

# Stage 3 Maths Program

NSW K-10 Mathematics Syllabus Outcomes

## Fractions and Decimals (1) - Relate to Length

### MA3-7NA - Compares, orders and calculates with fractions, decimals and percentages

- and order unit fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12 and 100
- Model and represent strategies to add and subtract fractions with the same denominator
- Express mixed numerals as improper fractions and vice versa

## Length (1)

### MA3-9MG - Selects and uses the appropriate unit and device to measure lengths and distances, calculates perimeters, and converts between units of length

- Use the kilometre to measure lengths and distances
- Select and use appropriate instruments and units to measure lengths
- Record lengths and distances using the abbreviations km, m, cm and mm

## Working Mathematically

- MA3-1WM - Describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions
- MA3-2WM - Selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations
- MA3-3WM - Gives a valid reason for supporting one possible solution over another

## Assessment

Pre – Test

Post – Test

Term 1

Week 4

Learning Goal – Fractions and Decimals (refer to outcome)

Success Criteria – Fractions and Decimals (refer to indicators)

TIB – Fractions are important because they tell you what portion of a whole you need, have, or want. Fractions are used in many situations including baking, telling time and dividing people or objects into groups etc

Learning Goal – Length (refer to outcome)



Success Criteria – Length (refer to indicators)

TIB – We need to be able to accurately measure lengths and distances in everyday situations.

Homework – None this week – Starts Week 5

# Mathematics Weekly Plan

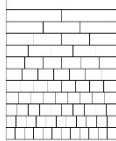
Term – 1 2 3 4    Week – 1 2 3 4 5 6 7 8 9 10 11    Strands – Fractions and Decimals (1)/Length (1)

|                           |  | Monday   | Tuesday  | Wednesday  | Thursday  | Friday   |
|---------------------------|--|--|--|--|---|--|
| <b>Key Ideas:</b>         |  | <b>Whole Number</b>  |  |  | <b>Data</b>   |  |
| <b>Warm Up</b>            |  | <b>Pre-Test: Fractions &amp; Length</b>  | Ninja Maths  | Ninja Maths  | 5 Minute Frenzy   | <b>Post-Test: Fractions &amp; Length</b>   |
| <b>Problem of the Day</b> |  | <p><a href="https://numeracyskills.com.au/resources/Stage_3_Diagnostic_Task_Job.pdf">https://numeracyskills.com.au/resources/Stage_3_Diagnostic_Task_Job.pdf</a></p> <p><b>Pre-Test: Fractions:</b><br/>Stage 3: Fractions and Decimals</p> <p>Name: _____ Class: _____ Date: _____</p> <p style="text-align: center; background-color: #e0e0e0;">STAGE 3: FRACTIONS AND DECIMALS</p> <p><b>QUESTION 1: ORDERING FRACTIONS</b>      KEY SKILL</p> <p>i) Place the following fractions on the number line below: <math>\frac{1}{2}, \frac{3}{9}, \frac{1}{3}, \frac{2}{5}, \frac{2}{3}</math></p>  <p>ii) Compare and order each fraction with denominators 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 16 and 18.</p> <p><b>Pre-Test: Length:</b><br/>Stage 3: Length</p> <p>Name: _____ Class: _____ Date: _____</p> <p style="text-align: center; background-color: #e0e0e0;">STAGE 3: LENGTH</p> <p><b>QUESTION 1: UNITS FOR MEASURING LENGTH</b>      KEY SKILL</p> <p>i) List some of the units of measure for length: _____</p> <p>ii) How many metres in 1 kilometre? _____</p> <p>iii) How many metres in 2.5 kilometres? _____</p> <p><b>QUESTION 2: CONVERTING UNITS OF MEASUREMENT</b>      KEY SKILL</p> <p>Convert the following lengths to metres or centimetres.</p> <p>a) 1.2 m = _____ cm      b) 0.05 m = _____ cm</p> <p>c) 2.025 km = _____ m      d) 10.78 km = _____ m</p> | <p><b>Open Ended Fraction problem:</b> <i>Some children shared 12 stickers equally. What fraction of the total number of stickers might each child get? How many stickers would that be?</i></p> <p><b>Possible responses:</b> If 2 children shared the stickers, they would each get 1/2 of the stickers, or 6 stickers. If 6 children shared the stickers, they would each get 1/6 of the stickers, or 2 stickers.</p> | <p><b>Adding Fractions:</b><br/>Mike picked 1/4 of a bucket of pears, and Tim picked 3/4 of a bucket of pears. How many buckets total did they pick? = 1 bucket: <math>\frac{1}{4} + \frac{3}{4} = 1</math> whole.</p> <p><b>Subtracting Fractions:</b><br/>Sally spends 5/9 of an hour working and also spends 1/9 of an hour at the park. How much less time does Sally spend at the park compared to working? = 4/9 of an hour.</p> | <p><b>Converting Improper Fractions to Mixed Numbers Problems:</b><br/><math>11/2 = 5 \frac{1}{2}</math><br/><math>10/3 = 3 \frac{1}{3}</math></p> <p><b>Converting Mixed Numbers to Improper Fractions Problems:</b><br/><math>9 \frac{7}{8} = 79/8</math><br/><math>7 \frac{1}{2} = 15/2</math></p> | <p><b>Post-Test: Fractions:</b></p> <p>i) Place the following fractions on the number line below: <math>\frac{3}{4}, \frac{1}{2}, \frac{2}{8}, \frac{5}{8}, \frac{6}{8}</math></p>  <p><b>Post-Test: Length:</b><br/>Students create 3-4 measurements and choose a conversion e.g.<br/>13m = _____ cm<br/>65m = _____ cm<br/>25km = _____ m</p> |

