




Maths and Me: Junior Infants – Short-Term Plan, Unit 2: Measuring 1 (September: Weeks 3&4)

Strand(s) > Strand Unit(s)	Measures > Measuring.			
Learning Outcome(s)	Through appropriately playful and engaging learning experiences children should be able to demonstrate an awareness that attributes such as length, weight, capacity and area can be measured and compared.			
Lesson	Focus of Learning (with Elements)	CM	Learning Experiences	Assessment
1	Long and Short: Explores how measures help us to make sense of our world (U&C); Explores and identifies the different attributes (e.g. length – long/short) of a single object that can be measured (U&C); Recognises that to be accurate, measurements must be fair (U&C)		D C Reason & Respond L1–6, 8–9 C Measuring Hair L1	Intuitive Assessment: responding to emerging misconceptions
2	Comparative – Longer and Shorter: Makes direct comparisons of objects, containers or surfaces to compare measurable attributes and develop an understanding of same (U&C); Describes and discriminates between items, using appropriate comparative language (C); Recognises that to be accurate, measurements must be fair (U&C)		C Sorting Activities, L1–2, 6 C What Am I? L3 C Comparing Animal Structure Heights L5	
3	Comparing Length, Using Manipulatives: Uses appropriate vocabulary to describe and then compare measurable attributes (C); Predicts how measurable attributes of objects will compare to each other (R); Explores various materials used to compare the attributes of length, weight, capacity and area (A&PS)		C Measuring Height L4 C Think-Pair-Share L3 C Can You See ...? L4	
4	Tall and Short: Explores how measures help us to make sense of our world (U&C); Explores and identifies the different attributes (e.g. height – tall/short) of a single object that can be measured (U&C)		D P Notice & Wonder L1, 6–9 C Maths Eyes L6–9	Planned Interactions: responding to insights gleaned from children's responses to learning experiences
5	Comparative – Taller and Shorter: Makes direct comparisons of objects, containers or surfaces to compare measurable attributes and develop an understanding of same (U&C); Describes and discriminates between items, using appropriate comparative language (C); Listens and responds to a range of stories and rhymes involving concepts of measurement (C)		C Sorting Heavy and Light Objects L6 C Weighing with Clothes Hangers L7 C At the Sweet Shop L7 C Big Bear Wins L8 C Maths Stations – Ordering Activities L9	
6	Heavy and Light: Explores and identifies the different attributes (e.g. weight – heavy/light) of a single object that can be measured (U&C); Informally records comparisons and measurement activities (C)		Print resources Pupil's Book pages 10–15 Home/School Links Book pages 8–9 PCM 7	Assessment Events: information gathered from completion of the unit assessment in the Progress Assessment Booklet pages 7–8
7	Comparative – Heavier and Lighter: Explores various materials used to compare the attributes of weight (A&PS); Predicts how measurable attributes of objects will compare to each other (R); Makes direct comparisons of objects, containers or surfaces to compare measurable attributes and develop an understanding of same (U&C); Listens to and responds to a range of stories and rhymes involving concepts of measurement (C)			
8	Big, Bigger and Small, Smaller: Listens and responds to a range of stories and rhymes involving concepts of measurement (C); Describes and discriminates between items, using appropriate comparative language (C); Selects and uses suitable materials for comparing (A&PS)			
9	Biggest and Smallest: Chooses an object from a group of objects for a purpose based on a particular attribute (A&PS); Compares and orders objects, containers and surfaces according to appropriate measurable attributes (A&PS); Selects and uses suitable materials for comparing (A&PS)			
10	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 <i>Maths and Me</i> Progression Continua Overview' for a detailed breakdown of how all progression continua are covered.
 Maths Language	See 'Junior Infants <i>Maths and Me</i> Maths Language Overview', individual lesson plans and Unit 2 Maths Language Cards
 Equipment	See 'Junior Infants <i>Maths and Me</i> Maths Equipment Overview' and individual lesson plans.
Inclusive Practices	<ul style="list-style-type: none"> ● See Let's Strengthen and Let's Deepen suggestions throughout lesson plans. ● See Unit 2 Let's Strengthen Suggestions for Teachers. (These address the Common Misconceptions and Difficulties listed below.) ● See Unit 2 Let's Strengthen PCM. ● See Unit 2 Let's Deepen PCM.
Integration	See individual lesson plans.

Background and rationale

- At the beginning of this fortnightly unit, the children engage with the concept and associated language of length. They explore the meaning and application of the words 'long' and 'short' in terms of the world around them.
- They move on to the comparative language of 'longer' and 'shorter'.
- The children then begin to explore length in terms of manipulatives – an introduction to actual measuring. When using cubes, for example, the children are beginning to discover that length can be quantified. At this stage, they are not counting cubes, but subliminally noticing that, for example, the longer snake has more cubes. In a Let's Deepen activity, the children explore an introduction to measuring, using cubes.
- Having experienced the application of the word 'short', the children now explore the concept of tall/short, and the comparative taller/shorter.
- Week 2 sees the introduction of the concept of weight (light/heavy and lighter/heavier). Problem-solving aspects of weight are considered (e.g. how to move a heavy or light object without picking it up).
- Towards the end of this fortnightly unit, the children explore the concept of big/bigger/biggest, and small/smaller/smallest. The superlative forms of these adjectives are covered, as most children will be familiar with the words 'biggest' and 'smallest' (as opposed to 'lightest' and 'heaviest'). The children are using all three forms of big and small, so they can engage in activities in both comparing and ordering. This provides a seamless lead-in to ordering of number (Unit 3 – Numbers 1 to 3).
- There is a focus on conservation of length, where children begin to realise that the length of a ribbon, for example, doesn't change when the ribbon is moved. The children's attention is also drawn to the necessity for 'fairness' when determining length by the use of a 'baseline'.
- Most lessons are enhanced by carefully curated picture books, rhymes and songs which are at the heart of the *Maths and Me* programme for Infants.
- There is an emphasis on sorting activities and using one-to-one correspondence, building on Unit 1 – Number Readiness.

