

## Mathematics

Year 4  
Satisfactory

### WORK SAMPLE PORTFOLIO

Annotated work sample portfolios are provided to support implementation of the Foundation – Year 10 Australian Curriculum.

Each portfolio is an example of evidence of student learning in relation to the achievement standard. Three portfolios are available for each achievement standard, illustrating satisfactory, above satisfactory and below satisfactory student achievement. The set of portfolios assists teachers to make on-balance judgements about the quality of their students' achievement.

Each portfolio comprises a collection of students' work drawn from a range of assessment tasks. There is no pre-determined number of student work samples in a portfolio, nor are they sequenced in any particular order. Each work sample in the portfolio may vary in terms of how much student time was involved in undertaking the task or the degree of support provided by the teacher. The portfolios comprise authentic samples of student work and may contain errors such as spelling mistakes and other inaccuracies. Opinions expressed in student work are those of the student.

The portfolios have been selected, annotated and reviewed by classroom teachers and other curriculum experts. The portfolios will be reviewed over time.

*ACARA acknowledges the contribution of Australian teachers in the development of these work sample portfolios.*

### THIS PORTFOLIO: YEAR 4 MATHEMATICS

This portfolio provides the following student work samples:

- Sample 1      Number: Lucy's birthday
- Sample 2      Number: Multiplication
- Sample 3      Measurement: Quadrilaterals
- Sample 4      Number: Odd and even
- Sample 5      Number: Bingo
- Sample 6      Geometry: Symmetry
- Sample 7      Number: Sentences
- Sample 8      Number: Fractions and decimals
- Sample 9      Measurement: Time word problems
- Sample 10     Number: Sausage sizzle
- Sample 11     Statistics: Data
- Sample 12     Statistics and probability: One minute challenge
- Sample 13     Geometry: Angles

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This portfolio of student work shows the drawing of different quadrilaterals with the same area (WS3). The student applies strategies to solve problems using knowledge of patterning, odd and even numbers and multiplication and division facts up to  $10 \times 10$  (WS1, WS2, WS5). The student adds consecutive numbers to demonstrate understanding of odd and even numbers (WS4). The student creates four-sided shapes with and without symmetry (WS6) and uses strategies to solve time word problems (WS9). The student constructs addition and subtraction number sentences to solve written problems (WS7) and identifies equivalent fractions and decimals, locates them on a number line and represents them pictorially (WS8). The student uses knowledge of multiplication and decimals to solve and justify their solution of a financial problem (WS10) and uses reasoning to ask the best question to collect data in a table and create a data display (WS11). The student identifies the likelihood of events occurring and identifies whether or not events are affected by each other (WS12). The student identifies angles found in the environment (WS13).

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## Mathematics

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## Number: Lucy's birthday

## Year 4 Mathematics achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

*By the end of Year 4, students choose appropriate strategies for calculations involving multiplication and division. They recognise common equivalent fractions in familiar contexts and make connections between fraction and decimal notations up to two decimal places. Students solve simple purchasing problems. They identify unknown quantities in number sentences. They describe number patterns resulting from multiplication. Students compare areas of regular and irregular shapes using informal units. They solve problems involving time duration. They interpret information contained in maps. Students identify dependent and independent events. They describe different methods for data collection and representation, and evaluate their effectiveness.*

*Students use the properties of odd and even numbers. They recall multiplication facts to  $10 \times 10$  and related division facts. Students locate familiar fractions on a number line. They continue number sequences involving multiples of single digit numbers. Students use scaled instruments to measure temperatures, lengths, shapes and objects. They convert between units of time. Students create symmetrical shapes and patterns. They classify angles in relation to a right angle. Students list the probabilities of everyday events. They construct data displays from given or collected data.*

## Summary of task

Students had been working with patterns and number sequences. Students were given this task to complete in a half-hour time period in class:

Lucy was arranging some candles on her birthday cake.

When she placed them in 2 equal rows, there was 1 left over.

When she placed them in 3 equal rows, there were 2 left over.

How old could Lucy be turning?

Number: Lucy's birthday

Handwritten student work showing diagrams of cakes and candles, calculations, and a final conclusion.

$7$  ✓ - ✓  $9 + 2 = 11$   
  $11$

$13$  + ✓ + = X  
 $12 + 1$

$23$  - ✓ - = ✓  
 $22 + 1$

$11$  - because 2 rows of 5 is  
 $10$  r  $1$   
 3 rows of 3 =  $9$  r  $2$

$23$  - because 2 rows of  
 $11 = 22$  r  $1$   
 3 rows of 7 =  $21$  r  $2$

So Lucy could be  $11$   
 or  $23$   
 There could be more numbers

Annotations

Uses arrays as a strategy to make calculations.

Uses diagrams to solve problems.

Explains answers referring to arrays.

Recognises that there are other possible solutions to the problem.

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## Number: Multiplication

### Year 4 Mathematics achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

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### Summary of task

Students had been working with patterns formed when looking at number sequences involving multiplication. Students were given this task to complete in a half-hour time period in class.

Number: Multiplication

Can you create a multiplication number pattern that includes the number 60? My rule is  $3 \times$

3, 6, 9, 12, 15, 18, 21, 24,  
27, 30, 33, 36, 39, 42, 45,  
48, 51, 54, 57, 60

This is the 20<sup>th</sup> term.

These are some of the numbers that would definitely be in the  $3 \times$  table pattern is 90 because 30 is the tenth term and if you times that by 3 you get 90.

