write that in a place value grid?
- How can I show that I had 6 tens but I renamed a ten and now it is with the ones?
- When I finish with the ones, then what do I do?
- Where will I write the answer?
- Can you write the calculation again without using a place value grid?

D C Digital activity: Fun at the Fair
MAM Routine: Build it; Sketch it; Write it

Reintroduce the poster from the previous lesson. Explain to the children that the characters are back at the fair for another day of fun. Say/ask:

- Let's look at the prices. How much for one tombola ticket? How much for two?
- If I had 25c, would that be enough to buy two tickets? Would I get change?
- Make an estimate: how much change?
- Let's compare estimates; which are reasonable?
- What is the highest price you see?
- What is the lowest price you see?

Distribute PCM 70: Work Cards for Subtraction. Ask the children to work out how much change each *MAM* character will receive. They choose a model (e.g. coins, bar model, open number line, branching bonds, or their own preferred models).

- Build it! Use models of your own choice.
- Sketch it! Represent your work as a sketch.
- Write it! Write it using the column method and the horizontal method. Show the renaming.

Conference with the children as they work, checking for understanding of key language and concepts. Challenge them to show the same calculation using a different model.

Let's strengthen

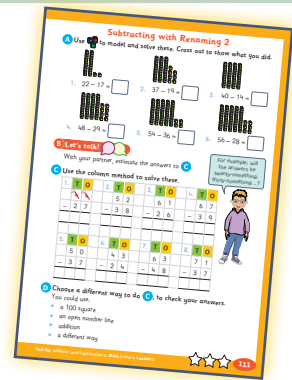Distribute the Unit 19 Let's Strengthen PCM to the children for the main event.

Teaching tip

As you work, take care to vary the vocabulary used in relation to subtraction: *take away*, *subtract*, *minus*, *equal* and *does not equal*.

Let's deepen

Distribute the Unit 19 Let's Deepen PCM.

(P) **Pupil's Book page 111: Subtracting with Renaming 2**

Optional consolidation and extension possibilities

STEM Project Ask the children to design a game with a scoring system in which a ball/hoop/ring is used. They invite others to play.

Story Read *Subtraction Action* by Loreen Leedy.

Games Bank Play 'Spin and Subtract'.

Review and Reflect Use the Prompt Questions Poster.

Home/School Links Book Page 39 can be completed at any stage after this lesson.

Day 5, Lesson 4

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. The children record what they know in their maths journals (e.g. using a concept map).	Play any of the subtraction games from the Games Bank.

Maths language	Maths strategies and models
Ask the children to explain the following terms, perhaps using examples or drawings on their MWBs: rename, tens, ones, grid, zero, subtract. Use the Unit 19 Maths Language Cards to revise the key terms. For example: If the image and text are cut apart, can the children match them?	Ask the children to give examples of the strategies they used in this unit: subtracting using number bonds of 10, doubles, near doubles, count back, take away. Models: place value grids, bar models, branching bonds, open number lines. Which strategies and models did they prefer and why?
Progress Assessment Booklet	**Maths Stations**
Complete Questions 70–72 on page 30. Alternatively, these can be left to do as part of a bigger review during the next review week.	Game: Play 'Cards and Counters' from the Games Bank. Role Play: Use the funfair games the children built as STEM activities or ask the children to bring in games from home. You could also use school equipment such as basketball hoops, goal posts and hoops. Set a price for each activity and supply the children with 'purses' of money. Children role-play the visitors to the fair or the stall holders. Conference with the children as they play, checking for understanding of key language and concepts around subtraction, with and without renaming. Have an MWB to hand to record ticket prices paid and change given. Ensure activities are suitable for all children by setting a range of prices and options (e.g. for one turn, two turns). Plan so that the purses contain a range of coins which support the children's learning (e.g. 1c and 2c coins) or challenge the children (e.g. 50c, €1 and €2 coins). You could also use notes.
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 19 Let's Strengthen Suggestions for Teachers and/or use the Unit 19 Let's Strengthen PCM.	Use the Unit 19 Let's Deepen PCM.

Notes