The theme of this unit is **The Three Bears**.

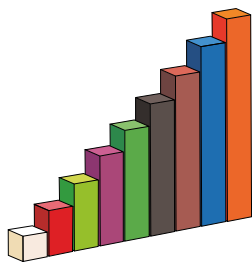
Common misconceptions and difficulties

- The children may not realise the need for a 'common baseline' to align the starting points of objects when comparing lengths.
- The children may not understand 'conservation of length' (e.g. if a pencil is 4 cubes long it is still 4 cubes long when measured at a later stage or when repositioned).
- The children may not be using the language of measuring correctly or they may not understand the language being used.
- The children may not understand the importance of non-standard units being the same, e.g. cubes being used to measure all the objects.
- The children may think that larger objects always weigh more than smaller objects.
- Some children may have difficulty understanding comparative and superlative terms, e.g. *This pencil is longer than this crayon. This stone is heavier than this feather.*
- At this stage, some of the language used for length and weight is 'relative' to another object, e.g. *This piece of wool is long. This piece of wool is short.* Or, for example, a stone is 'heavy', and a feather is 'light'. These statements are only made as a result of comparing the objects.

The Unit 2 Let's Strengthen Suggestions for Teachers address the common misconceptions and difficulties listed above.

Mathematical models and representations

- Cuisenaire rods
- Carroll diagram



Cuisenaire rods

Teaching tip

A Carroll Diagram manipulative printable is available to support this unit. Click on the resources icon on the *Maths and Me* book cover on edcolearning.ie.

Day 1, Lesson 1

Long and Short

Focus of learning (with Elements)

- Explores how measures help us to make sense of our world (U&C)
- Explores and identifies the different attributes (e.g. length – long/short) of a single object that can be measured (U&C)
- Recognises that to be accurate, measurements must be fair (U&C)

Learning experiences

- D** Poster: At the Park
MAM Routines: Notice & Wonder; Reason & Respond
- C** Concrete activity: Measuring Hair
- C** Concrete activity: Sorting Long and Short Pieces
- P** Pupil's Book page 10: Long and Short

Equipment

- Ball of string/cord
- Scissors
- Two different lengths (long and short) each of string, cord, ribbon, wool, coloured raffia and fabric (strips) for each group

Maths language

- long, short
- informal use of: measure

Warm-up

D Poster: At the Park **MAM Routine:**
Notice & Wonder; Reason & Respond

Display the poster and use the audio questions to prompt the children to consider the scene. Encourage them to use the appropriate language ('long' and 'short'). Click to play or ask:



- What do you notice?
- What do you wonder?
- Which looks longer: the tug of war rope or the tyre rope?
- Which looks shorter: Monty's tug toy or the kite string?
- Does the bench look shorter than the kite string?
- Does the tug of war rope look longer than the tyre rope?
- Which looks shorter: the tree or the flowers?
- Which looks longer: the tyre rope or the cat's tail?
- Which looks longer: the tug of war rope or the skipping rope?
- Does the slide look longer than the bench?
- Does the boy skipping look shorter than Mia?
- Which looks shorter: Dara's trousers or Mia's trousers?

C Concrete activity: Measuring Hair

In this activity, you will assess the children's understanding of some of the terms that pertain to length and measuring. You will need a ball of string/cord and a pair of scissors. Choose a child with long hair or refer to a doll/toy in the play area with long hair. Ask:

- What can we say about Grace's hair? (Try to elicit the word 'long'.)
- Does anyone else in the class have long hair?
- How could we find out how long Grace's hair is? (You could get some interesting answers!)
- How could we *measure* her hair?
- I have a piece of string/cord and scissors. How could they help us?
- Where should we start? (top of her head/end of her hair)

Get agreement from the class that you are going to start measuring at the roots of Grace's hair. Measure her hair with assistance from the class (cutting the string/cord accordingly). You could pin the string/cord to a notice board and write the child's name beside it. Comparisons in length could be made throughout the year.

Teaching tip

Begin to strengthen the concept of ‘conservation of length’ by eliciting the same information in different ways. Ask:

- If Grace lies down on the floor, how long will her hair be then?
- How long will the piece of string be then?
- How can we find out?

Do some or all of the children understand that the piece of string will be the same length?

Introduce another child or doll with short hair. Ask:

- What can we say about Kevin’s hair? (It is short.)
- Measure Kevin’s hair from the roots (if time allows).

Let’s deepen

Make a comparison between the length of the two pieces of string/cord.

Main event

C Concrete activity: Sorting Long and Short Pieces

Distribute two different lengths of several pieces of string, cord, ribbon, wool, etc. to each group. Ask:

- How could we sort these pieces?
- Can you hold up one of the pieces? What can you say about it? (It is long/short.)
- What way could we sort out the pieces? (sets of long pieces and sets of short pieces)

When the children have sorted the pieces, ask them what they have done. They might like to explain their decision to the class.

Let’s deepen

Ask:

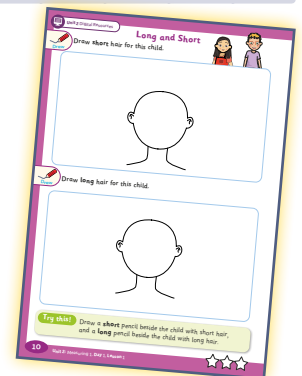
- Which set has more: your set of long pieces or your set of short pieces?

The children will use one-to-one correspondence to find out.

Teaching tip

While the children are determining the attributes (long or short) of the pieces of string, cord, ribbon and wool, draw their attention to the need for a common ‘baseline’ or starting point. Phrase this need in the context of ‘fairness’, e.g. *It’s like starting a race; everyone should start in the same place.*

P Pupil’s Book page 10: Long and Short



Optional consolidation and extension possibilities



Long or Short? Play the interactive multiple-choice game, in which the children must decide whether the items are long or short.

Class Discussion Is there another way that we could sort out the pieces? (e.g. by texture, colour, type)

Measuring Feet Measure the children’s feet/shoes (perhaps over a few days). Attach each piece of string to a section of the classroom wall or notice board. Write each child’s name above their piece of string. At different times of the year, you could measure their feet/shoes again and note the changes.

