DEVELOPING MATHEMATICAL INQUIRY COMMUNITIES

Number: Fractions

Level 3 (Year 5-6)

Copy Masters

Task 1 – Group Task

What are all the different ways you can use the fraction tiles to make one whole?

As you make these, record them and be ready to explain and justify how they make one whole.

What are all the different ways you can use the fraction tiles to make a fraction number that is less than one half but more than two twelfths?

As you make these, record them and be ready to explain and justify why they are less than one whole.

What are all the different ways you can use the fraction tiles to make a fraction number that is more than one whole but less than one and 1 quarter?

As you make these, record them and be ready to explain and justify why they are more than one whole.

Task 1 – Independent Tasks

Record these using at least three different representations (drawings, equations).

What other fractions are the same as one third? Record these using at least three different representations (drawings, equations).

What other fractions are the same as one quarter? Record these using at least three different representations (drawings, equations).

Task 2 – Group Task

What are all the different ways you can use the fraction tiles to make a fraction number that is less than one half but more than one quarter?

As you make these, record them and be ready to explain and justify why they are less than one half.

What are all the different ways you can use the fraction tiles to make a fraction number that is between two thirds and seven eighths?

As you make these, record them and be ready to explain and justify why they are between one half and one whole.

What are all the different ways you can use the fraction tiles to make a fraction number that is more than one whole and less than one and a third?

As you make these, record them and be ready to explain and justify why they are more than one whole and less than 2. What are all the different ways you can use the fraction tiles to make fraction numbers that are the same as one fifth?

What are all the different ways you can use the fraction tiles to make fraction numbers that are the same as one eighth?

Task 2 - Independent Tasks

Is $\frac{4}{6}$ of a chocolate bar the same as $\frac{2}{3}$ of a chocolate bar?
Why or why not?

Is $\frac{3}{5}$ of a chocolate bar the same as $\frac{1}{2}$ of a chocolate bar?
Why or why not?

Is $\frac{3}{4}$ of a chocolate bar the same as $\frac{4}{8}$ of a chocolate bar?
Why or why not?

Is $\frac{1}{2}$ of a chocolate bar the same as $\frac{2}{4}$ or $\frac{3}{6}$ or $\frac{4}{8}$ of a chocolate bar?
Why or why not?

Is $\frac{9}{10}$ of a chocolate bar bigger than $\frac{4}{5}$ of a chocolate bar?
Why or why not?

Is 1 chocolate bar bigger than $\frac{3}{4}+\frac{1}{2}$ chocolate bars?
Why or why not?

Task 3 – Group Task

Tupou says that she can write more than 20 numbers between 0 and 1.

Hemi says that there are none, so Tupou writes them and uses a number-line to prove that they exist.

Can you write some numbers you think Tupou wrote and show where you think she marked them on her number-line?

Task 3 - Independent Tasks

Draw a number-line starting from 0 and finishing at 10. Put at least 15 different fractions on the number-line.

Draw a number-line starting from 0 and finishing at 5. Put at least 15 fractions on the number-line. Don't use the same fractions as you used previously.

Draw a number-line starting from 0 and finishing at 2. Put at least 10 fractions on the number-line. Don't use the same fractions as you used previously.

Task 4 – Group Task

Who gets to eat more?

A. Five people sharing four chocolate bars equally.

B. Three people sharing two chocolate bars equally.

C. Four people sharing three chocolate bars equally.

D. Six people sharing five chocolate bars equally.

E. Eight people sharing seven chocolate bars equally.

Be ready to justify who you think gets to eat more and explain in multiple ways.

Task 4 - Independent Tasks

At the speed chocolate eating contest each contestant has to eat as much of a chocolate bar as they can in 15 seconds. These are the results of how much of 1 chocolate bar each contestant managed to eat:

Daniel – $\frac{2}{3}$

Leti – $\frac{7}{9}$

Georgie – $\frac{2}{5}$

Sose – $\frac{10}{16}$

Talasi – $\frac{3}{4}$

Jeni – $\frac{1}{2}$

Can you put the results in order – from who ate the most chocolate to who ate the least?

Try and prove your answer in a number of different ways.

Task 5 – Group Task

Who drinks more? Who drinks less?

A. Nine children sharing 10 cans of drink equally.

B. Five children sharing 9 cans of drink equally.

C. Three children sharing 5 cans of drink equally.

D. Four children sharing 7 cans of drink equally.

E. Eight children sharing 12 cans of drink equally.

F. Twelve children sharing 18 cans of drink equally.

Put them in order and be ready to explain in multiple ways.

Task 5 - Independent Tasks

Who drinks more? Who drinks less?

    A. Six children sharing 8 cans of drink equally.

    B. Ten children sharing 11 cans of drink equally.

    C. Four children sharing 6 cans of drink equally.

    D. Three children sharing 4 cans of drink equally.

    E. Nine children sharing 11 cans of drink equally.

    F. Eight children sharing 10 cans of drink equally.

Put them in order and be ready to explain in multiple ways.

Task 6 – Group Task

Sisilia's netball team is trying to work out which players should be the goal attack and goal shooter. They look at the results from the first game.

