Maths and Me: Junior Infants – Short Term Plan, Unit 15: Fractions (May: Weeks 3&4)

Strand(s) > Strand Unit(s)	Number > Fractions; Sets and Operations.
Learning Outcome(s)	Through appropriately playful and engaging learning experiences children should be able to develop an awareness of part-whole relationships using a variety of models (area, length and set); recognise and understand what happens when quantities (sets) are partitioned and combined.

Lesson	Focus of Learning (with Elements)	CM	Learning Experiences	Assessment
1	**Sharing:** Shares real objects and justifies the share (R); Notices that some partitions lead to equal parts and some do not (R); Represents a verbal context or problem using concrete objects (C)		D Reason & Respond L1–7 C Sharing Objects L1 C Game: Sharing Objects L1 C Making Fair Shares L2 C Our Fair Share Wall L2 C Sharing and Combining Cubes L3 C Cube Game L3 C Sharing Sets in Different Ways L4 C Comparing Parts of Sets L4 C Representing Parts of Sets L4 D Concept Cartoon L5, 7 C Maths Stations L5 C Sharing a Whole Object or 2-D Shape L6 C Sharing Spaces Equally L7 C Sharing Objects in Areas and Spaces L7 **Print resources** Pupil's Book pages 81–86 Home/School Links Book pages 36–37 PCMs 56–57	**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 28
2	**Making Fair Shares:** Partitions sets of 2 or more objects (U&C); Applies the idea of equal sharing among peers by partitioning whole sets of objects or spaces (A&PS); Partitions objects and shapes into two equal shares and describes the whole and parts by the number of shares/parts (U&C)			
3	**Sharing and Combining:** Describes scenarios where sharing, combining or partitioning takes place (C); Notices that some partitions lead to equal parts and some do not (R)			
4	**Sharing in Different Ways:** Explores how a whole object, 2-D shape, or set can be shared often in different ways (U&C); Compares and describes parts of sets in terms of quantity (C); Represents parts of models using concrete materials (C); Sorts materials multiple times in different ways in an undirected manner (R)			
5	**Parts of a Line:** Represents parts of models using concrete materials (C)			
6	**Sharing a Whole Object or 2-D Shape:** Explores how a whole object, 2-D shape or set can be shared often in different ways (U&C)			
7	**Sharing Areas and Spaces:** Applies the idea of equal sharing among peers by partitioning whole sets of objects or spaces (A&PS); Represents parts of models, using concrete materials (C)			
8	**Review and Reflect:** Reviews and reflects on learning (U&C)			

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

Additional information for planning

Progression Continua	See 'Junior Infants *Maths and Me* Progression Continua Overview' for a detailed breakdown of how all progression continua are covered.
Maths Language	See 'Junior Infants *Maths and Me* Language Overview', individual lesson plans and Unit 15 Maths Language Cards.
Equipment	See 'Junior Infants *Maths and Me* Equipment Overview' and individual lesson plans.
Inclusive Practices	• See Let's Strengthen and Let's Deepen suggestions throughout lesson plans. • See Unit 15 Let's Strengthen Suggestions for Teachers. (These address the Common Misconceptions and Difficulties listed below.) • See Unit 15 Let's Strengthen PCM. • See Unit 15 Let's Deepen PCM.
Integration	See individual lesson plans.

Background and rationale

- The children are familiar with the concept of sharing (e.g. two children sharing a quantity of grapes). The children revisit the concept of a 'fair share' and a share that is 'not fair', this time in the context of fractions as opposed to partitioning. They will experience making equal shares, using concrete materials. These activities lead to a deeper understanding of partitioning, and the composition of number, and lay the foundation for an understanding of odd and even numbers, and skip counting in twos. The children will create a strong visual of the 'fair share' by making a classroom display called Our Fair Share Wall.
- Key to the children's understanding of fractions is experiencing the breaking apart/partitioning/division/sharing of objects, areas, and amounts. But, combining or 'putting back together' is integral to a more meaningful understanding and appreciation of the whole.
- Moving on to comparing the quantities of the shared sets, the children will explore combinations of shared sets (e.g. a set of 7 objects can be shared as 4 and 3, 2 and 5, and so on). These are not 'fair shares'. The children will voice which set has: more, less, more than, less than, the same as. Having explored sharing in terms of the set model, the children will move on to the linear model of sharing. This aspect of fractions lends itself to linkage with the Measures strand. You are not expecting the children to accurately measure objects, but rather to estimate the 'middle' or halfway point of, for example, the class clothesline.
- The children will explore sharing with regard to areas, 2-D shapes, and spaces. Again, starting with the familiar, the children will share items (e.g. a sandwich roll) at a picnic. Is the share fair? How do we know? They will revise 2-D shapes when exploring the halving of circles, rectangles, triangles and squares. The children use paper versions of these shapes to discover how they can be halved.
- The children will examine spaces from their everyday lives (e.g. playgrounds, gardens, fields, yards, swimming pools) to see how they can be shared equally. For example, using small-world animals, how could six cows be divided into two fields? These activities lend themselves to very rich and varied creative experiences for the children – and they are a lot of fun.
- It may be worth noting that the set model enables kinaesthetic learning experiences, while the linear model is suited to spatial or logical learning experiences. The area model may suit the children who respond to spatial learning.