Maths Eyes Ask the children to look around the classroom.

- Can you see anything that is long? (e.g. fluorescent light, alphabet frieze)
- Can you see anything that is short? (e.g. crayon, toy)
- Look outside the classroom. Can you see anything that is long? (e.g. fence, slide)
- Can you see anything that is short? (e.g. bush, grass)

Length Table Set up a table or an area where the children can place long and short items that can be compared. They might add a piece of straw, a string, a blade of grass, a twig, etc. Using a common baseline/starting point, they should compare different items. Some children could record the results.

Day 2, Lesson 2

Comparative – Longer and Shorter

Focus of learning (with Elements)

- Makes direct comparisons of objects, containers or surfaces to compare measurable attributes and develop an understanding of same (U&C)
- Describes and discriminates between items, using appropriate comparative language (C)
- Recognises that to be accurate, measurements must be fair (U&C)

Learning experiences

- D** Digital activity: Longer or Shorter?
MAM Routine: Reason & Respond
- C** Concrete activity: Sorting and Cutting Long and Short Pieces
- C** Game: Ribbon Battle. **MAM Routine: Reason & Respond**

Equipment

- Scissors for each child/group
- Two different lengths (long and short) each of string, cord, ribbon, wool, coloured raffia and fabric (strips) for each group
- Play dough

Maths language

- longer, shorter, compare

Warm-up

- D** Digital activity: Longer or Shorter?
MAM Routine: Reason & Respond

This slideshow contains images of real-world objects for a comparison of two objects. Ask the children to

look at the images and identify which is shorter, which is longer.

Main event

- C** Concrete activity: Sorting and Cutting Long and Short Pieces

This is an opportunity to assess whether the children understand the need to use a 'common baseline' when measuring two (or more) objects. And can they manipulate the objects in order to form a common baseline? You are also assessing their understanding and application of the comparative terminology: 'longer', 'shorter', etc.

Distribute two different lengths of string, cord, ribbon, wool, etc. to each group. Ask:

- Can you hold up two pieces?
- Are they the same length, or is one piece long and the other piece short?
- How will you compare the two pieces of ribbon?
- Do the two ends need to start at the same place?
- What will happen if one end starts here and one end starts here? (Show two different starting points.)



- What can you tell me about the two pieces? (You are trying to elicit: *One is shorter./One is longer.*)

Teaching tip

Help the children to see the connection between the two pieces by explaining the following:

- If this piece (A) is longer than this piece (B), then this piece (B) is _____ than this piece (A).

Hold up the long piece (A) and ask:

- How could we make this piece shorter? (We could use the scissors – but not yet!)

Hold up the short piece (B) and ask:

- How could we make this piece longer? (You might get some interesting answers!)

Distribute scissors to each child/group. Tell the children to use the scissors to make the long pieces shorter, and to say what they are going to do before and after cutting. Ensure that they are cutting their

own piece of ribbon and not their partner's, so that no child gets upset. Say/ask:

- Tell me about these two pieces. (One is shorter./ One is longer.)
- How could you make them the same (length)?
- Is this piece longer than that piece? (Yes.)
- I am cutting this piece off. (Cut a length off the longer piece.) Now which piece is longer?

Let's strengthen

If some children have difficulty using scissors in this activity, they could use play dough instead. Demonstrate rolling a small piece of play dough into a short snake. Hold up the snake and ask:

- How could we make this snake longer?

The snake could be rolled to make it longer. Two short snakes could also be joined together to make one long snake. To make a short snake, a piece can simply be broken off a long U.

The children may benefit from extra practice making long and shorter snakes. See the Unit 2 Let's Strengthen PCM.

C Game: Ribbon Battle

MAM Routine: Reason & Respond

Gather up the lengths of string, cord, ribbon, wool, etc. and place the bundle in the centre of the table for each group. In pairs, the children both close their eyes and pull one piece from the bundle. When they open their eyes, the pair should compare lengths. Whoever has the longer piece keeps both pieces. A new pair closes their eyes and pulls more pieces from the bundle. The player with the most pieces at the end wins the game.

Let's deepen

Some children might like to pull a few pieces of different lengths and put them in order, starting with the shortest. (Use the superlative words 'longest' and 'shortest' at your own discretion.) These children might like to informally record their findings.

Optional consolidation and extension possibilities



Story Read *The Long and Short of It* by Cheryl Nathan and Lisa McCourt, or the audio recording of the story. It features attribute comparisons (longer, shorter) between the body parts of different animals and everyday objects (for example, 'Zebras' necks are shorter than chair legs.' Ask the children to predict how long or short each body part is, in comparison to the object mentioned. For example: *I think an elephant's trunk would be longer than the classroom. Let's read about it! It says in the story that it's longer than a whole car!* edco.ie/d4xs

Role Play Role-play a hardware shop, with one child as the shopkeeper and other children as customers. The shopkeeper should have a pair of scissors and a roll of wool/string/cord, from which to dispense different lengths to the customers. The customers might ask for a longer piece, a shorter piece or piece the same length as another customer's.

Games Bank Play 'Game of Throws' from the Games Bank.

Day 3, Lesson 3

Comparing Length, Using Manipulatives

Focus of learning (with Elements)

- Uses appropriate vocabulary to describe and then compare measurable attributes (C)
- Predicts how measurable attributes of objects will compare to each other (R)
- Explores various materials used to compare the attributes of length, weight, capacity and area (A&PS)

Learning experiences

- C** Game: What Am I?
- C** Concrete activity: Comparing Length, Using Manipulatives
MAM Routines: Reason & Respond, with Think-Pair-Share
- P** Pupil's Book page 11: Comparing Length, Using Manipulatives

Equipment

- Cubes
- Counters
- Blocks
- Links

Maths language

- There is no new maths language for this lesson.

Warm-up

C Game: What Am I?