## Main Focus + Language

**(Teach Starter Lesson: You must have a log in to be able to access parts of this lesson: Lesson 2: Understanding Equivalence)**

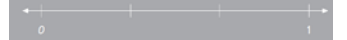
- Provide students with a blank Fraction Wall/Strips that are cut up to twelfths. Students will label and cut these strips out and briefly colour them. These will be used mainly support students placing equivalent fractions on a number line in group sessions (concentre materials)



- What is a Fraction? Ask students what they know about fractions. View link for additional information: <http://www.jamit.com.au/htmlFolder/Frac1001.html>
- Watch the video [The Easiest Way to Learn Fractions With LEGOs on YouTube](#). After watching, ask the students:
- Which unit fractions were made by cutting up the block of Lego?
- How many different ways was one half represented in the video?
- What is the word used to describe fractions that are written differently, but have the same value?
- Discuss the definition of equivalent fractions, as outlined on slide 10 of the [Understanding Equivalent Fractions PowerPoint](#). Encourage the students to add some more equivalent fractions to the list of examples.
- Display and discuss the annotated example on slide 11 and complete the whole class example on slide 12.
- Draw a number line on the board. Remind students that a number line shows numbers as points on a line. Tell students that you will use tick marks instead of points to locate the numbers. Draw tick marks and label them 0 and 1. Then draw another tick mark at 1/2.



- Ask students are there numbers between 0 and 1? What kinds of numbers? *Possible answers:* Yes, fractions and decimals Point to the tick mark at 1/2. What fraction should I write to label this point? How do you know? *Possible answer:* 1/2. It is halfway between 0 and 1. Point out that you divided the number line from 0 to 1 into 2 equal parts. If you count off one of the parts, the fraction you get to is a 1/2. Now sketch the following number line. Tell students you are going to divide the line between 0 and 1 into 3 equal parts. Label the line as students answer the following questions.



- Point to the tick mark at 1/3. What fraction is shown at this point? 1/3 Point to the tick mark at 2/3. What fraction is shown at this point? 2/3 Point to the tick mark at 1. What fraction is shown at this point? 3/3.
- During this session, encourage students to look at their fraction strips and ask: Are there any other fractions that are the same or equal to any of the thirds? e.g. 1/3 = 2/6 = 6/9.
- Practice Draw another number line and partition it into eighths. With the class, count the number of parts the line is divided into. Ask volunteers to come to the board and locate 1/8, 3/8, 4/8, and 7/8 on the line.
- During this session, encourage students to look at their fraction strips and ask: Are there any other fractions that are the same or equal to any of the eighths? e.g. 1/2 = 2/4 = 4/8
- Additional resources:
  - <https://www.youtube.com/watch?v=yHhPJfI5k>
  - <https://www.youtube.com/watch?v=14QY3ERndZg>
  - <http://slideplayer.com/slide/8375673/>
  - [https://learnzillion.com/lesson\\_plans/8141-identify-equivalent-fractions-using-a-number-line/](https://learnzillion.com/lesson_plans/8141-identify-equivalent-fractions-using-a-number-line/)

**(Teach Starter Lesson: You must have a log in to be able to access the lesson: Lesson 5: Adding and Subtracting Like Fractions)**