- Lisi scored ten twelfths of her attempts
- Ana scored three quarters of her attempts
- Crystal scored three sixths of her attempts
- Shannon scored two thirds of her attempts

Task 6 - Independent Tasks

The soccer team all have the same sized cups. At the end of the game this is how much they drank.

Tayla drinks five quarters of a cup.

Loni drinks three halves of a cup.

Tere drinks five thirds of a cup.

Mia drinks ten eighths of a cup.

Put how much they drank in order from most to least.

Prove your solution using at least 3 different representations.

Task 7 – Group Task

Litea and her two friends are at the movies. They each buy a big tub of popcorn.

Litea eats $\frac{3}{4}$ of her tub.

Kaia eats $\frac{2}{3}$ of his tub.

Gaylene eats $\frac{1}{2}$ of her tub.

They tip all the left-over popcorn into two tubs. How much is left to take home?

Task 7 - Independent Tasks

Litea and her two friends are at the movies. They each buy a big tub of popcorn.

Litea eats $\frac{4}{6}$ of her tub.

Kaia eats $\frac{6}{9}$ of his tub.

Gaylene eats $\frac{8}{12}$ of her tub.

They tip all the left-over popcorn into two tubs. How much is left to take home?

Task 8 – Group Task

Michelle and her friends are making some things out of clay.

They have 3 blocks of clay.

Michelle uses $\frac{1}{4}$ of a block of clay.

Jenny uses $\frac{2}{3}$ of a block of clay.

Lelei uses $\frac{5}{6}$ of a block of clay.

Meili uses the rest.

How much does Meili have?

Task 8 - Independent Tasks

Find the solutions.

Selena has $\frac{1}{2}$ of a bag of marbles. Luke has $\frac{1}{4}$ of a bag of marbles.
How much of a bag of marbles do they have altogether?

Selena has $\frac{1}{3}$ of a bag of marbles. Luke has $\frac{1}{6}$ of a bag of marbles.
How much of a bag of marbles do they have altogether?

Selena has $\frac{1}{4}$ of a bag of marbles. Luke has $\frac{1}{3}$ of a bag of marbles.
How much of a bag of marbles do they have altogether?

Selena has $\frac{1}{2}$ of a bag of marbles. Luke has $\frac{1}{5}$ of a bag of marbles.
How much of a bag of marbles do they have altogether?

Selena has $\frac{3}{4}$ of a bag of marbles. Luke has $\frac{1}{5}$ of a bag of marbles.
How much of a bag of marbles do they have altogether?

Selena has $\frac{7}{8}$ of a bag of marbles. Luke has $\frac{1}{3}$ of a bag of marbles.
How much of a bag of marbles do they have altogether?

Task 9 – Group Task

Alisi's aunties are making a fine Tongan mat.

Aunty Seini uses $\frac{1}{2}$ of a ball of red wool.

Aunty Hiva uses $\frac{1}{3}$ of the red wool.

How much more wool does Aunty Seini use?

Alisi's aunties are making a fine Tongan mat.

Aunty Seini uses $\frac{7}{8}$ of a ball of red wool.

Aunty Hiva uses $\frac{1}{3}$ of the red wool.

How much more wool does Aunty Seini use?

Alisi's aunties are making a fine Tongan mat.

Aunty Seini uses $\frac{9}{10}$ of a ball of red wool.

Aunty Hiva uses $\frac{5}{6}$ of the red wool.

How much more wool does Aunty Seini use?

Task 9 - Independent Tasks

Two fractions add to give $\frac{1}{2}$. What might those fractions be? Give a range of answers.

A friend of mine put these fractions into two groups but they got mixed up. What might the two groups be?

$$\frac{1}{5}, \frac{2}{3}, \frac{1}{4}, \frac{8}{12}, \frac{5}{16}, \frac{2}{8}$$

What might the missing fraction be?

$$\underline{} < \frac{3}{4}$$

$$\underline{} + \underline{} = \frac{2}{5}$$

$$1 / \underline{} = \underline{} / \underline{}$$

$$\frac{12}{10} = 1 / \underline{}$$

Task 10 – Group Task

Malia is making otai. For each jug of otai she needs:

Two and a quarter cups of pineapple.
Three and half cups of watermelon.
Three quarters of a cup of coconut milk.
Three quarters of a cup of coconut water.
One quarter of a cup of lemon juice.

Malia wants to make 9 jugs of otai. How much of each ingredient will she need?

Task 10 - Independent Tasks

Malia is making otai. For each bottle of otai she needs:

1 and $\frac{3}{4}$ cups of pineapple.

2 and $\frac{1}{2}$ cups of watermelon.

1 and $\frac{1}{4}$ of a cup of coconut milk.

Three quarters of a cup of coconut water.

$\frac{1}{2}$ of a cup of lemon juice.

Malia wants to make 6 bottles of otai. How much of each ingredient will she need?