Use this game to assess the children's application of the following terms: *long*, *longer*, *short*, *shorter*. Tell them to look around the classroom and use their Maths Eyes to help them spot certain objects, in response to your directions. For example:



- Can you see a short object? (crayon)
- I am longer than a crayon. What am I? (pencil)
- I am longer than a pencil. What am I? (paintbrush)
- I am longer than a paintbrush. What am I?
- I am shorter than a paintbrush. What am I?

Let's deepen

Introduce the following phrases: 'a little bit shorter than', 'a lot shorter than', 'a little bit longer than', 'a lot longer than'.

Ask:

- How do you know that the paintbrush is longer than the crayon?
- How could we check?
- How can we be fair? (common baseline)
- Which do you think is longer: that scarf or that table? How will we find out?

Main event

C Concrete activity: Comparing Length, Using Manipulatives **MAM Routines: Reason & Respond, with Think-Pair-Share**

Distribute cubes, counters, blocks and links to each group. Tell the children to each make a long snake (or earthworm/caterpillar). Ask:

- Can you make a longer snake?
- How will you do that? (Add *more* cubes.)
- How could we make the snake just a little bit longer? (Add one cube.)
- How can we make the snake shorter?
- Make two different snakes. Now, can you make them the same length? How did you do that?
- Can you make one snake longer/shorter? How will you do that?
- How do you know that this snake is long and this one is short?

In pairs, the children should now make two snakes – one longer and one shorter. Say/ask:

- Break up your snake. Whose snake had more cubes? (using one-to-one correspondence)

- Make your snakes again.
- Now, make them the same length.

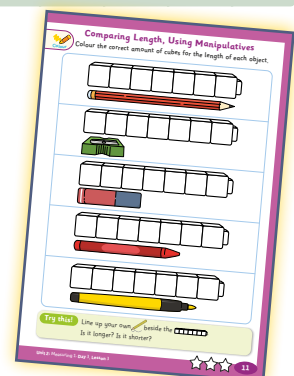
Let's deepen

Tell the children to make a few snakes of different lengths. Ask:

- Can you put your snakes in order?
- Which snake is the shortest/longest?

Show the children two groups of cubes, one with more cubes than the other. Ask:

- Which group will make the longest snake?

P Pupil's Book page 11: Comparing Length, Using Manipulatives

Optional consolidation and extension possibilities

Measuring Objects The children should use cubes to ‘measure’ pieces of ribbon/string and other classroom items, such as a glue stick, a crayon and a pencil. They are not counting out the cubes, just aligning an amount of cubes against the item. They may notice that, e.g., a pencil is not equal to an exact amount of cubes – there’s a ‘bit of cube’ left.

Cube Snakes Place a variety of ‘cube snakes’ on the table (e.g. one made of five cubes, one made of three and another made of six). The children should try to

find items that are the same length as the ‘cube snakes’. Again, they are not counting the amount of cubes, they are using the cubes as a gauge for ‘measuring’.

Cuisenaire Rods The children should use Cuisenaire rods to make short/shorter and long/longer ‘walls’. They should use the smallest rods to extend a wall, and align the equivalent rods below (to make them the same length).

Day 4, Lesson 4

Tall and Short

Focus of learning (with Elements)

- Explores how measures help us to make sense of our world (U&C)
- Explores and identifies the different attributes (e.g. height – tall/short) of a single object that can be measured (U&C)

Learning experiences

- D** Animation: Tall and Short
MAM Routine: Reason & Respond
- C** Concrete activity: Measuring Height
- C** Concrete activity: Can You See ...?

Equipment

- Doctor’s white coat or stethoscope
- String, wool or cord
- Teddy or doll
- Measuring tape (optional)

Maths language

- height

Warm-up

- D** **Animation: Tall and Short**
MAM Routine: Reason & Respond

Play the animation of tall and short objects and animals. Ask the children which objects or animals are tall or short. Why do they think that?

Main event

- C** **Concrete activity: Measuring Height**

Choose a child to help the ‘doctor’ (you) measure a child’s height, using string or wool. (You might like to use a measuring tape for the purpose of role play.) Ask for a volunteer to be measured. Choose a spot on a wall to measure them. You are assessing the children’s understanding of some of the terms that pertain to measuring. Ask:

- What height is Conor?/How tall is Conor?



- How could we find out?/How could we measure Conor?
- I have a piece of string, scissors and the wall. How could these help me find out how tall Conor is?

Measure Conor against the wall and cut off the correct amount/length of string. Introduce a teddy bear and place it beside Conor. Ask:

- What can we say about the teddy? Is he tall? (No, he is short.)

Measure yourself to create an obvious visual example of three different sizes. Say/ask:

- How will I measure myself? How could Conor help?

C Concrete activity: Can You See ...?

Tell the children to put on their Maths Eyes and look around the classroom. Ask:

- Can you see something that is tall? (e.g. teacher)

- Can you see something that is short? (e.g. crayon, toy)

Tell the children to look out of the window. Ask:

- Can you see something that is tall? (e.g. tree, wall)
- Can you see something that is short? (e.g. bush, grass)

Optional consolidation and extension possibilities

Tall and Short Draw an outline around a child's body on a large sheet of paper and hang this on the wall. Draw an outline around a teddy/doll and hang this beside the other outline.

Visual Arts Draw or paint objects or animals from the animation that were tall or short.

Walk Tall, Walk Short (Integration with PE) In the PE hall, the children practise making themselves tall by stretching upwards, and making themselves short by crouching down on their hunkers.

When you call out 'Tall!', the children jump and stretch upwards.

When you call out 'Short!', they crouch down.

When you call out 'Walk tall!', they walk as if on stilts.

When you call out 'Walk short!', they scoot, hop or wobble along the floor while crouched down.

Role Play The children could continue role-playing doctor and patient, measuring each other and informally recording the results.

Tall or Short? Play the interactive multiple-choice game, in which the children must decide whether which item is tall/short.