- Draw a large circle on the board and divide it into eighths. Ask a student to come up to the board and colour in two pieces. Underneath the circle, write two eighths as a fraction.
- Draw an addition sign next to the first circle, then draw a second circle of the same size. Divide this second circle into eighths. Ask a second student to come up to the board and colour in five pieces. Underneath the circle, write five eighths as a fraction.
- Draw an equal sign next to the second circle, then draw a third circle of the same size. Divide this third circle into eighths. Ask a third student to come up to the board and colour in seven pieces. Underneath the circle, write seven eighths as a fraction. Ask the students:
  - What do you notice about the numerator of the answer?
  - What do you notice about the denominator of the answer?
  - Why does the numerator change, but the denominator does not?
- Discuss the steps involved in adding and subtracting like fractions, as outlined on slide 6 of the [Adding and Subtracting Fractions PowerPoint](#). Encourage the students to suggest some examples of like fractions.
- Display and discuss the annotated examples on slides 7-9. Emphasise the importance of reducing the answer to its lowest terms.
- Display the review questions on slide 10. Monitor and support the students as they individually complete the questions on the slide.
- Display and discuss the answers to the review questions on slide 11. As the students correct their answers, encourage them to raise any queries or concerns.
- Provide the students with a copy of the [Adding Fractions With Common Denominators Worksheet](#). Monitor and support the students as they individually complete the worksheet.
- Correct the worksheet as a class. Ask the students to draw a smiley face (I can do this!), a straight face (I'm getting there!) or an unhappy face (I need some help!) on the top of the worksheet to indicate their understanding of the lesson's objective.

- Additional resources:
  - <https://www.youtube.com/watch?v=5juto2ze8Lg>

6 is a common multiple of 2 and 3.  $\frac{1}{2} + \frac{1}{3}$

Change fraction #1 to an equivalent fraction with a denominator of 6 - multiply top and bottom by 3.  $\frac{1 \times 3}{2 \times 3} = \frac{3}{6}$

Change fraction #2 to an equivalent fraction with the same denominator of 6 - multiply top and bottom by 2.  $\frac{1 \times 2}{3 \times 2} = \frac{2}{6}$

Example: Convert  $\frac{11}{4}$  to a mixed fraction.

Divide:  $11 \div 4 = 2$  with a remainder of 3

Write down the 2 and then write down the remainder (3) above the denominator (4).

Answer:  $2 \frac{3}{4}$

That example can be written like this:

Example: Convert  $\frac{10}{3}$  to a mixed fraction.

Divide:  $10 \div 3 = 3$  with a remainder of 1

Write down the 3 and then write down the remainder (1) above the denominator (3).

Answer:  $3 \frac{1}{3}$

- Watch the [Improper Fractions and Mixed Numbers](#) video on YouTube (this could be viewed more than once to consolidate students' understanding of the concepts presented). After watching, ask the students:
  - What makes a fraction 'proper'?
  - What makes a fraction 'improper'?
  - What is a mixed numeral?
- Discuss the definitions of improper fractions and mixed numerals; Improper: A fraction in which numerator is greater than or equal to denominator is called proper fraction, means a fraction that is greater than or equal to 1.

- Explicitly model each step with students viewing and taking step notes:
- Additional examples for explicitly modelling:

**Improper Fraction into Mixed Number**

Divide the numerator by the denominator.

For Example: Convert  $\frac{5}{4}$  to mixed Number

$\frac{5}{4}$

Use the quotient as the whole number. In our example quotient is 1.

Use the remainder as the numerator of the proper fraction. In our example remainder is 1.

The denominator will stay the same. In our example denominator is 4.

Hence the required mixed number is  $1 \frac{1}{4}$

- Model a few more examples before doing the reverse method: Mixed number to improper fractions:

**Mixed Number into Improper Fraction**

Multiply the whole number by the denominator.

For Example: Convert  $2 \frac{1}{4}$  to improper fraction

In our example whole number is 2 and denominator is 4 hence  $2 \times 4 = 8$

Add the product to the numerator of the proper fraction. The sum is the numerator of the improper fraction.

Here numerator is 8 adding numerator and product we get numerator:  $8 + 1 = 9$

The denominator will stay the same. denominator = 4

Hence the improper fraction is  $\frac{9}{4}$

- Model a few more examples with the whole class: guided session.
- Additional resources for explicitly modelling:
  - <https://www.youtube.com/watch?v=shpf9kdxQOQ>
  - <https://www.mathsisfun.com/improper-fractions.html>

Example: Convert  $\frac{11}{4}$  to a mixed fraction.

Divide:  $11 \div 4 = 2$  with a remainder of 3

Write down the 2 and then write down the remainder (3) above the denominator (4).

Answer:  $2 \frac{3}{4}$

That example can be written like this:

Example: Convert  $\frac{10}{3}$  to a mixed fraction.

