RICH MATHEMATICAL TASK BOOKLET

NUMBER Decimals, Percentages

YEAR 5-6 EVEN YEARS

Copy Masters

Task 1

What percentage of your one whole container is filled with water?

Be ready to explain and justify how you know.

Task 1 (independent)

1. Georgia has a bag of 12 jellybeans that she shares with her friends. She gives 25% to one friend and 50% to another and she keeps the rest?
   How many of her jellybeans do each of her friends have and how many does she have?
2. Georgia has a bag of 20 jellybeans that she shares with her friends. She gives 30% to one friend and 20% to another and she keeps the rest?
   How many of her jellybeans do each of her friends have and how many does she have?
3. Georgia has a bag of 60 jellybeans that she shares with her friends. She gives 35% to one friend and 25% to another and she keeps the rest?
   How many of her jellybeans do each of her friends have and how many does she have?
4. Georgia has a bag of 60 jellybeans that she shares with her friends. She gives 10% to one friend and 60% to another and she keeps the rest?
   How many of her jellybeans do each of her friends have and how many does she have?
5. Georgia has a bag of 100 jellybeans that she shares with her friends. She gives 40% to one friend and 30% to another and she keeps the rest?
   How many of her jellybeans do each of her friends have and how many does she have?
6. Georgia has a bag of 60 jellybeans that she shares with her friends. She gives 15% to one friend and 70% to another and she keeps the rest?
   How many of her jellybeans do each of her friends have and how many does she have?

Task 2

What percentage have you downloaded of that app?

How much more would you need to download to complete it?

Record using a range of different representations including symbols and be ready to explain and justify how they are equivalent.

Task 2 (independent)

1. Daniel has a 750ml pump bottle. By playtime he has drunk 15% of the bottle. How many ml of water are left in his bottle?

2. Sunny take a 12L container with water on his camping trip. By the end of the first day of camp he has used 25% of the water in the container. How much water has he used (ml/l) how much water is left in the container (ml/l)?

3. Jo eats 40% of her chocolate bar and gives the rest to her sister. Her sister shares the left-over chocolate between herself and a friend. How much of the chocolate bar do they each eat?

4. The cross-country track is 3km long. Jan runs 65% of the distance before stopping to catch her breath. Max runs $\frac{3}{4}$ of the distance before stopping to catch his breath. How far did each of them run before stopping to catch their breath? Who ran the longest distance before stopping?

Task 3

You are running the cross country and this tape represents the track you run. If I put the 2-digit card down at the start of it that indicates so far you have run 2 metres and the 3-digit card indicates that you have not reached 3 metres yet. How far have you run exactly?

How far have you run now?

Record using a range of different representations including symbols and be ready to explain and justify how they are equivalent.

Task 3 (independent)

What are their equivalent fractional numbers?

1. 50% = =
2. $\frac{1}{4}$ = =
3. .1 = =
4. $\frac{3}{4}$ = =
5. 90% = =
6. .25 = =
7. Two-thirds = =
8. $\frac{1}{5}$ = =
9. 60% = =
10. Three-fifths = =

Task 4

Samson and Mat were having a jump-off in the sandpit to see where they could jump to if they stood with their toes just before the edge. Jeremiah measured each jump and he said that Samson won because although they both jumped 1.36 metres and neither of them reached 1.37 metres Samson jumped further.

Can you record at least 12 different distances for his jump which shows Samson did jump further.

Be ready to explain and justify your answers using number lines, diagrams, drawings, fractions, and decimals.

Task 4 (independent)

What are the fraction, percentage, or decimal equivalences for the following?

1. 50%
2. 5%
3. $\frac{1}{2}$
4. 33%
5. .99
6. .11
7. .54
8. .1
9. .5
10. .7

Task 5

In a gymnastic competition Gracie scored 9.32 on the bar in her first round. She scored 8.964 in the second round, and she scored 9.72 in the third round.

What was her total score?

Can you explain and justify what her score was in more than one way?

Task 5 (independent)

Rosa had to do some homework. She had to put some decimal numbers in order from largest to smallest and this is what she did:

.90146	.9015	.9	
.4405	.321	.4	
.450000	.45100	.510	.52

You need to put them in the right order to help her out and then write her an explanation of why you needed to change the order she had them in. Explain the rules you were using to order each row.