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

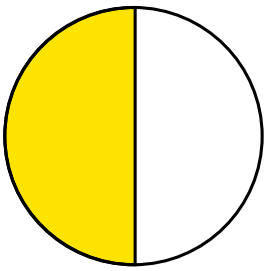
Common misconceptions and difficulties

- The children may not understand the concept of two parts being equal.
- They may not understand the concept of fractions being relative to the whole.
- They may not understand that fractions can relate to objects, shapes, spaces and amounts. (This further increases the potential for misconception and difficulty.)

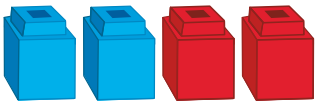
The Unit 15 Let's Strengthen Suggestions for Teachers address the common misconceptions and difficulties listed above.

Mathematical models and representations

- Area model
- Set model
- Linear model (Cuisenaire rods)
- Ten frames



Area model showing $\frac{1}{2}$



Set model showing $\frac{1}{2}$

Linear model showing $\frac{1}{2}$

Day 1, Lesson 1

Sharing

Focus of learning (with Elements)

- Shares real objects and justifies the share (R)
- Notices that some partitions lead to equal parts and some do not (R)
- Represents a verbal context or problem using concrete objects (C)

Learning experiences

- (D) Digital activity: Classroom Sharing
  ***MAM* Routine: Reason & Respond**
- (C) Concrete activity: Sharing Objects
- (C) Game: Sharing Objects

Equipment

- Six grapes
- Manipulatives such as bears, counters, beads, links or cubes
- One dice per pair (or two dice per group)
- Ten-sided dice (optional)
- Sensory bag

Maths language

- share, fair, not fair, each, more, less

Warm-up

(D) Digital activity: Classroom Sharing
***MAM* Routine: Reason & Respond**

Open the interactive tool and use it to demonstrate how to share strawberries between Mia and Dara (represented by plates). Explain to the children that the characters are trying to decide how to share some strawberries between them. First, select the number of plates (choose one for Mia and one for Dara) and then choose the number of strawberries that they will share. Ask:

- How will they share them?
- Was it a fair share?

Main event

(C) Concrete activity: Sharing Objects

You will need six grapes for this activity. Bring two children to the top of the classroom. Allow the class a brief glance at the six grapes, and then cover them/place them out of view. This is an opportunity to quickly assess the children's skills at subitising and number order. Ask:

Assessment Opportunity

- How many grapes do you think I have? Guess! (Subitising; you might get answers in the range of five to eight.)
- Hands up: Who thinks I have five grapes? Six grapes? Seven grapes? Eight grapes?
- Does anyone think I have *more than* eight grapes? How many do you think I have?
- Does anyone think I have *less than* five grapes? How many do you think I have?

Get the class to help you count the grapes, and then ask:

- Who said I had more than six grapes?
- Who said I had less than six grapes?

Next, get the class to help you share the grapes between the two children. Say/ask:

- I want to share the six grapes between Sarah and Khalid. How will I share the grapes?
- Who thinks it will be a fair share?
- Why do you think it will be a fair share?

Divide the grapes and distribute, and/or use the method of 'one for Sarah, one for Khalid ...'. Ask:

- How many grapes did Sarah get?
- How many grapes did Khalid get?
- Was it a fair share?
- How do you know?

Would This Work? Repeat the activity, using seven grapes and two different children. Ask:

- Will it be a fair share?

Let's deepen

Ask:

- Was 6 a good number for sharing? Why? Was it a fair share?
- Was 7 a good number for sharing? Was it a fair share?

Some children may subconsciously see a pattern emerging.

C Game: Sharing Objects

Play in pairs. Distribute a dice and one type of manipulative (bears, counters, beads, links or cubes) to each pair. Child A throws the dice, and then counts out the correct amount of manipulatives to match the number thrown (e.g. count out six counters if a 6 is thrown). The two children then share the counters between them. How will they do this? Will it be a fair share? They will discover that throwing a 1 means that only one child gets a counter. Throwing a 3 or a 5 means an unfair share. Elicit such discoveries by asking:

- Who threw a 6? How did you share your counters? Was it a fair share?
- Who threw a 3? How did you share your counters? Was it a fair share?
- Are some numbers good for sharing?
- Which numbers are good for sharing?

Ask the children to share their discoveries with the class.