I new that 90 was in it so you would be able to have 2 90's in it which  $90 + 90 = 180$  would add up to 180. If 180 is in it 2 180's would be in it which

$$\begin{array}{r} 180 \\ +180 \\ \hline 360 \end{array} \quad \begin{array}{r} \times 360 \\ \phantom{\times} 3 \\ \hline \hline 1080 \end{array}$$

Annotations

Creates a multiplication number pattern that includes 60.

Demonstrates and justifies an understanding of the problem.

Calculates and justifies why larger numbers are in the pattern.

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## Number: Multiplication

would add up to 360 and if 360 is in it you could times it by 3 and it would add to 1080.

1079 would not be in the 3x table pattern because I know that 1080 is in it so 1077 is three less than 1080. 1079 is just one away from 1080.

## Annotations

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## Measurement: Quadrilaterals

### Year 4 Mathematics achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

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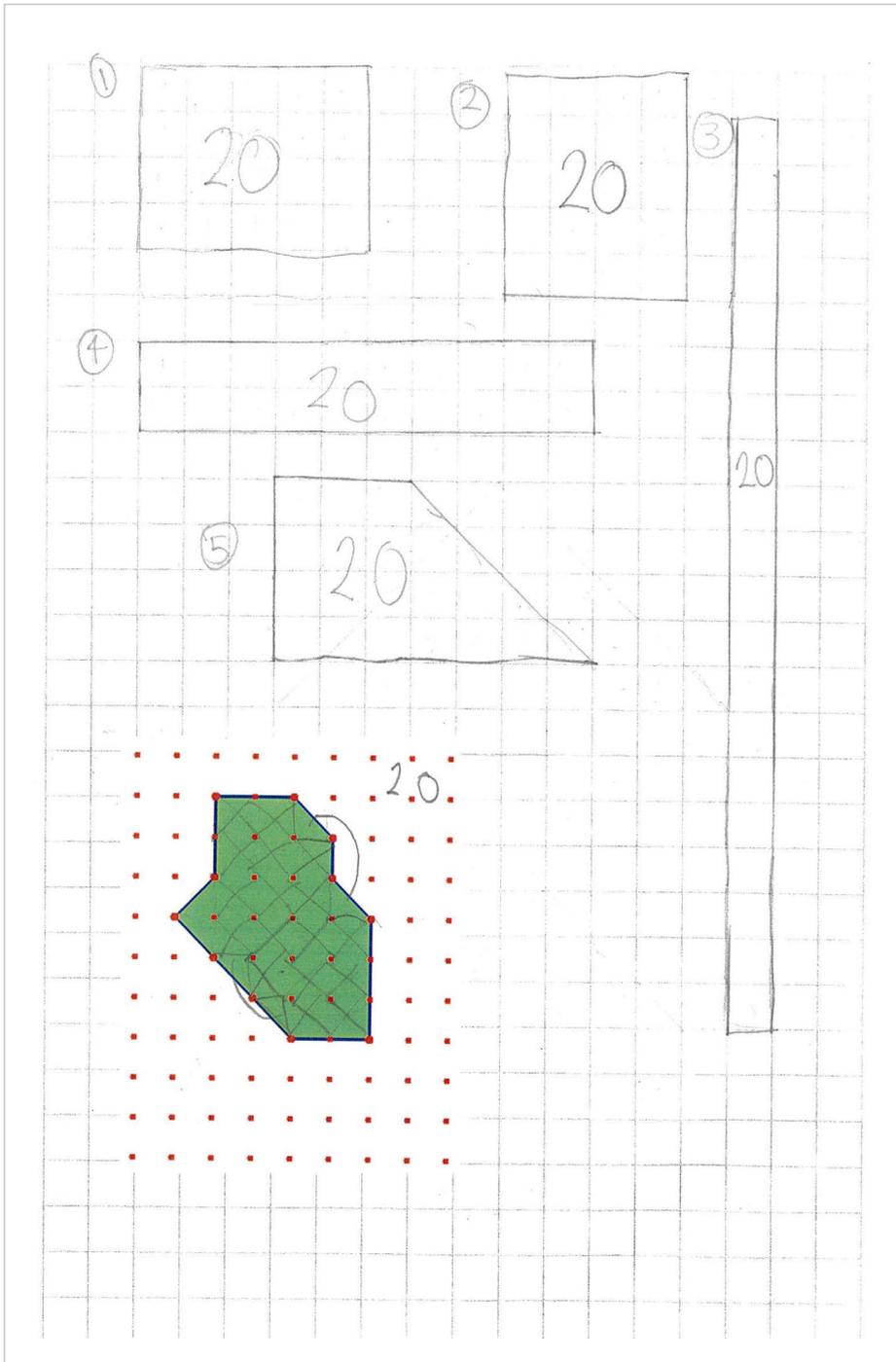
*Students use the properties of odd and even numbers. They recall multiplication facts to  $10 \times 10$  and related division facts. Students locate familiar fractions on a number line. They continue number sequences involving multiples of single digit numbers. Students use scaled instruments to measure temperatures, lengths, shapes and objects. They convert between units of time. Students create symmetrical shapes and patterns. They classify angles in relation to a right angle. Students list the probabilities of everyday events. They construct data displays from given or collected data.*

### Summary of task

Students had completed a unit of work on two-dimensional shapes, their properties and their area.

Students were asked to draw quadrilaterals with the same area as the given diagram.