Day 5, Lesson 5

Comparative – Taller and Shorter

Focus of learning (with Elements)

- Makes direct comparisons of objects, containers or surfaces to compare measurable attributes and develop an understanding of same (U&C)
- Describes and discriminates between items, using appropriate comparative language (C)
- Listens and responds to a range of stories and rhymes involving concepts of measurement (C)

Learning experiences

- P** Story: *Taller and Shorter* by Usborne Books
MAM Routine: Reason & Respond
- D** Digital activity: Taller and Shorter
- C** Concrete activity: Comparing Animal and Structure Heights
- P** Pupil's Book page 12: Comparative – Taller and Shorter

Equipment

- Twigs, building bricks, blocks, boxes, trailing ivy or other climbers, and play dough – any materials suitable for constructing towers, skyscrapers, beanstalks and trees
- Small-world or toy animals
- Monty the puppet

Maths language

- taller

Warm-up

- P Story: *Taller and Shorter*** by Usborne Books
MAM Routine: Reason & Respond

Read the picture book, which provides an entertaining introduction to the concept of height. Discuss the animals on each page, in terms of comparing their heights. Ask:

- Who is taller: Panda or Hippo?
- Is Meerkat shorter than Duck?

Point out that although Meerkat is taller than Duck, he is shorter than Fox. Similarly, you might be taller than another child in the class, but a boy or girl from an older class will be taller than you. There will always be someone (and something) taller or shorter than you. Ask:

- Who in your family is shorter than you? (baby brother/sister/cousin)

Teaching tip

A reading of *Taller and Shorter* is also available at: edco.ie/8vuc

- D Digital activity: Taller and Shorter**

This is a multiple-choice activity to compare three objects. Ask the children to look at the items and decide which one is taller or shorter.

Assess whether the children understand that the concept of the terms 'shorter' and 'taller' is relative. For example: X might be taller than Y but shorter than P.



Main event

- C Concrete activity: Comparing Animal and Structure Heights**

Distribute the small-world animals. Start off by comparing the heights of the animals. Say/ask:

- Choose two animals. Which one is taller/shorter?
- Can you find two animals that are the same height?
- Choose one animal. Can you find an animal that is taller/shorter?
- Which animal in the whole group is the tallest?
- How will you find out?

Find out if Monty the puppet is taller or shorter than a teddy, a doll (and any other soft toys in the play area).

Distribute the twigs, building bricks, blocks, boxes, trailing ivy, play dough, etc. You might like to give only one type of building material to each group (e.g. twigs to one group). Tell the children that they are going to construct a tower, skyscraper, beanstalk or tree that is taller than the animals. They will probably need guidance while doing this. Ask:

- How will you use the twigs? Could you use play dough to hold them in place? Could you pile them

on top of each other like a bonfire?

- What will you build with the bricks? Could you build a tower or a house chimney? (Will it be 'solid' or 'hollow'?)
- How will you build it?
- Will the skyscraper be taller than a tower?
- How will you make a beanstalk? Could you stack some boxes or twigs and let the ivy trail from the top?
- Is your ... (e.g. tower) taller than the tiger?
- Could the chicken reach the top of the beanstalk? Is it shorter than the beanstalk?
- Can you tell me about what you have made and the animals beside it?

- P Pupil's Book page 12: Comparative – Taller and Shorter**



Optional consolidation and extension possibilities

Let's Deepen Using Cuisenaire rods, make comparisons between tall and short rods and explore how to make them equal.

Visual Arts Draw, paint or construct a cityscape of tall and short buildings.

Nature Walk Go on a nature walk to collect a variety of sticks/twigs. Ask the children to 'stand them up' and compare sizes. (Some children could put them in order.) They could use their sticks to make a stick-man before or after listening to you read the story



Stick Man by Julia Donaldson or listen to a recording at edco.ie/nf76

Let's Deepen Make three figures from play dough and put them in order of tall, taller, tallest.

Bears on Stilts Make bears on stilts by using small bear manipulatives, lollipop sticks (or chopsticks, toothpicks, twigs, etc.) and play dough. Attach the

bears to their stilts using play dough, and then compare their heights. Some children could explore the medium-sized and big bear manipulatives next. If they put them on the identical stilts, will they then be the same height?

Home/School Links Book Page 8 can be completed any time after this lesson.

Day 6, Lesson 6

Heavy and Light

Focus of learning (with Elements)

- Explores and identifies the different attributes (e.g. weight – heavy/light) of a single object that can be measured (U&C)
- Informally records comparisons and measurement activities (C)

Learning experiences

- D** Animation: Heavy and Light
MAM Routine: Notice & Wonder
- C** Concrete activity: Maths Eyes
- C** Concrete activity: Sorting Heavy and Light Objects
- C** Concrete activity: Blindfolded Weighing
MAM Routine: Reason & Respond
- P** Pupil's Book page 13: Heavy and Light

Equipment

- Big, empty shopping bag
- Small, heavy stone (or another small, heavy object)
- Heavy and light objects from the classroom (or small-world area or display)
- Blindfolds (one for each pair)
- PCM 7

Maths language

- heavy, light, weigh

Warm-up



- D** **Animation: Heavy and Light**
MAM Routine: Notice & Wonder

Play the animation. Ask the children to join in and decide whether an object is heavy or light. Ask:

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

- C** **Concrete activity: Maths Eyes**

You will need the shopping bag and the stone for this activity. Tell the children to put on their Maths Eyes and look for items that are heavy and light in the classroom and outside. Ask:

- How do you know the stone is heavy? (Weigh it in your hand and feel how heavy it is.)
- How do you know the feather is light? (Weigh it in your hand and feel how light it is.)

- Do you think this chair/pencil/laptop/crayon will be heavy or light?
- Look at this big, empty bag. Is it heavy? (No.)
Look at this little rock. Is it heavy? (Yes.)

You are helping the children to see that big does not always mean heavy, and small does not always mean light. Assess whether the children understand this possible misconception.



Assessment Opportunity

Teaching tip

The objects that the children are sorting into 'heavy' and 'light' need to be very different in weight to establish the early concept of heavy and light.