Let's strengthen

Place a small quantity (e.g. five) cubes in a sensory bag. Give the bag to a pair of children (or a group). Can they count the amount of cubes in the bag? This is a good exercise for revisiting counting skills: each cube needs to be carefully felt, counted, and moved aside. Take the cubes out of the bag. Was their count correct? Can they make an equal share? Do the cubes align in one-to-one correspondence?

Let's deepen

If you have a ten-sided dice, the children could try this activity using higher numbers.

Optional consolidation and extension possibilities

Making Teams (Integration with PE) Arrange the children into groups of between four and eight. Then, ask each group to make (divide themselves into) two teams. Are the teams equal? Which groups were not able to form equal/fair teams? What have the children discovered? You could also incorporate this into a game of 'Musical Chairs'. When you stop the music, call out, 'Make small groups!', followed by 'Now, make teams!' Any group with unequal teams is out.

Role Play Three children could role-play a shopkeeper and two customers. The customers have one shopping bag each, and the shopkeeper counts out an equal amount of 'apples' into their bags.

Story Read *The Squirrels Who Squabbled* by Rachel Bright or listen to a reading at: edco.ie/avxx

In this story, two squirrels argue over who should get the last pinecone.

Home/School Links Book Page 36 can be completed any time after this lesson.

Day 2, Lesson 2

Making Fair Shares

Focus of learning (with Elements)

- Partitions sets of 2 or more objects (U&C)
- Applies the idea of equal sharing among peers by partitioning whole sets of objects or spaces (A&PS)

Learning experiences

- (D) Digital activity: Equal Sharing *MAM* Routine: Reason & Respond
- (C) Concrete activity: Making Fair Shares
- (C) Concrete activity: Our Fair Share Wall
- (P) Pupil's Book page 81: Making Fair Shares

Equipment

- Manipulatives such as bears, counters, beads, links or cubes
- 5 large sheets of paper
- PCM 56
- PCM 57

Maths language

- There is no new maths language for this lesson.

Warm-up

(D) Digital activity: Equal Sharing
MAM Routine: Reason & Respond

Play the slideshow, in which the children are asked to help Lexi and Jay to share their marbles. There are groups of two, four, six, eight and ten marbles to be shared. All these shares are equal ('fair') shares. There are two methods of sharing: one for Lexi/one for Jay, and sharing/partitioning the whole amount.

Main event

Assess whether the children understand the concept of the fraction being part of the whole. Enable them to put the 'share' back together again to make the 'whole'.

Assessment Opportunity

(C) Concrete activity: Making Fair Shares

Give each child ten manipulatives and a copy of PCM 56: Two Hands, or PCM 57: Two Rockets. The children start by sharing (partitioning) two manipulatives on their PCM, and then move on to four, six, eight and ten manipulatives. Some children might share the amounts in different configurations or positions. You might like to rotate the two PCMs among the groups so that every child gets an opportunity to use each of the two PCMs.

Would This Work? Distribute an odd amount of manipulatives to each child. Can they make a fair share on their PCM?

Teaching tip

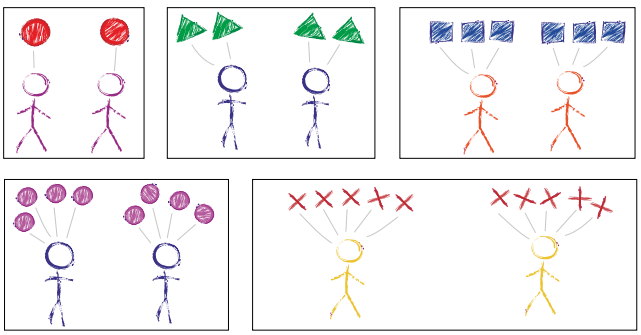
These activities lead to a deeper understanding of partitioning, and the composition of number. They also lay the foundation for odd and even numbers, and skip counting in twos.

Let's deepen

The children might like to draw sets of two, four, six, eight or ten items on their MWBs. They could add two stick figures to their drawing and divide the items between the stick figures by drawing lines to connect them.

(C) Concrete activity: Our Fair Share Wall

Divide the class into five groups. Distribute a large sheet of paper to each group, and assign one of the numbers 2, 4, 6, 8 and 10 to each group. Tell the children to draw that amount of items on the paper. Each group should also draw two stick figures, and divide the items between the stick figures by drawing lines to connect them. Display the five sheets on a section of the classroom wall or a display board to make a 'Fair Share Wall'.



Fair Share Wall

(P) Pupil's Book page 81: Making Fair Shares

Optional consolidation and extension possibilities

Ten Frames Help the children to make a ten frame (or 2 ten frames) using twigs. They can use this to share objects from nature, such as pinecones, seashells or pebbles.

Role Play Three children could role-play a host and two guests at a party. The guests have one paper plate each, and the host counts out an equal amount of 'party treats' onto their plates.