## Measurement: Quadrilaterals



### Annotations

*Determines the area of the irregular shape.*

*Draws a number of rectangles that have the same area as the irregular shape.*

*Draws a parallelogram that has the same area as the irregular shape.*

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## Number: Odd and even

### Year 4 Mathematics achievement standard

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### Summary of task

Students had completed a unit of work on addition and subtraction of numbers, investigating combinations of odd and even numbers.

Students were given one lesson to complete this task.

Number: Odd and even

Anna added three consecutive numbers together and the answer was an odd number. What numbers might they have been?

Handwritten student work showing several addition problems:

- $$\begin{array}{r} 110 \\ 111 \\ +112 \\ \hline 333 \end{array}$$
- $$\begin{array}{r} 911 \\ 112 \\ +113 \\ \hline 326 \end{array}$$
- $$\begin{array}{r} 913 \\ 115 \\ +116 \\ \hline 324 \end{array}$$
- $$\begin{array}{r} 116 \\ 117 \\ +118 \\ \hline 351 \end{array}$$
- $$\begin{array}{r} 119 \\ 120 \\ +121 \\ \hline 360 \end{array}$$
- $$\begin{array}{r} 122 \\ 123 \\ +124 \\ \hline 369 \end{array}$$
- $$\begin{array}{r} 125 \\ 126 \\ +127 \\ \hline 378 \end{array}$$

Annotations and conclusions:

- Arrows point from the sums 333, 326, 324, 351, 360, 369, and 378 to the text: "this one doesn't work because even."
- An arrow points from the sum 333 to the text: "this sum works because it is odd."
- Text: "you can't add any consecutive numbers because of the odd even patterns it stops you from you getting all the answers being odd or even."
- Text: "If you add an even and even together you get an even"
- Text: "If you add odd and odd together you get even."

Annotations

Selects and adds three consecutive numbers.

Investigates a variety of additions of three consecutive numbers to see which groupings give an odd or even sum.

Draws conclusions based on calculations.

Generalises the results based on calculations.

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## Number: Bingo

### Year 4 Mathematics achievement standard

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### Summary of task

Students had been practising their multiplication facts. Students were given this task to complete in a half-hour time period in class.

Number: Bingo

Bingo Assessment Task

Design your own 4x4 grid in order to maximise your chances of achieving a bingo – 4 numbers in a row – diagonally, horizontally, vertically or the four corners. The aim of the game is to achieve a bingo in as few moves (multiplication facts) as possible.

16	45	8	10
68	4	40	2
15	12	18	50
36	20	6	30

Select 4 numbers from your grid and explain why you included them.

I chose 2 to put on my grid because it is my lucky number. I also chose 16 because it appears 4 times on a 10x10 grid. 15 is on my grid because it appears 3 times. Another number I put on is 6 because it appears 3 times.

Choose 2 numbers you didn't include on your grid and write why you didn't choose them.

I didn't choose 100 because it only appears once on a 10x10 grid. I didn't want to have 13 on my grid because it doesn't appear once on the 10x10 grid.

Annotations

Selects mostly products that occur relatively frequently in the multiplication facts up to 10 x 10.

Demonstrates some knowledge of which products occur more frequently in the multiplication facts up to 10 x 10.

Explains why particular numbers were not chosen by identifying one of the products that occurs least frequently in the multiplication facts up to 10 x 10 and also by excluding a number that is not the result of a multiplication fact up to 10 x 10.

## Geometry: Symmetry

### Year 4 Mathematics achievement standard

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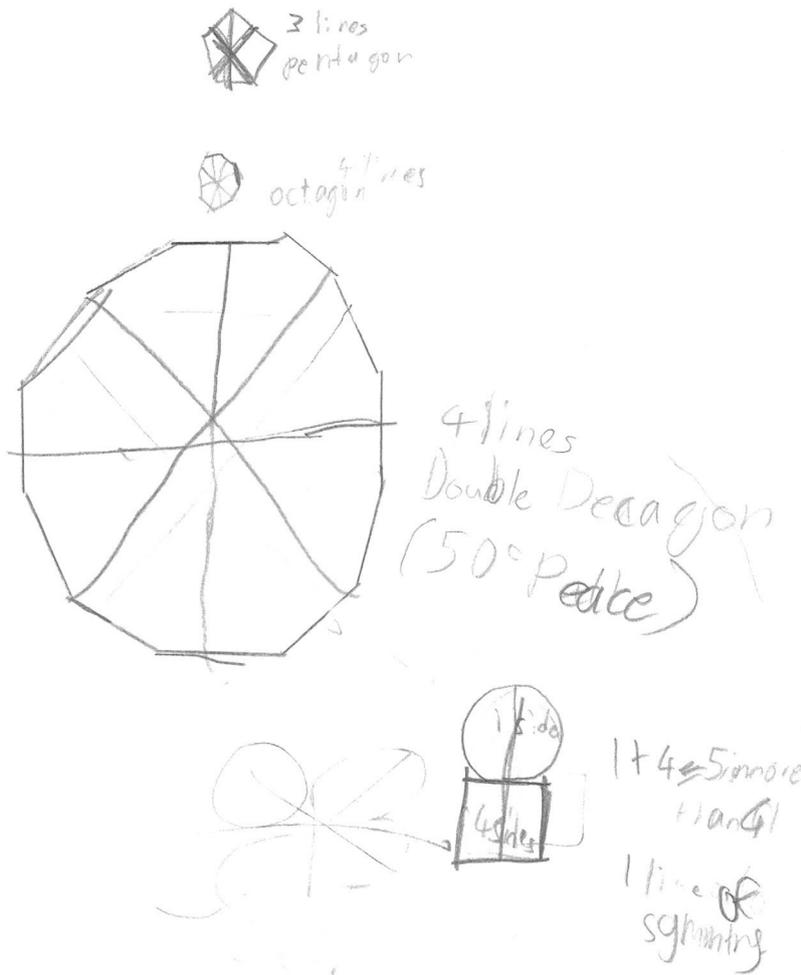
### Summary of task

Students had completed a unit of work on two-dimensional shapes and their properties including symmetry.