Main event

C Concrete activity: Sorting Heavy and Light Objects

Distribute heavy and light objects from the classroom or small-world area to each group. The children will sort these into 'heavy' and 'light'. Let them explore and discuss the objects (and their properties) first. They then weigh each object in their hand (or both hands) and decide whether it is heavy or light. They might like to make a set of heavy and a set of light objects and decide which objects belong to each set. They could informally record their findings, using PCM 7: Carroll Diagram with two headings added for 'Heavy' and 'Light'. Swap the objects between the groups.

Let's deepen

Some children might make a set of heavy objects and a set of light objects to see which set has more. They will use one-to-one correspondence to find out.

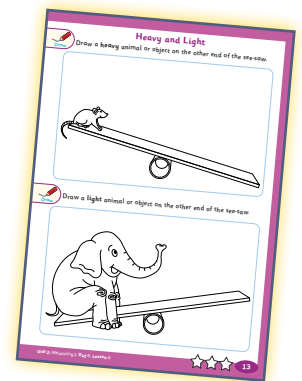
Let's deepen

The children could sort by two attributes, e.g. items that are heavy and hard, and items that are light and soft.

C Concrete activity: Blindfolded Weighing MAM Routine: Reason & Respond

Distribute a blindfold to each pair. One child puts on the blindfold and their partner gives them an object. The blindfolded child decides whether the object is light or heavy based on the weight of it in their hand.

P Pupil's Book page 13: Heavy and Light



Optional consolidation and extension possibilities

Heavy Bag, Light Bag Place two bags on your desk – a small one containing heavy items (e.g. shoes, books) and a bigger one containing light items (e.g. ribbons, feathers, cotton wool). The children guess which bag is heavy and which one is light, and then pick up each one to find out the answer. You could record their answers on the IWB as a Data activity, under two headings: 'Heavy' (the children who 'vote' for heavy) and 'Light' (the children who 'vote' for light).

STEM Investigate heavy and light objects in terms of how they could be moved.

- How could we put this heavy table over in that corner? Could we pick it up? (No, it's too heavy.)
- How could we move it? (Push it or drag it.)
- How could we move this feather without picking it up? (Blow it.)

- How could we move this toy car without picking it up? (Push it.)

Investigate other objects in terms of how they could be moved (e.g. by rolling). Do the children know how to safely lift a heavy item by bending their knees?

Weight Table Set up a table or an area where the children can place heavy and light items that can be compared. The items could be labelled (e.g. a feather would be labelled 'light' and a stone would be labelled 'heavy'). Try to ensure that the objects are obviously heavy and light.

Heavy or Light? This is a multiple-choice activity to compare two objects. Ask the children to look at the items and decide whether they are heavy or light.



Day 7, Lesson 7

Comparative – Heavier and Lighter

Focus of learning (with Elements)

- Explores various materials used to compare the attributes of weight (A&PS)
- Predicts how measurable attributes of objects will compare to each other (R)
- Makes direct comparisons of objects, containers or surfaces to compare measurable attributes and develop an understanding of same (U&C)
- Listens to and responds to a range of stories and rhymes involving concepts of measurement (C)

Learning experiences

- P** Story: *Just a Little Bit* by Ann Tompert **MAM Routine: Notice & Wonder**
- C** Concrete activity: Maths Eyes
- C** Concrete activity: Weighing with Clothes Hangers
- C** Concrete activity: At the Sweet Shop

Equipment

- Feather
- Heavy and light objects from the classroom (or small-world area or display)
- Two small boxes/tubs of similar size and weight, small enough to fit in a plastic cup
- Heavy and light objects, small enough to fit in a plastic cup
- Clothes hangers with two plastic cups or small bags attached (one for each group)
- Two transparent plastic cups per hanger
- Two clamps (e.g. office foldback clips) per hanger or a ball of string and a hole punch
- Balance scale
- Cubes, links or other manipulatives

Maths language

- heavier, lighter, balance

Warm-up

- P** Story: *Just a Little Bit* by Ann Tompert
MAM Routine: Notice & Wonder

Read the story, which features a heavy elephant and a light mouse playing together on a see-saw. They need their friends to help them make the see-saw balance. Ask:

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

Teaching tip

A reading of *Just a Little Bit* is also available at: edco.ie/yrd8

- C** Concrete activity: Maths Eyes

Tell the children to put on their Maths Eyes and look around the classroom. Ask:

- Can you see anything that looks light? (e.g. cotton wool, feather, leaf)
- Can you see anything that looks heavy? (e.g. school bag, laptop, table, box of books)

Distribute a range of heavy and light objects to each group. (You will also need two small boxes/tubs of similar size and weight for this activity.) Ask one child to feel how light a feather is in their hand. The same child then tests the weight of a school bag in their hands. Ask:

- Which feels heavier?
- Which feels lighter?

The children explore a range of classroom objects. Ask them to predict which objects will be heavier/lighter before weighing them in each hand. Next, ask them to weigh the two small boxes/tubs of similar

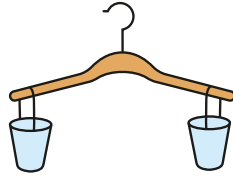
size and weight in their hands. Do they agree that it is hard to tell which box/tub is heavier? This leads on to explaining the need for a 'fairer' method of

determining which object is heavier/lighter. Now the children can begin to see a need for a balance scale, for example.

Main event

C Concrete activity: Weighing with Clothes Hangers

Attach a plastic cup to each side of a clothes hanger, using a clamp. Alternatively, you could punch two holes in each plastic cup, thread string through the holes



and then hang the cups from the clothes hanger.

The cups need to be clamped/hung directly in line with one another, i.e. balanced. (If you do not have plastic cups, small transparent plastic bags could also be clamped or tied to the hanger.) Distribute a prepared hanger and a range of heavy and light small objects to each group. (You will also need the two small boxes/tubs of similar size and weight from the previous activity.) Hold up one of the hangers by its hook and explain to the children that the cups are balanced/facing each other when they are empty. Tell the children to place a heavier object in one cup and a lighter object in the other cup (thus predicting which objects are heavier and which are lighter). They should 'weigh' the objects by holding up the hanger by its hook. Ask:

- Do you think this ... (e.g. stone) will be heavy?
- Will it be heavier than the ... (e.g. feather)?
- What will happen to the cup when we put the stone into it?
- What will happen to the cup when we put the feather into it?
- Do any of the objects balance each other?