Arrays The children make a row/column of objects (e.g. seven bears) and count them. Can they share/partition them into equal amounts? Do they notice that the numbers 2, 4, 6, 8 and 10 can be shared/partitioned into equal amounts, while 3, 5, 7 and 9 cannot?

Home/School Links Book Page 37 can be completed any time after this lesson.

Day 3, Lesson 3

Sharing and Combining

Focus of learning (with Elements)

- Describes scenarios where sharing, combining or partitioning takes place (C)
- Notices that some partitions lead to equal parts and some do not (R)

Learning experiences

- D Digital activity: Monty Learns to Share
  MAM Routine: Reason & Respond
- C Concrete activity: Sharing and Combining Cubes
- C Concrete activity: Cube Game
- P Pupil's Book page 82: Sharing and Combining

Equipment

- Monty the puppet
- Ten cubes per child (use blocks, spools, or beads and cord if you do not have sufficient cubes)
- One dice per group

Maths language

- Informal use of: in half

Warm-up

D Digital activity: Monty Learns to Share
MAM Routine: Reason & Respond

Use Monty the puppet alongside this activity. This is an opportunity to assess the children's understanding of partitioning (sharing) *and* combining. Display the interactive tool. Say/ask:

Assessment Opportunity

- Help Monty to share his treats with his friend Rua. (Ask a child to drag two treats to Rua's side.)
- How many treats did Monty have? How did he share them?
- How many treats does Rua have now?
- Oh no! Monty wants his treats back. (Ask another child to return the treats to Monty.)
- How many treats does Monty have now?

Next, Rua shares his treats. Repeat the questions with Rua's treats, changing the number of treats shared.

Teaching tip

Skip the combining element (Monty wanting his treats back) if your class would find that confusing.

Main event

C Concrete activity: Sharing and Combining Cubes

Distribute ten cubes (or other manipulatives) to each child. The children count out, for example, four cubes, and use these to build a tower. If using beads,

they thread four beads onto the cord. If using spools or blocks, they stack four. Ask:

- Can you break your tower into two 'pieces'? How many cubes are there in the other 'piece'?
- How many cubes are there in one piece?
- Is there the same amount in one piece as in the other piece? If so, how many are there in each piece?
- Who has a different amount in one piece? How many are there? How many are there in your other piece? Is this a fair share?
- Can you make the two pieces the same? Can you make a fair share?
- Put your cubes back together again. How many cubes do you have? (Do some children need to recount?)

The children verbalise what they are doing and the results they are getting. Continue with this activity, using other even amounts of cubes (four, six, eight). Ask/say:

- Can you break/snap your tower 'in half'? Make a fair share.
- Is there the same amount in one piece as in the other piece? How many are there in each piece?

Move on to odd amounts of cubes (three, five, seven, nine). Ask:

- Can you break/snap your tower 'in half'? Can you make a fair share? Why not?
- Is there the same amount in one piece as in the other piece? How many are there in each piece?
- Do some children notice that the odd numbers cannot be broken into two equal pieces/amounts of cubes?

Let's deepen

Ask/say:

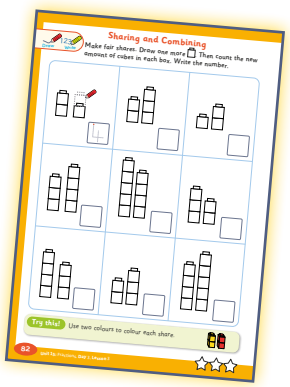
- Can you put two cubes in one hand and two cubes in your other hand?
- If you put them together and make a tower, how many cubes will you have?
- Make a tower. Were you right?

Use higher amounts if appropriate.

C Concrete activity: Cube Game

Distribute a dice and ten cubes to each group. Each group builds a tower with their ten cubes. The children then take turns throwing the dice. After taking their turn, each child snaps the same amount of cubes from the tower as the number they threw on the dice (e.g. if they throw a 3, they snap off three cubes). If the group gets down to one remaining cube, a child must throw a 1 to 'get rid' of it. The first group to get rid of their ten cubes wins.

P Pupil's Book page 82: Sharing and Combining



Optional consolidation and extension possibilities

Story Read *The Duck Who Didn't Want to Share* by Jared Austin or listen to a reading at: edco.ie/n7yz

Days 4 and 5, Lesson 4

Sharing in Different Ways

Focus of learning (with Elements)

- Explores how a whole object, 2-D shape, or set can be shared, often in different ways (U&C)
- Compares and describes parts of sets in terms of quantity (C)
- Represents parts of models using concrete materials (C)
- Sorts materials multiple times in different ways in an undirected manner (R)

Learning experiences

- D Video: The Bees Go Buzzing *MAM* Routine: Reason & Respond
- D Video: Ten Little Fishies *MAM* Routine: Reason & Respond
- C Concrete activity: Sharing Sets in Different Ways
- C Concrete activity: Comparing Parts of Sets
- C Concrete activity: Representing Parts of Sets
- P Pupil's Book page 83: Sharing in Different Ways

Equipment

- Manipulatives such as bears, counters, beads, links or cubes

Maths language

- more, less, more than, less than, the same as

Warm-up

D Video: The Bees Go Buzzing
MAM Routine: Reason & Respond

(Recommended on Day 4.)