Divide:  $10 \div 3 = 3$  with a remainder of 1

Write down the 3 and then write down the remainder (1) above the denominator (3).

Answer:  $3 \frac{1}{3}$

- Teachers will need to refresh the correct terminology and the processes for finding the length of objects. A KWL chart would be a useful way to start this topic. Teachers must consider prior knowledge and ensure students have at least a basic understanding of how to measure.
- Discuss the metric units of length that we use to measure with. List them and students can come up with a variety of objects that could be measured with that unit e.g.
  - thickness of the rubber sheet for a table tennis bat in millimetres.
  - width of a television screen in centimetres.
  - width of a road in metres.

- distance between two airports in kilometres.
- Choose simple objects within the classroom and encourage students to explain what measuring tool e.g. 30 cm ruler, 1-meter ruler etc. should be used to measure the items e.g. a lead pencil 30 cm ruler.
- Using the hovercam (if needed), model how to line each end of the pencil correctly onto the ruler and demonstrate how to write the measurement using the abbreviated method e.g. 14 cm.
- Note: it is essential first to teach students the importance of estimation. Before any measuring is done, students need to understand and view how to estimate first: **estimating** is an important skill. We want to be able to determine the reasonableness of their answer. Without estimation skills, we aren't able to determine if our answer is within a reasonable range e.g. I want to buy a new rug for my hallway. I estimate that my hallway is roughly 5 metres long. Picture 5 metres, roughly 5 student desks, is it a small or long hallway?

- Measure other items in the classroom e.g. whiteboard, door, student height etc.
- Encourage students to suggest which unit of measure is suited for each item.
- Additional teaching: You may choose to teach your students conversion between units now or focus on basic units of length:** Students note down the following metric units of lengths: conversions:
  - Converting Units of Length
  - 1 centimetre = 10 millimetres
  - 1 metre = 100 centimetres
  - 1 kilometre = 1000 metres

Model examples of simple conversions with the students using the image from above:

800 cm = \_\_\_\_\_ m

90 mm = \_\_\_\_\_ cm

4 m = \_\_\_\_\_ cm

9 m = \_\_\_\_\_ cm

2 km = \_\_\_\_\_ m

700 cm = \_\_\_\_\_ m

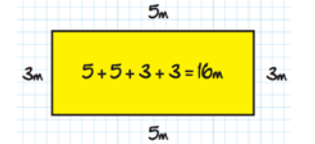
9 km = \_\_\_\_\_ m

5 km = \_\_\_\_\_ m

Additional resources: steps modelling how to convert between each unit of measurement:

- <https://www.tes.com/teaching-resource/converting-and-measuring-length-6333836>
- [http://www.bbc.co.uk/bitesize/ks3/maths/measures/4\\_use\\_of\\_measure/revision/4/](http://www.bbc.co.uk/bitesize/ks3/maths/measures/4_use_of_measure/revision/4/)

- Discuss perimeter: The perimeter is the distance around a two-dimensional shape.
- Formulas  $P = L + L + W + W$  or  $P = 2L + 2W$ .



- Draw simple shapes on the board and write some measurements to model the perimeter using the formula above.
- Students should recognise the need for a formal unit longer than the metre for measuring distance.

- Discuss the need for a measurement longer than a metre brainstorming distances which would be difficult to measure using a metre, e.g. school to shops, home to Sydney city, Blue Mountains, Wet and Wild or overseas travel. Ask Students to suggest alternate measurements e.g. kilometres.

- Using Google Maps, locate the area around your school. Ask students to select a location (e.g. start at the school) and first estimate how far the place is from the school.

- Steps: Right-click on your starting point.
- Choose Measure distance.
- Click anywhere on the map to create a path to measure. To add another point, click anywhere on the map.
- Optional: Drag a point or path to move it, or click a point to remove it.

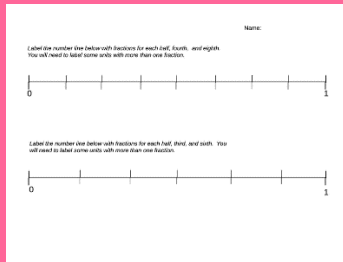
- At the bottom, you'll see the total distance in miles (mi) and kilometres (km).
- When done: On the card at the bottom, click Close.

- Teacher explicitly teaches (or revises) use of trundle wheel as a measurement tool and provides opportunities for students to use device to measure distances e.g. across netball courts, playground (group activity).