The children might like to record their findings informally. They could then test the two boxes/tubs that were ambiguous in terms of making a comparison. Can the balance decide the outcome?

Assess whether the children understand how the balance operates. Do they appreciate that as one side goes down, the other side goes up, and why this happens? Can they articulate the reasoning behind this? Do they understand what it means when the two sides are balanced?



Let's deepen

The children could try weighing out cubes or other manipulatives on their clothes hanger and/or a balance scale. Ask:

- I put a handful of cubes into this cup. Can you balance these cubes?
- Can you make one cup heavier/lighter?
- Is there the same amount of cubes in this cup as there is in that cup? (They must use one-to-one correspondence to find out.)
- Can you balance a notebook and a handful of cubes? (They should add or take away cubes as needed.)

For an added challenge, use the Unit 2 Let's Deepen PCM.

C Concrete activity: At the Sweet Shop

Role-play a sweet shop with one child as the shopkeeper and two children as customers. The shopkeeper should use a balance scale to make sure that each customer gets the same amount of 'sweets' (cubes or links). The shopkeeper is not counting the amounts, just balancing them.

The customers need to be vigilant to ensure they get the exact same amount of 'sweets'. Is the scale equally balanced?

Optional consolidation and extension possibilities

STEM Make a 'see-saw', using a ruler and a spool, and balance/weigh some small objects on it. A small matchbox could be attached to each end of the ruler with sticky tape or play dough, so that cubes or bears can be added. The children could try different options

too, such as a can and a long box. They could also stick the objects onto the see-saw to stop them falling off.

Making Sets Make a set of heavy objects and a set of light objects. Which set has more?

Day 8, Lesson 8

Big, Bigger and Small, Smaller

Focus of learning (with Elements)

- Listens and responds to a range of stories and rhymes involving concepts of measurement (C)
- Describes and discriminates between items, using appropriate comparative language (C)
- Selects and uses suitable materials for comparing (A&PS)

Learning experiences

- P** Story: *Big and Small* by Elizabeth Bennett
MAM Routine: Notice & Wonder
- C** Concrete activity: Maths Eyes
- C** Concrete activity: Big Bear Wins
- D** Digital activity: Big or Small? **MAM Routine: Reason & Respond**
- P** Pupil's Book page 14: Big, Bigger and Small, Smaller

Equipment

- Big and small bear manipulatives of one colour only
- Big and small objects from the classroom (or small-world area or display)

Maths language

- big, small, bigger, smaller, size

Warm-up

- P** Story: *Big and Small* by Elizabeth Bennett
MAM Routine: Notice & Wonder

Read the story and ask:

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

- C** Concrete activity: Maths Eyes

Tell the children to put on their Maths Eyes, look around the classroom or out of the window and find objects that are big/small.

Teaching tip

A reading of *Big and Small* is also available at: edco.ie/kmbc

Main event

- C** Concrete activity: Big Bear Wins

You are assessing the children's understanding of the language being used; how the terms 'big' and 'small' are relative; and the need for a 'common baseline' when measuring.

Distribute the big and small bear manipulatives (of one colour only) to each group, placing them in the centre of the table. Each child closes their eyes and takes a bear. If they get a big bear, they keep it. If they get a small bear, they put it back. The person with the most big bears (when only small bears are left) wins the game. If there is a dispute over who has the most bears, the children should use one-to-one correspondence to decide.



- D** Digital activity: Big or Small?

MAM Routine: Reason & Respond

Play the multiple-choice game to compare the size of two objects. Ask the children to look at the items and decide which one is big and which one is small. Ask them to explain why they think this is.

Let's strengthen

For groups that need additional practice in sorting and acquiring the new maths language, the children should sort the bears into the two different sizes and explain their decision-making. Ask:

- Can you make pairs of bears? Are they both the same size?
- Which bear is the big one? How do you know?



- What can you say about this bear? (Hold up a small bear.)

Introduce the comparatives 'bigger' and 'smaller' to these groups at your own discretion.

Teaching tip

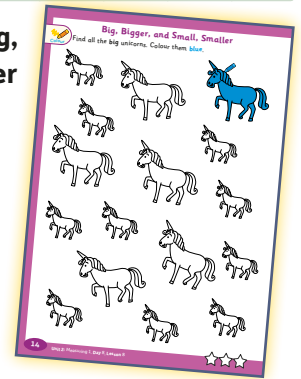
Ask the children to use a baseline when making comparisons between the small bear and big bear. Put the bears in a different position (e.g. on a window ledge) or separate the bears, and ask the same questions about size. Do the children recognise conservation of size?

Let's deepen

The children should sort random collections into sets of 'big' objects and 'small' objects and

explain their decision-making. They should make pairs of objects and predict which object is bigger or smaller before aligning them, using the comparative language of 'bigger' and 'smaller'.

- P Pupil's Book page 14: Big, Bigger and Small, Smaller



Optional consolidation and extension possibilities

Blowing Bubbles In pairs, one child blows a bubble and their partner then tries to blow a bigger bubble.

Magazines The children could look through old magazines and find images that show big/bigger and/or small/smaller. They could cut them out and stick them onto a blank sheet.

Play Dough Balls In pairs, one child makes a ball from play dough and their partner then makes it bigger or smaller (adding to or reducing the ball).

Nature Walk Go on a nature walk. Ask the children to stand beside an object that is bigger than them (e.g. a tree) or smaller than them (e.g. a flower).

Size Table Set up a table or an area where the children can place big and small items that can be compared. The items could be labelled (e.g. a teddy would be labelled 'big' and a cube would be labelled 'small'). Try to ensure that the objects are obviously big and small.

Home/School Links Book Page 9 can be completed any time after this lesson.