Task 6

Quantum is training for the school cross country race. She aims to be able to run 20 km without stopping across five days in a week.

On Monday she runs 2.03km. On Tuesday she runs 3.9km. On Wednesday she runs 4.111. On Thursday she runs 4.0002km. On Friday she runs 4.2.

Has she reached her target of running 20km over the five days?

Task 6 (independent)

Daisy had to do some homework. She had to put some decimal numbers in order from largest to smallest and this is what she did:

.077	.7070	.12	
.3905	.3090	.3	
.260000	.207	.102	.3099

You need to put them in the right order to help her out and then write her an explanation of why you needed to change the order she had them in. Explain the rules you were using to order each row.

Task 7

Mereana has a rope which is 4.05 metres long.

She uses 2.056 metres to make a skipping rope for herself.

She wants to make another one for her little sister.

How much rope does she have left for her little sister's skipping rope?

Task 7 (independent)

Represent these on a numberline

.9 + .1 = 1

.09 + .01 = .1

.009 + .001 = .01

What patterns do you notice?

Represent your reasoning to explain and justify the pattern you notice using the place value house.

Task 8

Jonah has handed in his homework and is puzzled about why the teacher has marked his answer wrong.

This is what he had done.

1.4 + 1.8 = 2.12

Can you explain what he was thinking and why he got the answer wrong?

What is the correct answer and how would you explain why?

Rebekah subtracted $1.15 from $1.65 on her calculator.

The answer she got was .5. She is puzzled about that because she is sure that she should have more than 5 cents.

Can you explain what she is thinking and why?

Task 8 (independent)

Solve the following:

1. .5 + .05 =

2. .5 + .505 =

3. .3 + .03 =

4. .3 + .0303 =

5. .7 + .07 =

6. .7 + 0.707 =

Write a statement to explain your solution to a younger child using place value.

Task 9

Viliami is going on a holiday to Australia. Different family members give him money to spend, and he has some money saved up. The exchange rate is $1 New Zealand for $.8544 Australian.

First his uncle gives him NZ$10. How much Australian money will he get in exchange?

Then his aunty gives him NZ$100. How much Australian money will he get in exchange?

He has saved NZ$85. How much Australian money will he get in exchange?

How much in Australian dollars does he have altogether?

Task 9 (independent task)

True or false?

1. 3.15 + 3.15 = 3.3

2. 1.9 + 1. 9 = 1.18

3. 1.09 + 1.009 = 2. 099

Use place value to represent and justify your reasoning.

Task 10

Mohammed is copying a mosaic tile from a picture of the inside of a beautiful mosque in Abu Dhabi.
Each tile is 1.25cm in width and 6.8cm in length.

What is the area of the tile he is copying?

Task 10 (independent task)
Write these as decimals:

1. 7 and $\frac{5}{10}$
2. 6 and $\frac{9}{10}$
3. 11 and $\frac{1}{10}$
4. 2 and $\frac{57}{100}$
5. 7 and $\frac{33}{100}$

What is the tenths digit in these?

1. 9.12
2. 0.02
3. 7.81
4. 0.301

Which 6 has the biggest value in 0.066? Represent your reasoning to explain your ideas.

How many thousandths are there altogether in 0.087?

Task 11 (optional task)

Ben and Mattie are having a book reading competition. They want to know who reads more pages in 10 hours.

Ben reads 10.5 pages in 15 minutes. Mattie reads 8.75 pages in 10 minutes.

Who is the winner?

Task 11 (independent - optional task)

As you solve these, think about their place on the place value chart.

1. 8 x 1 =
2. 8 x 10 =
3. 8 x 100 =
4. .8 x 1 =
5. .8 x 10 =
6. .8 x 100 =

Identify, record, and explain the pattern you notice in the shifts in place value?

Task 12 (optional task)

Where does the decimal go?

Before you compute an answer put in the decimal and write and explanation of why you put it where it is.

1. 0.24 x 6.3
2. 24 x 0.63
3. 2.4 x 63
4. 0.24 x 0.63

Now check your answers with computation. If there are differences be ready to share why.