Students were asked to draw shapes with more than four sides that had at least one line of symmetry and to create quadrilaterals that didn't have any lines of symmetry.

## Geometry: Symmetry

What different shapes with more than 4 sides can you create that have at least one line of symmetry?



### Annotations

Draws shapes with symmetry.

Identifies lines of symmetry of a shape.

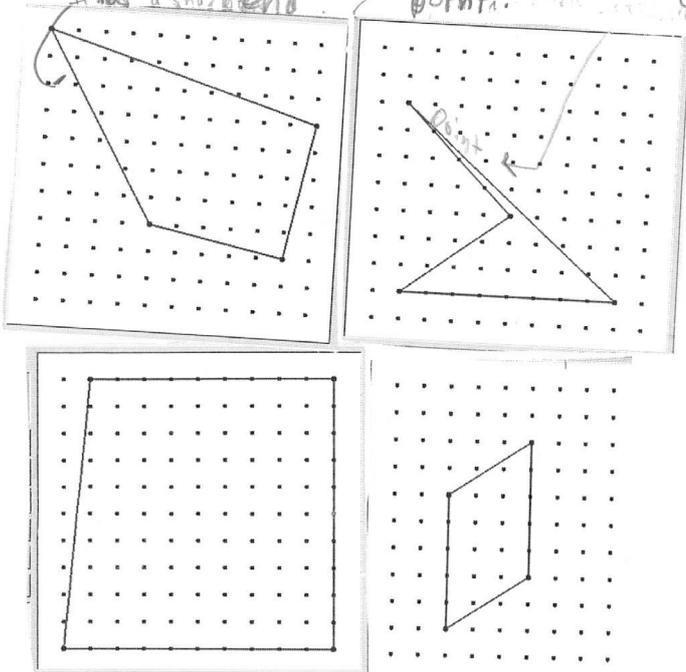
Creates a shape and identifies the line of symmetry.

# Geometry: Symmetry

What different quadrilaterals can you create on a virtual geoboard that have NO lines of symmetry?

This shape is not symmetrical because it has a sharp end.

This is not a symmetrical shape because it has an odd number of points.



this is a square with a sharp point not symmetrical.

this is a parallelogram so it can't be because its a sloped rectangle

these are all quadrilaterals because they've got four sides but there are all different shapes area length and angles

## Annotations

Describes why a shape is not symmetrical.

Creates asymmetrical shapes.

Makes generalisations about the features of asymmetrical shapes.

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## Number: Sentences

### Year 4 Mathematics achievement standard

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### Summary of task

Students had completed a unit of work on addition, subtraction and identification of unknown quantities in number sentences.

Students were asked to complete a series of problems showing their visual representations to solve the problem and a number sentence with an answer.

# Mathematics

Year 4  
Satisfactory

## Number: Sentences

Complete the grid below to solve the problems. You are able to choose how you represent the problem. You may wish to use diagrams or number sentences.

The problem	Representations	Calculator number sentence. Include your answer.				
Peter has 14 cats eye marbles and 7 pearly marbles. How many marbles does he have altogether?	<table border="1"><tr><td>14</td><td>7</td></tr><tr><td colspan="2">21</td></tr></table>	14	7	21		$14 + 7 = 21$
14	7					
21						
Sarah sorted out her pencils and threw out 12 old pencils. She ended up with 17 pencils. How many did she have to start with?	<table border="1"><tr><td>17</td><td>12</td></tr><tr><td colspan="2">29</td></tr></table>	17	12	29		$17 + 12 = 29$
17	12					
29						
The teddy bear weighs 25 grams. The toy car weighs 10 grams more than the teddy. How heavy is the car?	<table border="1"><tr><td>25</td><td>10</td></tr><tr><td colspan="2">35</td></tr></table>	25	10	35		$25 + 10 = 35$
25	10					
35						
The farmer had some cattle. She sold 8 of her cattle and she had 21 cattle left on the farm. How many cattle did she have to start with?	<table border="1"><tr><td>8</td><td>21</td></tr><tr><td colspan="2">29</td></tr></table>	8	21	29		$8 + 21 = 29$
8	21					
29						
Harry had some money saved for a new bike. He was given \$15 for his birthday and then had \$30. How much money did he have to start with?	<table border="1"><tr><td>30</td><td>15</td></tr><tr><td colspan="2">15</td></tr></table>	30	15	15		$30 - 15 = 15$
30	15					
15						

### Annotations

Uses tables to collect the information needed to solve the problems.

Solves written problem using a subtraction number sentence.

Solves written problems using addition number sentences.