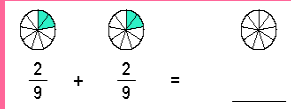
Group Activities

Revision Group - Names

Work with this group. Students will use their fraction strips to determine the correct order of the fractions on the number line, or to check their work if they feel confident in moving away from the concrete model. The students have two blank number lines to complete using; halves, fourths and eighths and halves, thirds, and sixths. Students can draw diagrams of the same size and divide them into different size fractions as well as using their fraction bar strips to complete the task and check their work.



Work with this group: students solve simple addition and subtraction of fractions worksheets. Continue modelling if students require it. Students should use a mix of whiteboard as well as working out in their maths books. If students need to, encourage them to draw models of their problems then solve e.g.



**Addition:**  
[http://www.math-aids.com/cgi/pdf\\_viewer\\_3.cgi?script\\_name=fractions\\_adding\\_simple.pl&difficult=0&probs=15&language=0&memo=&answer=1&x=116&y=36](http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=fractions_adding_simple.pl&difficult=0&probs=15&language=0&memo=&answer=1&x=116&y=36)

**Subtraction:**  
[http://www.math-aids.com/cgi/pdf\\_viewer\\_3.cgi?script\\_name=fractions\\_subtracting\\_simple.pl&difficult=0&probs=15&language=0&memo=&answer=1&x=141&y=30](http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=fractions_subtracting_simple.pl&difficult=0&probs=15&language=0&memo=&answer=1&x=141&y=30)

Work with this group and solve improper fractions to mixed numerals and vice versa. Use whiteboards during this session as well as math books. Example of questions to choose from and solve:

Converting Improper Fractions to Mixed Numbers

1)  $\frac{44}{10} = 4\frac{2}{5}$  2)  $\frac{19}{5} = 3\frac{4}{5}$  3)  $\frac{5}{2} = 2\frac{1}{2}$

4)  $\frac{13}{3} = 4\frac{1}{3}$  5)  $\frac{5}{2} = 2\frac{1}{2}$  6)  $\frac{11}{4} = 2\frac{3}{4}$

7)  $\frac{53}{10} = 5\frac{3}{10}$  8)  $\frac{32}{10} = 3\frac{1}{5}$  9)  $\frac{21}{4} = 5\frac{1}{4}$

10)  $\frac{74}{10} = 7\frac{2}{5}$  11)  $\frac{7}{2} = 3\frac{1}{2}$  12)  $\frac{20}{3} = 6\frac{2}{3}$

13)  $\frac{7}{2} = 3\frac{1}{2}$  14)  $\frac{36}{5} = 7\frac{1}{5}$  15)  $\frac{19}{3} = 6\frac{1}{3}$

Converting Mixed Numbers to Improper Fractions

1)  $6\frac{1}{4} = \frac{25}{4}$  2)  $4\frac{2}{3} = \frac{14}{3}$  3)  $6\frac{1}{5} = \frac{31}{5}$

4)  $5\frac{4}{5} = \frac{29}{5}$  5)  $3\frac{3}{5} = \frac{18}{5}$  6)  $9\frac{3}{4} = \frac{39}{4}$

7)  $2\frac{1}{2} = \frac{5}{2}$  8)  $5\frac{1}{2} = \frac{11}{2}$  9)  $3\frac{2}{5} = \frac{17}{5}$

10)  $7\frac{1}{3} = \frac{22}{3}$  11)  $6\frac{1}{2} = \frac{13}{2}$  12)  $3\frac{2}{3} = \frac{11}{3}$

13)  $5\frac{1}{2} = \frac{11}{2}$  14)  $8\frac{3}{4} = \frac{35}{4}$  15)  $9\frac{4}{5} = \frac{49}{5}$

5/6M Town Groups- Based on Continuum Clusters

**Trundle Wheel Activity (mixed level ability groups):** Students will work in mixed ability groups during this session. Main group members will lead (*not control*) and offer support to middle and revision group members. Teacher will supervisor and assist those in need during outside investigation. Safety talk will be discussed as well as mindfulness of other students/classrooms working. Students select, measure and record the perimeters (using the formula from modelling session) of a playground area or many different pathways e.g. COLA, basketball court, classroom to canteen etc. Groups will compare their measurements and report on any differences, measurements of areas etc.