Play the video. Teach the children to sing the song, which features the break-up of each number from 2 to 10, in a '1 and ...' format (e.g. 5 is 4 and 1).

D Video: Ten Little Fishies
MAM Routine: Reason & Respond

(Recommended on Day 5.)

Play the video. Teach the children to sing the song, which features multiple arrays of the numbers 2 to 10, and the composition of each number.

Main event

Assess whether some children are struggling with the difference between the 'fair share' and the share that is 'not fair'.

Assessment Opportunity

C Concrete activity: Sharing Sets in Different Ways

(Recommended on Day 4.)

Distribute counters or other manipulatives to each child. Say/ask:

- Make a set of two.
- Can you share your set of two? Make it a fair share. How many counters are there in each set/hand?
- Share your set of two. This time, do not make it a fair share. How can you share it? (2 and 0; 0 and 2)
- Can you make a set of three?
- Can you share your set of three? Can you make it a fair share? (No.)
- Share your set of three. It is not a fair share. How can you share it? (2 and 1; 1 and 2; 3 and 0; 0 and 3)

Continue up to ten. Ask the children to explain their 'shares'.

Let's strengthen

The children may need more practice with the smaller amounts before moving on to greater amounts.

C Concrete activity: Comparing Parts of Sets

(Recommended on Day 4.)

Using counters or other manipulatives, the children make sets from amounts to 10, showing different shares. Ask:

- Which set has *more* ... (e.g. counters)?
- Tell me about this set. Does this set have *more than* that set?
- How do you know?
- Which set has *less* counters?
- Tell me about this set. Does this set have *less than* that set?
- Did anyone make sets that have *the same amount*? If so, how many counters are there in each set?

You could enable the children to sort/share the manipulatives in an undirected manner, using their own criteria.

C Concrete activity: Representing Parts of Sets

(Recommended on Day 5.)

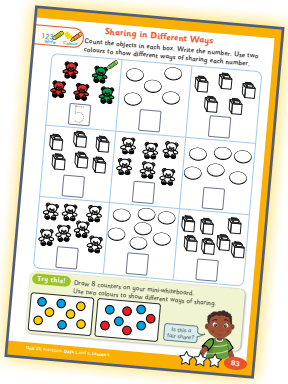
Using manipulatives, the children make sets from amounts to 10 (or as far as you feel they are able), showing different shares. On their MWBs or in their Maths Journals, they then show each share by writing the relevant number and drawing a representation of

the sets (e.g. by writing the number 3, and drawing 2 and 1, 1 and 2, 3 and 0, and 0 and 3 items).

Let's strengthen

The children will need guidance. They could use counters, as they may think they have to draw the manipulatives they are using.

P Pupil's Book page 83: Sharing in Different Ways



Optional consolidation and extension possibilities

Story Read *The Doorbell Rang* by Pat Hutchins or listen to a reading at: edco.ie/yfef

This story is about sharing 12 cookies. There is no need to focus on the amount of cookies; this is more to do with the concept of sharing, and sharing among lots of children as opposed to just two.

Make a Share (Integration with PE) Ask the children to form groups of up to 10. When you call out 'Make a share!', they partition themselves into different shares (e.g. a group of 5 partitioned into 3 and 2). If you are asking them to make groups of even numbers (e.g. 6), you could tell them to partition themselves into even/fair shares (e.g. 3 and 3). Any group making the wrong/'not fair' share is out. If you want to test their understanding, you could tell them to form groups of 7, and then call out, 'Make a fair share!' Who will tell you that they cannot make a fair share?

Day 6, Lesson 5

Parts of a Line

Focus of learning (with Elements)

- Represents parts of models using concrete materials (C)

Learning experiences

- D Digital activity: Monty Walks the Line
  ***MAM* Routines: Concept Cartoon, with Reason & Respond**
- C Concrete activity: Maths Stations
- P Pupil's Book page 84: Parts of a Line

Equipment

- Class clothesline and clothes peg
- Monty the puppet
- Straws
- Strips of paper and/or fabric or ribbons
- Play dough
- Building bricks
- Scissors
- Beads and cords
- Cuisenaire rods
- Cubes

Maths language

- Informal use of: halfway, middle

Warm-up

D Digital activity: Monty Walks the Line
***MAM* Routines: Concept Cartoon, with Reason & Respond**

Display the Concept Cartoon, in which the characters watch Monty walking across a tightrope. Click each character to hear them make an estimate of how far across Monty will get on the tightrope.