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# Mathematics

Year 4  
Satisfactory

## Number: Sentences

The problem	Representations	Calculator number sentence. Include your answer.
There were 9 books on the shelf. At the end of silent reading the children packed away and now there are 25. How many books did they put on the shelf?		$9 + 16 = 25$
There was 30 M&Ms in the bowl and when I got home from soccer there was 14. How many M&Ms were eaten?		$30 - 14 = 16$
Can you write an addition and subtraction number sentence for each part/part/whole diagram?		
----- $12 + 13 = 25$ ----- $25 - 12 = 13$ -----		
----- $18 + 18 = 38$ ----- $38 - 18 = 18$ -----		

### Annotations

Writes a problem and calculates the answer from given information.

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# Mathematics

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## Number: Fractions and decimals

### Year 4 Mathematics achievement standard

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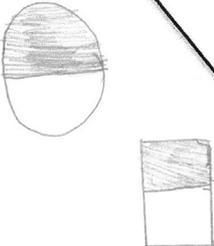
*Students use the properties of odd and even numbers. They recall multiplication facts to 10 x 10 and related division facts. Students locate familiar fractions on a number line. They continue number sequences involving multiples of single digit numbers. Students use scaled instruments to measure temperatures, lengths, shapes and objects. They convert between units of time. Students create symmetrical shapes and patterns. They classify angles in relation to a right angle. Students list the probabilities of everyday events. They construct data displays from given or collected data.*

### Summary of task

Students had completed a unit of work on fractions, looking at halves, quarters, thirds, fifths, sixths, eighths and tenths of collections and a whole.

Students were asked to choose two fractions that are equivalent and fill in the appropriate information on a think board. They also had to cut a length of string and create a blank number line, marking their fractions and decimals on it.

Number: Fractions and decimals

<p><b>Symbolic representation</b> Write your equivalent fractions</p> <p><math>\frac{4}{8}</math> <math>\frac{2}{4}</math></p>  <p>Whole</p>	<p><b>Write your equivalent fractions in words</b></p> <p>four eighths two quarters</p>
<p><b>Pictorial Representation</b></p> <p><b>Collection</b></p>  <p>at the shops as in it is <math>\frac{1}{2}</math> off</p>	<p><b>Write in decimal form</b></p> <p>0.50</p>
<p><b>Fractions Equivalent</b></p> <p>Give an example of where you might see this fraction in a real life situation</p>	

Annotations

Creates a pictorial representation of the fraction.

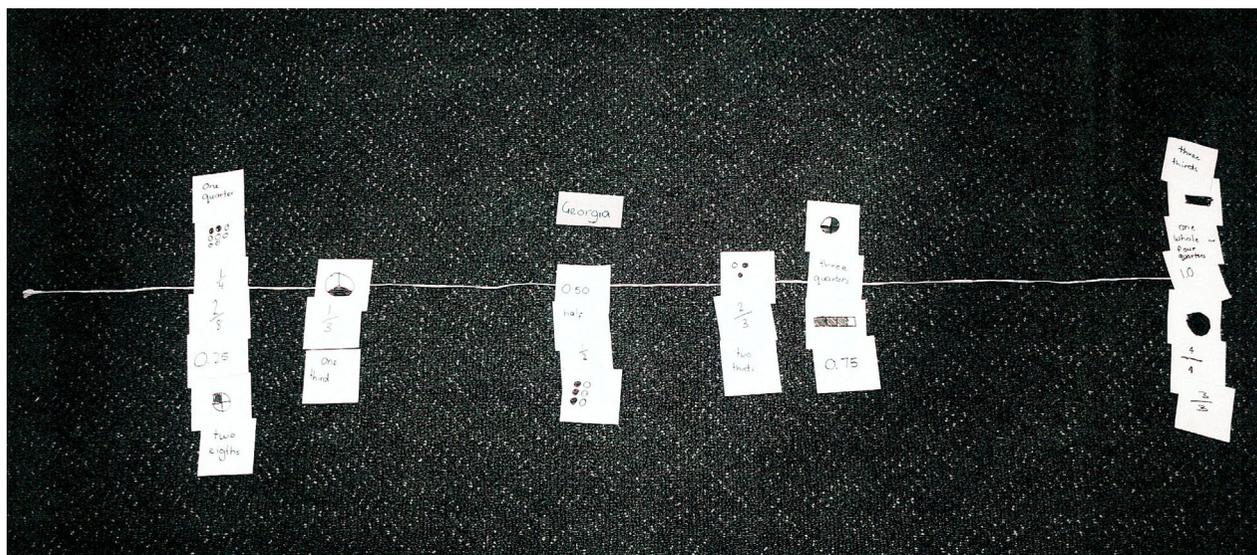
States equivalent fractions.

Writes equivalent fractions in words.

Writes the fraction in decimal form.

Identifies where fractions can be seen in everyday life.

## Number: Fractions and decimals



### Annotations

*Locates equivalent fractions and decimals on a number line.*

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## Measurement: Time word problems

### Year 4 Mathematics achievement standard

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### Summary of task

The students had completed two units of work on time during the year, including calculating the duration of events using start and finish times and converting between units of time, such as from hours to minutes. There had also been a focus on problem-solving using different techniques, including explicit teaching of the empty number line.

The students were given the problem-solving tasks as a class and the teacher read through the problems, clarifying any questions related to meaning. The students then completed the work individually as a formal assessment task.

## Measurement: Time word problems

### Time Word Problems

Would rather have your Sports lesson for 1 hour 10 minutes or 80 minutes? Explain why.