Group Activities

Middle Group- Names

Print off worksheet. Students place fractions on a number line: [http://www.math-aids.com/cgi/pdf\\_viewer\\_7.cgi?script\\_name=number\\_lines\\_fractions.pl&denom\\_2=1&denom\\_3=1&denom\\_5=1&denom\\_7=1&denom\\_8=1&denom\\_10=1&denom\\_12=1&denom\\_11=1&denom\\_4=1&denom\\_6=1&denom\\_14=1&pos\\_neg=0&format=0&language=0&memo=&answer=1&x=167&y=24](http://www.math-aids.com/cgi/pdf_viewer_7.cgi?script_name=number_lines_fractions.pl&denom_2=1&denom_3=1&denom_5=1&denom_7=1&denom_8=1&denom_10=1&denom_12=1&denom_11=1&denom_4=1&denom_6=1&denom_14=1&pos_neg=0&format=0&language=0&memo=&answer=1&x=167&y=24)

Print work sheets off and students complete in their groups. **Addition:** [http://www.math-aids.com/cgi/pdf\\_viewer\\_3.cgi?script\\_name=fractions\\_adding.pl&difficult=1&probs=10&language=0&memo=&answer=1&x=153&y=7](http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=fractions_adding.pl&difficult=1&probs=10&language=0&memo=&answer=1&x=153&y=7)

**Subtraction:** [http://www.math-aids.com/cgi/pdf\\_viewer\\_3.cgi?script\\_name=fractions\\_subtracting.pl&difficult=1&probs=10&language=0&memo=&answer=1&x=169&y=11](http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=fractions_subtracting.pl&difficult=1&probs=10&language=0&memo=&answer=1&x=169&y=11)

Converting Improper Fractions to Mixed Numbers

1)  $\frac{19}{5} = 3\frac{4}{5}$  2)  $\frac{31}{8} = 3\frac{7}{8}$  3)  $\frac{37}{9} = 4\frac{1}{9}$

4)  $\frac{18}{4} = 4\frac{1}{2}$  5)  $\frac{53}{7} = 7\frac{4}{7}$  6)  $\frac{17}{6} = 2\frac{5}{6}$

7)  $\frac{38}{8} = 4\frac{3}{4}$  8)  $\frac{57}{10} = 5\frac{7}{10}$  9)  $\frac{35}{9} = 3\frac{8}{9}$

10)  $\frac{14}{4} = 3\frac{1}{2}$  11)  $\frac{9}{4} = 2\frac{1}{4}$  12)  $\frac{41}{8} = 5\frac{1}{8}$

13)  $\frac{11}{3} = 3\frac{2}{3}$  14)  $\frac{19}{5} = 3\frac{4}{5}$  15)  $\frac{39}{6} = 6\frac{1}{2}$

Converting Mixed Numbers to Improper Fractions

1)  $6\frac{2}{5} = \frac{32}{5}$  2)  $2\frac{1}{3} = \frac{7}{3}$  3)  $2\frac{1}{4} = \frac{9}{4}$

4)  $4\frac{1}{2} = \frac{9}{2}$  5)  $5\frac{7}{10} = \frac{57}{10}$  6)  $3\frac{4}{7} = \frac{25}{7}$

7)  $3\frac{1}{6} = \frac{19}{6}$  8)  $6\frac{6}{7} = \frac{48}{7}$  9)  $2\frac{3}{5} = \frac{13}{5}$

10)  $6\frac{1}{3} = \frac{19}{3}$  11)  $8\frac{1}{2} = \frac{17}{2}$  12)  $4\frac{4}{9} = \frac{40}{9}$

13)  $9\frac{1}{10} = \frac{91}{10}$  14)  $3\frac{1}{2} = \frac{7}{2}$  15)  $2\frac{3}{4} = \frac{11}{4}$

**Match the Fraction Pair:** Using the above image as a guide, create 2 match up card games for improper to mixed numerals and vice versa. Students will select a card and depending on which game they are playing will need to solve it. Students will then find their answer card and each member of the group will write them down in their books. Give students the above image at the end to mark their work.

5/6M Town Groups- Based on Continuum Clusters

Below is an example of the table students could use to measure different areas. You could choose or allow students to choose themselves:

| Area to Measure                                    | Perimeter     |
|--|---------------|
| Measure the dimensions of a handball court/square: |               |
| Width: _____                                       | Length: _____ |
| Measure the dimensions of a basketball court:      |               |
| Width: _____                                       | Length: _____ |
| Measure the dimensions of the playground:          |               |
| Width: _____                                       | Length: _____ |