Afterwards, use Monty the puppet to investigate the halfway point, or 'middle', of the class clothesline. The children direct you (or a volunteer from the class) to where they think the halfway point is on the clothesline. Peg Monty to the clothesline at that point.

Main event

Some children will have difficulty extending the notion of a fraction from an object and an amount to a line. Assess which children are struggling with this concept.

Assessment Opportunity

C Concrete activity: Maths Stations

Arrange the children into five groups. You could start by distributing the equipment as follows, and then rotate it between groups as required.

Groups 1 and 2

Distribute straws, strips of paper and/or fabric or ribbons, play dough, building bricks and scissors. Ask/say:

- Can you find halfway (or the middle) on your straw? Use your finger.
- How do you know that is halfway?
- Can you use a crayon/marker/pencil to mark halfway?
- Can you find halfway on your strip of paper?
- Would it help to fold it in half?
- Cut your strip of paper along the fold mark.
- Are the two pieces the same (length)?
- Is one piece longer/shorter?
- Did you cut the strip of paper in the right place (i.e. in half)?

The children could also try rolling out a length of play dough and/or making a 'snake' using building bricks. How will they find the halfway/middle mark on these?

Teaching tip

The children are not expected to be able to articulate their reasoning exactly, or supply 'correct' answers. These activities are designed to help them explore and extend their understanding of fractions and measuring.

Let's deepen

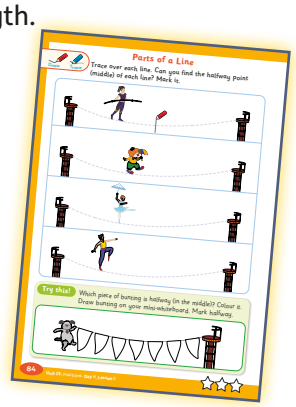
Say/ask:

- Look at your partner's halfway mark on their straw.
- Is it in the same place as the mark on your straw?
- How will you find out?

Groups 3, 4 and 5

Distribute beads, cord and number rods. Using one bead and a cord, each child places the bead on the cord and uses it to find the halfway mark. Is their mark the same as their partner's? How will they find out? They children then use the Cuisenaire rods to find the halfway point on a given rod by lining it up with two rods of half its length.

P Pupil's Book page 84: Parts of a Line



Optional consolidation and extension possibilities

Story Read *Tightrope Poppy the High-Wire Pig* by Sudipta Bardhan-Quallen or listen to a reading at: edco.ie/95vk

Role Play Two children hold up a rope/cord between them, while a third child walks a doll, a teddy or Monty the puppet across the tightrope. Can the tightrope walker get halfway across before they fall?

STEM The children use string to make a tightrope, and play dough and building bricks to make 'posts'. Will they need any other materials to hold the string? Can they make the string taut enough? Can they find the halfway mark? Alternatively, they could draw a tightrope (line) on their MWBs or in their Maths Journals, find the halfway point and mark it. They could also use play dough to make a snake, mark the halfway point and cut it in half. Are the two pieces the same length? Would it work if they rolled out the snake and folded it back on itself (to get two halves)?

Maths Eyes Ask the children to look around the classroom or outdoors and see if they can find a line (e.g. desk edge, lamp post, car park markings, basketball pole). Can they find the halfway mark?

Lollipop Sticks The children use cubes to 'measure' a lollipop stick and find the halfway point. They then count the amount of cubes and 'share' them.

Day 7, Lesson 6

Sharing a Whole Object or 2-D Shape

Focus of learning (with Elements)

- Explores how a whole object, 2-D shape or set can be shared, often in different ways (U&C)

Learning experiences

- (D) Digital activity: Sharing at the Picnic
  MAM Routine: Reason & Respond
- (C) Concrete activity: Sharing a Whole Object or 2-D Shape
- (P) Pupil's Book page 85: Sharing a Whole Object or 2-D Shape

Equipment

- Cookie cutters in symmetrical shapes, such as star, flower, circle, love heart or square
- Plastic knives
- Play dough
- 2-D shapes
- Square sheets of paper or napkins
- Scissors
- Monty the puppet

Maths language

- Informal use of: cut in half, two pieces, whole

Warm-up

(D) Digital activity: Sharing at the Picnic
MAM Routine: Reason & Respond

Display the flipcard tool. Explain to the children that Lexi and Jay are having a picnic and they need help with sharing the food equally. For each card, the children see a different type of food, and they need to decide how Lexi and Jay could share the food equally. Once the children have decided how to share the food equally, flip the card to reveal the answer. Repeat for each of the cards.

Main event

(C) Concrete activity: Sharing a Whole Object or 2-D Shape

This is an opportunity to revisit and assess the children's knowledge and understanding of the properties of 2-D shapes.