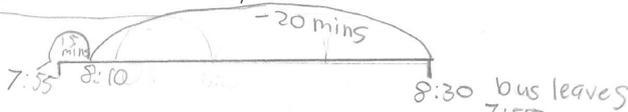
I would rather have sport for 80 minutes because it is longer than 1 hour and 10 minutes ~~60~~ which is 70 minute in total.

It is 9 weeks and 2 days till your classmate's birthday party. How many days do you have to wait for their birthday party?

$$14 + 14 + 14 + 14 + 7 = 63 + 2 \text{ day} = 65$$

I will have to wait 65 day to fill the party party

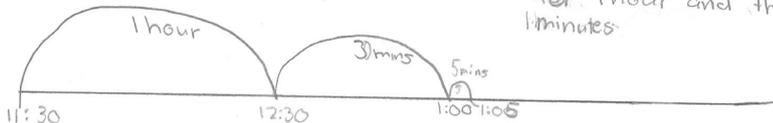
You are going on an excursion to Elizabeth Farm and need to arrive 20 minutes before the bus leaves. It takes you 15 minutes to walk to school. The bus is leaving at 8:30am. What time do you need to leave home so that you don't miss the bus?



I will need to leave at seven ~~55~~

You are having a race on your bike with a friend. The race starts at 11:30am, your friend finishes at 1:05 pm and you finish 6 minutes earlier. Calculate the time you and your friend were cycling.

My friend was cycling for 1 hour and thirty-five minutes.



It took you 5 minutes and 12 seconds to swim 10 laps of an Olympic swimming pool. How many seconds were you in the water for?

Approximately how long did it take you to swim each lap?

$$5 \text{ minutes} = 300 \text{ seconds} + 12 \text{ seconds for } 300 \text{ seconds}$$

$$1 \text{ minute} = 60 \text{ second}$$

$$60 \times 5 =$$

$$300 + 30 \text{ add } 0 = 300$$

$$1 \text{ minute } 3 \text{ seconds}$$

I was in the water 1 minute and 3 seconds

### Annotations

Converts time measurements into the same units to allow for comparison and to justify their answer.

Uses an additive strategy to convert between units of time.

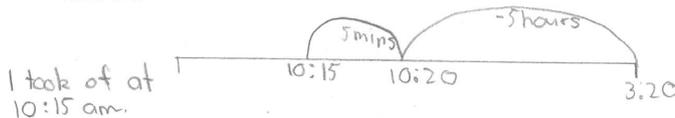
Solves a time problem by working backwards from a given time on an empty number line.

Uses an empty number line to calculate time duration.

Converts from minutes to seconds.

## Measurement: Time word problems

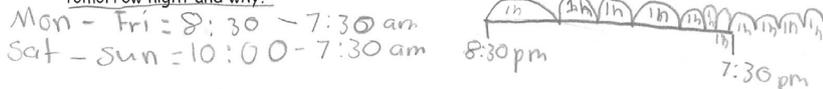
You are going on a holiday to Fiji. You arrive in Fiji at 3:20pm (Australian Time). If the flight from Australia takes 5 hours and 5 minutes, what time did you take off from Australia?



You play for 30 hours a week. List some possible times for your play routine. How many minutes in a week do you spend 'not playing'?

1 hour at school = 5 hours  
 1 hours at home on school days = 5 hours  
 10 hours at home on weekends = 20 hour  
 30 hours altogether

Add up the total amount of sleep you get each week. Predict how much sleep you will get tomorrow night and why?



on the weekdays I get 11 hours sleep.  
 on the weekends I get 9 hours and 30 minutes.

Write a time problem that involves the following times 8:00 am, 1 hour 20 min

It is 8:00 and my brother needs to get to football he will have to get there at in 1 and 20 minute. what time will he arrive?

### Annotations

*Applies an appropriate strategy to work backwards from a given time.*

*Interprets and uses am and pm notation when solving a time problem.*

*Lists appropriate time durations for play each day.*

*Calculates the amount of sleep on each day of the week, recognising that the amount of sleep varies depending on whether it is a weekday or a weekend day.*

*Creates a simple time problem using the information given in the question itself.*

## Mathematics

Year 4  
Satisfactory

## Number: Sausage sizzle

## Year 4 Mathematics achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

*By the end of Year 4, students choose appropriate strategies for calculations involving multiplication and division. They recognise common equivalent fractions in familiar contexts and make connections between fraction and decimal notations up to two decimal places. Students solve simple purchasing problems. They identify unknown quantities in number sentences. They describe number patterns resulting from multiplication. Students compare areas of regular and irregular shapes using informal units. They solve problems involving time duration. They interpret information contained in maps. Students identify dependent and independent events. They describe different methods for data collection and representation, and evaluate their effectiveness.*

*Students use the properties of odd and even numbers. They recall multiplication facts to  $10 \times 10$  and related division facts. Students locate familiar fractions on a number line. They continue number sequences involving multiples of single digit numbers. Students use scaled instruments to measure temperatures, lengths, shapes and objects. They convert between units of time. Students create symmetrical shapes and patterns. They classify angles in relation to a right angle. Students list the probabilities of everyday events. They construct data displays from given or collected data.*

## Summary of task

A unit on money and financial mathematics linking with number, fractions and decimals was taught for two weeks. The Australian Securities and Investments Commission (ASIC) Helping Out Teaching Resource (<http://teaching.moneysmart.gov.au/mst-digital-resources/helping-out/index.html#start>) was used as a teaching tool. The assessment task was adapted from the ASIC Helping Out game. The students played the game a number of times during the unit.