Task 11 – Group Task

Lauasi and Samas were making sapasui with their Dad. To make enough sapasui for their family of four they need:

$\frac{1}{8}$ of a bottle of soy sauce

$\frac{1}{5}$ of a bottle of peanut oil

$\frac{5}{6}$ of a cup of water

$\frac{2}{3}$ of a tablespoon of garlic

$\frac{1}{2}$ a bag of chicken pieces

$2\frac{1}{4}$ packets of vermicelli noodles.

They are having Sunday lunch with the rest of their fono. They want to make enough sapasui for 24 people. Write a list of the ingredients they will need to cook enough sapasui to feed everyone.

Task 11 - Independent Tasks

Solve these equations:

$\frac{1}{2}$ x 2 =

$\frac{1}{2}$ x 10 =

$2\frac{1}{2}$ x 2 =

$2\frac{1}{2}$ x 10

$\frac{1}{4}$ x 4 =

$\frac{1}{4}$ x 8 =

$\frac{3}{4}$ x 4 =

$\frac{3}{4}$ x 8 =

$\frac{1}{3}$ x 9 =

$\frac{2}{3}$ x 9 =

$\frac{3}{3}$ x 9 =

$\frac{1}{10}$ x 20 =

$\frac{2}{10}$ x 20 =

$\frac{9}{10}$ x 20 =

What patterns and relationships do you notice? Record your ideas.

Task 12 – Group Task

You are helping to paint your fence. The fence is divided into sections. Mum and Dad give you $4\frac{1}{2}$ cans of paint and tell you that it takes $\frac{5}{8}$ of a can of paint to paint each section.
How many sections of the fence can you paint?

Task 12 - Independent Tasks

Solve these equations:

$$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$3 \times \underline{\quad} = \frac{2}{3} + \frac{2}{3} + \frac{2}{3} =$$

$$\frac{1}{4} + ? = 2 \times \frac{1}{4}$$

$$\frac{1}{2} = \underline{\quad} + \underline{\quad} + \underline{\quad}$$

Write a story problem that would match these equations:

$$\frac{4}{5} \times 6 =$$

$$\frac{6}{8} + \frac{2}{5} =$$

$$3 \div \frac{1}{2} =$$

Task 13 – Group Task

Solve these equations:

$$\_\_ = 1\frac{1}{4} + \frac{1}{2}$$

$$3\frac{1}{3} + \_\_ = 4$$

$$\_\_ = 8 - 5\frac{3}{10}$$

$$\frac{1}{3} - \frac{1}{10} = \_\_$$

$$\frac{5}{6} - \_\_ = \frac{1}{3}$$

$$\_\_ = \frac{1}{7} \times \frac{1}{3}$$

$$\frac{3}{10} \times \_\_ = 3$$

$$\frac{3}{5} \times 5 = \_\_$$

$$\_\_ = 2 \div \frac{1}{2}$$

$$3 \div \_\_ = \frac{1}{4}$$

$$10 \div \frac{1}{5} = \_\_$$

Be ready to explain and justify your explanations using representations and/or notation.

Task 13 - Independent Tasks

Write two fraction equations which begin with the solution (e.g., t = $1\frac{1}{4} + \frac{1}{2}$).

Using proper fractions add two fractions so the answer will be more than 1.

Using proper fractions add two fractions so the answer will be less than 1.

Write down ten fractions between $\frac{1}{3}$ and $\frac{2}{3}$.

$$ — < \frac{5}{6} $$

Write a variety of fractions that the missing number might be.

What fractions have a difference of $\frac{3}{4}$?

Task 14 – Group Task

Mereana is making a picture frame using New Zealand shells. She uses 40 pieces of paua shell, 200 pieces of spiral shells and 88 cockle shells.

For her first draft she splits her frame into 4 sections. How many of each shell does she use on each section?

For her second draft she splits her frame into 3 sections. How many of each shell does she use on each section? How many does she have left over?

For her third draft she splits her frame into 7 sections. How many of each shell does she use on each section? How many does she have left over?

Task 14 - Independent Tasks

You have a bag of 96 lollies, and you share them
equally with three friends.
What fraction do you each get?
How many lollies will you each get?

You have a bag of 123 lollies, and you share them
equally with two friends.
What fraction do you each get?
How many lollies will you each get?

What is a half of 124?
What is a half of 1240?

What is a quarter of 68?
What is a quarter of 680?

What is a third of 141?
What is a third of 1410?

Task 15 – Group Task

Kiriwai has been given a cake to decorate. She is given 40 lollies to decorate it. She decides to split the cake into three sections and decorate each section but with a different proportion of lollies on each section.

She puts $\frac{3}{10}$ of her lollies on the first section.

She puts $\frac{2}{5}$ of the lollies on the second section.

She puts $\frac{1}{10}$ of the lollies on the third section.

How many lollies does she put on each section?

Kiriwai has been given a cake to decorate. She is given 90 lollies to decorate it. She decides to split the cake into three sections and decorate each section but with a different proportion of lollies on each section.

She puts $\frac{2}{9}$ of her lollies on the first section.

She puts $\frac{1}{3}$ of the lollies on the second section.

She puts $\frac{4}{9}$ of the lollies on the third section.

How many lollies does she put on each section?

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