|                            |  |  |  |  |  |  |
|----------------------------|--|--|--|--|--|--|
| <b>Group Activities</b>    | <p><b>Main Group - Names</b></p>   | <p>Print off worksheet. Students place mixed numerals on a number line:<br/> <a href="http://www.math-aids.com/cgi/pdf_viewer_7.cgi?script_name=number_lines_mixed.pl&amp;denom_2=1&amp;denom_3=1&amp;denom_4=1&amp;denom_5=1&amp;denom_6=1&amp;denom_7=1&amp;denom_8=1&amp;denom_9=1&amp;denom_10=1&amp;denom_12=1&amp;pos_neg=0&amp;format=0&amp;language=0&amp;memo=&amp;answer=1&amp;x=131&amp;y=8">http://www.math-aids.com/cgi/pdf_viewer_7.cgi?script_name=number_lines_mixed.pl&amp;denom_2=1&amp;denom_3=1&amp;denom_4=1&amp;denom_5=1&amp;denom_6=1&amp;denom_7=1&amp;denom_8=1&amp;denom_9=1&amp;denom_10=1&amp;denom_12=1&amp;pos_neg=0&amp;format=0&amp;language=0&amp;memo=&amp;answer=1&amp;x=131&amp;y=8</a></p> | <p>Print work sheets off and students complete in their groups.<br/> <b>Addition:</b><br/> <a href="http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=fractions_adding.pl&amp;difficult=4&amp;probs=10&amp;language=0&amp;memo=&amp;answer=1&amp;x=111&amp;y=22">http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=fractions_adding.pl&amp;difficult=4&amp;probs=10&amp;language=0&amp;memo=&amp;answer=1&amp;x=111&amp;y=22</a></p> <p><b>Subtraction:</b><br/> <a href="http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=fractions_subtracting.pl&amp;difficult=4&amp;probs=10&amp;language=0&amp;memo=&amp;answer=1&amp;vc=164&amp;y=3">http://www.math-aids.com/cgi/pdf_viewer_3.cgi?script_name=fractions_subtracting.pl&amp;difficult=4&amp;probs=10&amp;language=0&amp;memo=&amp;answer=1&amp;vc=164&amp;y=3</a></p> |  <p><b>Match the Fraction Pair:</b> Using the above image as a guide, create 2 match up card games for improper to mixed numerals and vice versa. Students will select a card and depending on which game they are playing will need to solve it. Students will then find their answer card and each member of the group will write them down in their books. Give students the above image at the end to mark their work. Encourage Main Group to extend themselves and create their own questions to solve. They can do this with a partner or in groups and swap questions with each other.</p> | <p><b>5/6M Town Groups- Based on Continuum Clusters</b></p>  | <p><b>Extensions:</b> In groups students estimate one kilometre in the playground using cones to mark distance out. They then use trundle wheel to test estimate.</p>  |
| <b>Feedback/ Exit Slip</b> | <p><b>Feedback –</b><br/>         Use the thumb method after explicit modelling to determine students understanding and where they will be placed for group activities.</p> <p><b>Marking Exit Slips –</b><br/>         Next to each students <b>Exit Slip</b>, the teacher will check students answers and will either write an:<br/> <b>A</b> = Achieved<br/> <b>N/Y</b> = Not Yet</p> <p><b>N/Y</b> students will become your target group.</p> | <p><b>Equivalent Fractions:</b><br/> <b>Revision Group –</b><br/> <math>1/3 = 2/6</math><br/> <math>3/15 = 1/5</math><br/> <b>Middle Group –</b><br/> <math>1/4 = 3/12</math><br/> <math>1/2 = 5/10</math><br/> <b>Main Group –</b><br/> <math>18/33 = 6/11</math><br/> <math>21/3 = 1/7</math></p>  | <p><b>Revision Group –</b><br/> <math>6/9 + 1/9 = 7/9</math><br/> <math>9/20 - 8/20 = 1/20</math><br/> <b>Middle Group –</b><br/> <math>8/15 + 11/15 = 1\ 4/15</math><br/> <math>86/100 - 74/100 = 3/25</math><br/> <b>Main Group –</b><br/> <math>4/6 + 4/6 = 8/12 = 1\ 1/3</math><br/> <math>5/7 - 2/3 = 1/21</math></p>   | <p><b>Revision Group –</b><br/> <math>17/3 = 5\ 2/3</math><br/> <math>7\ 1/2 = 15/2</math><br/> <b>Middle Group –</b><br/> <math>34/6 = 5\ 2/3</math><br/> <math>5\ 3/7 = 38/7</math><br/> <b>Main Group –</b><br/> <math>83/11 = 7\ 6/11</math><br/> <math>8\ 1/3 = 25/3</math></p>   | <p><b>Revision Group –</b><br/> <math>7\ m = 7000\ km</math><br/> <math>10\ m = 1\ cm</math><br/> <b>Middle Group –</b><br/> <math>8000m = 8km</math><br/> <math>20mm = 2\ cm</math><br/> <b>Main Group –</b><br/> <math>3478m = 3.478km</math><br/> <math>678mm = 0.678m</math></p> | <p><b>Revision Group –</b><br/>         What unit of measurement would you use to measure a book?<br/> <b>Middle Group –</b><br/>         What unit of measurement would you use to measure the classroom?<br/> <b>Main Group –</b><br/>         What unit of measurement would you use to measure the entire outside of the school?</p> |