Students were given one hour to complete the assessment task individually, under examination conditions at the end of the unit.

Mathematics

Year 4  
Satisfactory

Number: Sausage sizzle

### Sausage Sizzle Fundraiser

**Part A:**

Your Principal has asked for your help to organise the end of term BBQ fundraiser. You can borrow up to \$400 from the school to start up the fundraiser, however, it needs to be paid back.

Some information you will need:

- 400 students in the school
- Sausages will cost \$5 per kilo (10 sausages)
- Rolls will cost 25c each
- Tomato sauce will cost \$4.55 per bottle (40 serves)

**Budget:** How much will it cost?

Sausages	Rolls	Sauce
$\begin{array}{r} 40\text{kg sausage} \\ \times 40 \\ \underline{5} \\ 200 \\ \$200 \end{array}$	$\begin{array}{r} 400 \\ \times 25 \\ \hline 2000 \\ 8000 \\ \hline 10000 \\ \$100 \end{array}$	$\begin{array}{r} 2 \\ \times 4.55 \\ \hline 22.75 \end{array}$

**Total Cost:** \$322.75

$$\begin{array}{r} \text{Sausage } \$200 \\ \text{Rolls } \$100 \\ \text{Sauce } 22.75 \\ \hline 322.75 \end{array}$$

**Price of Sausages:** Explain Why?

I would make it \$2.50 because there will be enough money.

**Income:** What is the total amount of money you will collect after selling all the sausages? \$1000

$$\begin{array}{r} 400 \times 2.50 \\ 2000.00 \\ \hline 8000.00 \\ \hline 10000.00 \\ = \$1000 \end{array}$$

**Profit:** How much money can you make? \$677.25  
Remember your need to pay back the start up cost.

$$\begin{array}{r} \$1000.00 \\ - 322.75 \\ \hline 677.25 \end{array}$$

Adapted from ASIC's MoneySmart Teaching Digital Resource:  
<http://teaching.moneysmart.gov.au/resource-centre/teaching-resources/asic-helping-out?page=2&myl=0&myla=0&mya=0&myrt=146>

Annotations

Uses algorithms to perform calculations involving the multiplication of whole numbers.

Converts the result of a multiplication in cents into dollars.

Uses an algorithm to multiply a decimal by a whole number.

Justifies the pricing of an item.

Calculates expected income from sales.

Calculates expected profit from sales.

Mathematics

Year 4  
Satisfactory

Number: Sausage sizzle

Helping Out

Part B:

Some of your profit needs to be donated to Papua New Guinea to assist their schools.  
1AUD = 2.5PGK

How much PGK are you going to donate? Show your working.

Handwritten student work for Part B:

500.00  
2.5  
-----  
125000.0  
100000.0  
-----  
25000.0

I am going to donate 1250 PGK and keep \$177.25

1250 PGK  
677.25  
500.00  
-----  
1777.25

What will you buy with your PGK?  
Desks = 30 PGK  
Chairs = 20 PGK  
Exercise books = 2 PGK

I will buy 255 books, 8 desks, 15 chairs and have no left over.

Handwritten student work for Part C:

1250 x 30  
-----  
500 180

120  
26  
-----  
120  
40  
-----  
520

500  
180  
-----  
680  
91  
x 2150  
-----  
680  
-----  
570

520  
520  
-----  
1040

10  
120  
-----  
380  
380

500  
180  
-----  
380  
-----  
1060

Adapted from ASIC-Helping Out Teaching Resource

Adapted from ASIC's MoneySmart Teaching Digital Resource:  
<http://teaching.moneysmart.gov.au/resource-centre/teaching-resources/asic-helping-out?page=2&myl=0&myla=0&mya=0&myrt=146>

Annotations

Converts from one currency to another using multiplication.

Uses algorithms to perform calculations involving multiplication.

Uses trial and error in an attempt to determine an appropriate quantity for each item given the amount of money available.

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# Mathematics

Year 4  
Satisfactory

## Statistics: Data

### Year 4 Mathematics achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

*By the end of Year 4, students choose appropriate strategies for calculations involving multiplication and division. They recognise common equivalent fractions in familiar contexts and make connections between fraction and decimal notations up to two decimal places. Students solve simple purchasing problems. They identify unknown quantities in number sentences. They describe number patterns resulting from multiplication. Students compare areas of regular and irregular shapes using informal units. They solve problems involving time duration. They interpret information contained in maps. Students identify dependent and independent events. They describe different methods for data collection and representation, and evaluate their effectiveness.*

*Students use the properties of odd and even numbers. They recall multiplication facts to 10 x 10 and related division facts. Students locate familiar fractions on a number line. They continue number sequences involving multiples of single digit numbers. Students use scaled instruments to measure temperatures, lengths, shapes and objects. They convert between units of time. Students create symmetrical shapes and patterns. They classify angles in relation to a right angle. Students list the probabilities of everyday events. They construct data displays from given or collected data.*

### Summary of task

Students had completed a unit of work on collecting, representing and displaying data. This task was given to them as a task over several mathematics lessons as an end-of-unit assessment.

Students had to reflect on the best way to ask a question to collect and present data. They were asked to predict the responses, collect the data and construct a data display with the information collected.