Arrange the children into five groups, and distribute the equipment as suggested below. Alternatively, you could distribute the same equipment to all groups to reduce the amount of preparation needed.

Groups 1, 2, 3 and 4

Distribute cookie cutters, play dough and plastic knives. The children roll out play dough and use the cookie cutters to cut out shapes. Then, they use their plastic knife to cut each shape in half. Are the two pieces the same size? Is it a fair share? Next, they could try cutting a shape into two random pieces. Is it a fair share?

Let's strengthen

Give each child scissors and a copy of the Unit 15 Let's Strengthen PCM. The children will explore cutting shapes into two equal/fair pieces (a fair share/a half). Begin by telling them to cut out the 2-D shapes from the PCM, and then cut each shape in half along the dotted line.

Let's deepen

Give each child scissors and a copy of the Unit 15 Let's Deepen PCM. The children will explore cutting shapes into two random pieces (not a fair share). Begin by telling them to cut out the 2-D shapes from the PCM. Then cut each shape in two in any way they wish – the share does not have to be fair.

Group 5

Distribute scissors, 2-D shapes and square sheets of paper or napkins. The children explore the properties of their square paper/napkin to see if they can fold it in half. Are the two parts the same? How do they know? (When folded, one part covers the other part.) Can they fold the square in another way (i.e. diagonally)? Can they draw a line and cut the square in half? Can they cut out two pieces that are the same size? Can they cut a square into two unequal pieces (not a fair share)? Can they find two 2-D shapes that make a different 2-D shape when placed together (e.g. two rectangles placed together to make a square or two triangles to make a square)? Can they 'break' the shape apart into two pieces? Are the two pieces the same size? Is it a fair share?

Let's strengthen

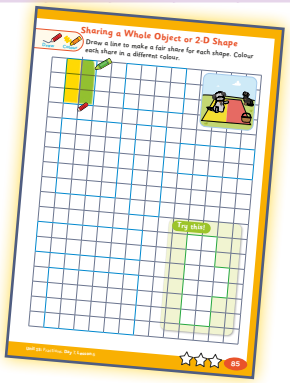
If you have tablets for a group, the children could watch the following video about cutting objects in half: edco.ie/hejw

Alternatively, the whole class could watch it.

Let's strengthen

The children could watch the following video, which also has simple depictions of a half and a whole: edco.ie/6p3z

Pupil's Book page 85: Sharing a Whole Object or 2-D Shape



Optional consolidation and extension possibilities

Story Read *Peg + Cat: The Pizza Problem* by Jennifer Oxley and Billy Aronson, or listen to a reading at edco.ie/nh6j

In this story, some awkward customers at Peg's Pizza Place want only half a pizza 'pie'. The story will enhance the children's understanding of the concept of a half without the need to dwell on the meaning of the word.

Role Play The children role-play diners at a pizzeria and order half a pizza from the waiting staff.

Geoboards The children make peg shapes on geoboards. Can they 'cut' the shapes in half?

Paper Plates Some children cut a paper plate 'pizza' in half and place the same amount of 'toppings' (counters) on each half.

Let's Deepen Show the children an apple. Try to elicit the word 'whole'. Cut the apple in half, and ask the children to tell you what you have done. Now, show them a grape. As before, try to elicit the word 'whole'. Cut the grape in half, and ask the children to tell you what you have done. Explore the fact that half an apple is much bigger than half a grape, but they are both halves.

Days 8 and 9, Lesson 7

Sharing Areas and Spaces

Focus of learning (with Elements)

- Applies the idea of equal sharing among peers by partitioning whole sets of objects or spaces (A&PS)
- Represents parts of models using concrete materials (C)

Learning experiences

- (D) Digital activity: Sharing Areas and Spaces Equally (Part 1)
  ***MAM* Routine: Reason & Respond**
- (D) Digital activity: Sharing Areas and Spaces Equally (Part 2)
  ***MAM* Routines: Concept Cartoon, with Reason & Respond**
- (C) Concrete activity: Sharing Spaces Equally
- (C) Concrete activity: Sharing Objects in Areas and Spaces
- (P) Pupil's Book page 86: Sharing Areas and Spaces

Equipment

- Building bricks or blocks
- Play dough
- Straws
- Lollipop sticks
- Fences and animals from the small-world area
- Box or tray
- Sand or compost
- Bear manipulatives
- Leaves
- Napkin or tissue
- 2-D shapes

Maths language

- There is no new maths language for this lesson.

Teaching tip

Note that this lesson has a strong STEM focus.

Warm-up

(D) Digital activity: Sharing Areas and Spaces Equally (Part 1)

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

(Recommended on Day 8.)

Play the slideshow, which shows a variety of spaces and areas. How can Mia and Jay share each different space equally?

(D) Digital activity: Sharing Areas and Spaces Equally (Part 2) *MAM* Routines: Concept Cartoon, with Reason & Respond

(Recommended on Day 9.)