| <p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Early Finishes/<br/>Extensions</b></p> | <ul style="list-style-type: none"> <li>• Allow the students to use the fractions cards to play a variety of card games in pairs. Some examples of such games include ‘Memory’ (students must match equivalent fractions to win a pair), ‘Snap’ (students must snap when equivalent fractions appear on top of one another) and ‘Go Fish’ (students must ask their partners for equivalent fractions to make a pair). As students select their fraction, they are required to write it down with the equivalent fraction card e.g. <math>\frac{2}{3} = \frac{4}{6}</math> - <a href="https://www.teachstarter.com/teaching-resource/equivalent-fractions-cards/">https://www.teachstarter.com/teaching-resource/equivalent-fractions-cards/</a></li> <li>• Students use decks of cards and select 2 digits by 2 digits. They turn these into the numbers they will use to create fractions. Depending on where students are up to, they can add and subtract these fractions OR create improper fractions and work out the mixed numerals.</li> <li>• Students create their own Match the Fraction Pair card game. They will need to create the problem and answer cards.</li> </ul> |              |                       |  | <ul style="list-style-type: none"> <li>• <b>More Than, Less Than:</b> Teacher provides a list/students create a list of local landmarks and students are asked to record whether the landmarks are less than, more than or about a kilometre from school. If computers/devices are available, students can work in pairs and compete this activity like previous Google Maps activity to measure the distances between places using kilometres.</li> </ul> <table border="1" data-bbox="1556 199 2154 263"> <thead> <tr> <th>Landmark</th> <th>Less than 1 km</th> <th>About 1 km</th> <th>More than 1 km</th> </tr> </thead> <tbody> <tr> <td>Local Shop</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Sports Oval</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• <b>Alternative (no devices or maps):</b> In pairs, students choose objects in the room that they want to measure. Students must choose the right units and instruments for measuring the length of a range of everyday objects, including an estimating task. E.g.</li> </ul> <table border="1" data-bbox="1653 327 2056 582"> <thead> <tr> <th>Object</th> <th>Unit</th> <th>Instrument</th> <th>Estimated measurement</th> </tr> </thead> <tbody> <tr> <td>Height of a door</td> <td>metres</td> <td>tape measure</td> <td>2 metres</td> </tr> <tr> <td>Length of a skirt</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Width of a washing machine</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Size of a TV screen</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Size of a nail</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Length of an A4 pad</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Your waist measurement</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Length of your bedroom</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | Landmark | Less than 1 km | About 1 km | More than 1 km | Local Shop |  |  |  | Sports Oval |  |  |  | Object | Unit | Instrument | Estimated measurement | Height of a door | metres | tape measure | 2 metres | Length of a skirt |  |  |  | Width of a washing machine |  |  |  | Size of a TV screen |  |  |  | Size of a nail |  |  |  | Length of an A4 pad |  |  |  | Your waist measurement |  |  |  | Length of your bedroom |  |  |  |
|--|---|--------------|-----------------------|--|--|----------|----------------|------------|----------------|------------|--|--|--|-------------|--|--|--|--------|------|------------|-----------------------|------------------|--------|--------------|----------|-------------------|--|--|--|----------------------------|--|--|--|---------------------|--|--|--|----------------|--|--|--|---------------------|--|--|--|------------------------|--|--|--|------------------------|--|--|--|
| Landmark   | Less than 1 km  | About 1 km   | More than 1 km        |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Local Shop   |   |              |                       |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Sports Oval  |   |              |                       |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Object   | Unit  | Instrument   | Estimated measurement |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Height of a door   | metres  | tape measure | 2 metres              |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Length of a skirt  |   |              |                       |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Width of a washing machine   |   |              |                       |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Size of a TV screen  |   |              |                       |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Size of a nail   |   |              |                       |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Length of an A4 pad  |   |              |                       |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Your waist measurement   |   |              |                       |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| Length of your bedroom   |   |              |                       |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Reflection/<br/>Registration</b></p>   |   |              |                       |  |  |          |                |            |                |            |  |  |  |             |  |  |  |        |      |            |                       |                  |        |              |          |                   |  |  |  |                            |  |  |  |                     |  |  |  |                |  |  |  |                     |  |  |  |                        |  |  |  |                        |  |  |  |