Day 9, Lesson 9

Biggest and Smallest

Focus of learning (with Elements)

- Chooses an object from a group of objects for a purpose based on a particular attribute (A&PS)
- Compares and orders objects, containers and surfaces according to appropriate measurable attributes (A&PS)
- Selects and uses suitable materials for comparing (A&PS)

Learning experiences

- D Animation: Comparative Sizes **MAM Routine: Notice & Wonder**
- D Digital activity: Biggest and Smallest (A) & (B)
MAM Routine: Reason & Respond
- C Concrete activity: Maths Eyes
- C Concrete activity: Maths Stations – Ordering Activities
- P Pupil's Book page 15: Biggest and Smallest

Equipment

- Bear manipulatives (in three sizes and of different colours)
- Twigs and leaves
- Play dough
- Small-world figures or animals
- Cubes or blocks

Maths language

- biggest, smallest, in order

Warm-up



D Animation: Comparative Sizes MAM Routine: Notice & Wonder

Play the animation and ask:

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



Assess whether any children are having difficulty with the language and the concept of putting objects in order.



D Digital activity: Biggest and Smallest (A) & (B) MAM Routine: Reason & Respond

Play the labelling and the sequencing games, in which the children must label/order the items into big, bigger, biggest and small, smaller, smallest.

C Concrete activity: Maths Eyes

Tell the children to put on their Maths Eyes and look around the classroom. Ask:

- Can you see some objects/things that could show us: big, bigger, biggest? (Help will be needed.)
- Can you see some objects/things that could show us: small, smaller, smallest?

Teaching tip

Although superlatives are introduced in Senior Infants, we have used 'biggest' and 'smallest' in this unit on Measuring because most children will be familiar with these terms and they allow the children to do ordering activities. Other superlatives e.g. 'lightest' would be more challenging.

Main event

C Concrete activity: Maths Stations – Ordering Activities

Group 1: Distribute bear manipulatives (in three sizes and of different colours). The children should use the bears to set out: big, bigger, biggest. Ask/say:

- Which bear is this? (It's the biggest one.)
- I've mixed them up. Can you put them back in order?
- (Take one bear away.) Can you 'name' the missing bear? (It's the big/bigger/biggest one.)

Tell the children to set out three rows of three bears as follows:

- Small, medium and large red
- Small, medium and large blue
- Small, medium and large yellow.

One child removes a bear while the other children have their eyes closed. The children then open their eyes and describe the missing bear.

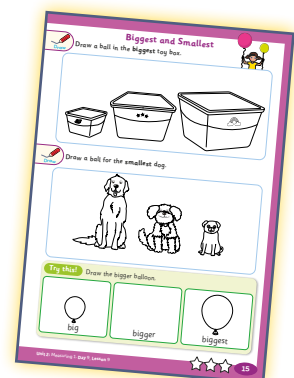
Group 2: Distribute twigs and leaves. The children examine the twigs and leaves and order them into: big, bigger, biggest. (Some children may like to order them into: small, smaller, smallest.) Can the children show you the big, bigger, biggest twig/leaf? They might like to record the order of twigs or leaves on their MWBs.

Group 3: Distribute play dough. The children each make a ball of play dough. Next, they make a bigger ball. Finally, they make the biggest ball. Can they select the big/bigger/biggest ball?

Group 4: Distribute small-world figures or animals. The children order the figures/ animals into: big, bigger, biggest. (They could also order them into: small, smaller, smallest.) Can the children explain the order and use the correct language?

Group 5: Distribute cubes or blocks. The children use these to build a tower. Next, they build a bigger tower. Finally, they build the biggest tower. (This could be done for small, smaller, smallest.) These children might informally observe the increasing (or decreasing) *amount* of cubes/blocks being used, i.e. the next tower up in size might have 'another/one more cube'.

P Pupil's Book page 15: Biggest and Smallest



Optional consolidation and extension possibilities

Maths Journal Show the children a small object, e.g. a stone. Then show them a smaller stone. Then show them an even smaller (the smallest) stone. Now ask the children to draw a stone or a small animal. What

will they draw (e.g. a mouse)? Now ask them to draw a smaller one. Now ask them to draw the smallest one. Did they leave enough space on the page?



Story Read the story of ‘The Three Billy Goats Gruff’ (big, bigger, biggest). A recording is also available: edco.ie/8mcz

Sensory (‘Feely’) Bag Place three objects – small, medium, large – in a sensory bag. The children feel the objects carefully. Can they identify the objects and order them?

Visual Arts The children could make the Three Billy Goats or draw/paint them.

Visual Arts In pairs, one child paints or draws an object, and their partner then draws a bigger or smaller version of it. Alternatively, one child could draw a big and biggest object, and their partner could draw the middle-/medium-sized (i.e. ‘bigger’) object.

Day 10, Lesson 10

Review and Reflect

Focus of learning (with Elements)

- Reviews and reflects on learning (U&C)

Warm-up

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

Main event

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

<p>Main event</p> <p>Revisit the main event from one of the lessons – or do one you did not have time to try.</p>	<p>Let’s play!</p> <p>Play a game from the Games Bank, or carry out an activity from the Optional Consolidation and Extension Possibilities, or do a role play you did not have time to try.</p>
<p>Maths language</p> <p>Ask the children to explain some of the key language from this unit, perhaps using concrete examples or drawings on their MWBs.</p> <p>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?</p> <p>Read one of the picture books again or try one you did not have time to read.</p>	<p>Maths Stations</p> <p>Revisit the Maths Stations ideas in Lesson 9.</p>
<p>Progress Assessment Booklet</p> <p>Complete Questions 4–8 on pages 7–8. Alternatively, these can be left to do as part of a bigger review during the next review week.</p>	<p>Maths eyes</p> <p>Revisit one of the lessons for a Maths Eyes activity or do one you did not have time to try.</p>
<p>Let’s strengthen</p> <p>Identify children who might benefit from extra practice with some of the key concepts or skills in this unit. Consult the Unit 2 Let’s Strengthen Suggestions for Teachers.</p>	<p>Let’s deepen</p> <p>Use the Unit 2 Let’s Deepen PCM.</p>