Display the Concept Cartoon, which shows a variety of spaces and areas that are divided in two. How can Lexi and Dara share the six strawberry plants between the two beds?

Main event

Some children will have difficulty extending the notion of a fraction from an object and an amount to a shape or space. Assess which children are struggling with this concept. An extension of 'sharing' the space is allocating objects to each space (Day 9). Some children will need extra guidance and scaffolding.

Assessment Opportunity

(C) Concrete activity: Sharing Spaces Equally

(Recommended on Day 8.)

The children will engage in making discrete areas, and sharing/partitioning each area into halves (i.e. creating two 'equal' spaces in each area). Arrange the children into five groups, and distribute the equipment as suggested below. Alternatively, you

might like to give the same equipment to every group, and invite the children to *imagine* what kind of park, field, pool or beach area they will make. The children tell you what kind of area they are making and why it is divided (e.g. for farm or zoo animals, for pets, for a game).

Group 1

Distribute building bricks or blocks. The children build a backyard, and divide it in half with more bricks/blocks.

Group 2

Distribute play dough and straws. The children use play dough to build a playground perimeter, and divide the perimeter in half with straws.

Group 3

Distribute a box or tray, and compost or sand. The children use these to make a field, and then divide it in half, using lollipop sticks.

Group 4

Distribute straws. In the Sand Area, the children make a beach volleyball area, and divide it in half with the straws.

Group 5

Distribute fences from the small-world area or play dough and lollipop sticks, with which to make fences. The children make a farm area.

Some children might like to draw their area on their MWB or in their Maths Journal.

Teaching tip

The children might like to create many different areas (as opposed to just two). If this is the case, do not restrict them.

C Concrete activity: Sharing Objects in Areas and Spaces

(Recommended on Day 9.)

The children will engage in making discrete areas and placing objects in each area. Arrange the children into five groups, and distribute the equipment as suggested below.

Group 1

Distribute fences and animals from the small-world area. The children could make two paddocks or fields, and place three horses in one and three horses in the other; or make two pigsties, and place four pigs in one and two pigs in the other.

Groups 2 and 3

Distribute a napkin or tissue, bear manipulatives and leaves. The children make a picnic area for the bears, using a napkin/tissue for the Daddy and Mammy bears to sit on, and a play area of leaves for the little bears.

Groups 4 and 5

Distribute 2-D shapes and counters. The children use the 2-D shapes to make areas, and the counters to represent animals or children. For example, they might make two fields, with three cows in one and four donkeys in the other.

Ask each group to tell you what they have made, and how they have divided the areas and objects.

Teaching tip

All of the above ideas are suggestions to spark the children's imagination. The children may readily respond to this type of activity and will be able to use representative objects (e.g. counters).

Let's strengthen

The children may need structured guidance and realistic objects (e.g. small-world animals).

P Pupil's Book page 86: Sharing Areas and Spaces

Optional consolidation and extension possibilities

Story Read *Oliver's Vegetables* by Vivian French or listen to a reading at: edco.ie/vjv7

In this story, the children can see how Oliver's grandpa grows his vegetables in beds.

Games Bank Play 'Giant Steps' from the Games Bank.

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!
Revisit some of the digital resources and explore the language used in greater depth.	Play one of the games from the Games Bank listed under Optional Consolidation and Extension Possibilities that you did not have time to do.
Maths language	**Let's create!**
Prompt the children to articulate the various steps in the activities they are engaging in. Use the maths language cards for this unit to revise the key terms. For example: If the image and text are cut apart, can the children match them?	The children could use any equipment that they did not get a chance to work with to construct fields, farm areas, play areas, etc.
Progress Assessment Booklet	**Story time**
Complete Questions 63–64 on page 28. Alternatively, these can be left to do as part of a bigger review during the next review week.	Read one of the picture books listed under Optional Consolidation and Extension Possibilities that you did not have time to read.
Let's strengthen	**Let's deepen**
Using PCM 56 and PCM 57, with concrete materials, the children share the objects in different ways. Revisit the Group 5 activity from Lesson 6, in which the children made a fair share (halving), using paper/a napkin or 2-D shapes, or use the Unit 15 Let's Strengthen PCM. Identify children who might benefit from extra practice with some of the key concepts or skills in this unit. Consult the Unit 15 Let's Strengthen Suggestions for Teachers and/or use the Unit 15 Let's Strengthen PCM for parallel tasks.	The children explore the sharing of different amounts of objects, starting at 2 and working up to 10. How might they record any number that can be shared fairly (2, 4, 6, 8, 10)? Could they draw a picture for each number share (e.g. 3 apples and 3 apples)? Explore halves of different shapes (e.g. half a paper plate compared with half a square napkin). See the Unit 15 Let's Deepen PCM.

Notes