# Mathematics

Year 4  
Satisfactory

## Statistics: Data

### Data Assessment Task Part 1

Name:

Date:

4 Green are planning a special class lunch and their teacher needs to know the most popular fast food amongst the students. The teacher has decided to survey the students.

View the two survey questions below and circle the question that will best provide the teacher with the data he /she needs.

Explain why you believe that question to be best.

What is your favourite fast food?

*Mac's*

My favourite fast food is:

- Mc Donald's
- KFC
- Fish And Chips
- Pizza Hut
- I Don't Like Fast Food

I chose this because

*Because it would be alot easier instead of lots of different answers*

### Annotations

*Selects an effective question to collect data.*

*Explains why a particular type of question is more efficient when collecting data.*

Statistics: Data

**Data Assessment Task Part 2**

**Predict** the **total number** of given devices that Year 4 students have in their homes.

Devices	Number Of Devices
iPad	19
Mini iPad	5
Mobile Phone	52
Tablet	4
Laptop Computer	16
Desktop Computer	27
Gaming Device	16
TOTAL NUMBER OF DEVICES	159

**Record** in the table below the **actual** number of given devices that Year 4 students have in their homes

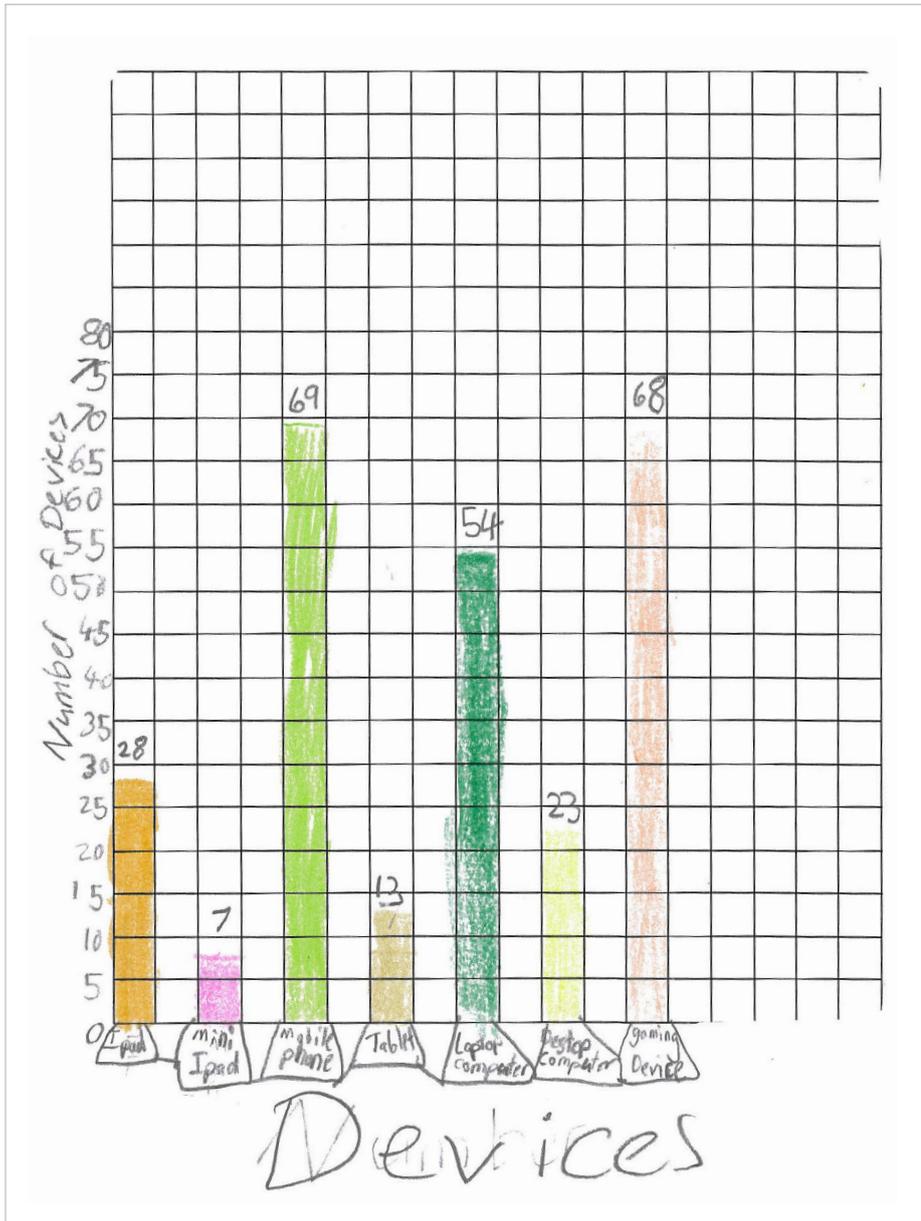
Devices	Number Of Devices
iPad	28
Mini iPad	7
Mobile Phone	69
Tablet	13
Laptop Computer	54
Desktop Computer	23
Gaming Device	68
TOTAL NUMBER OF DEVICES	

**Annotations**

*Makes predictions in investigations.*

*Records data from a survey.*

Statistics: Data



Annotations

Selects and constructs a column graph to represent the data collected.

Chooses an appropriate scale and labels increments evenly on the vertical axis.

Selects and uses appropriate labels for the axes.

## Mathematics

Year 4  
Satisfactory

## Statistics: Data

**Data Assessment Task Part 3**

Using your collated data create a visual representation that you believe most effectively displays the data.

You may choose either:

1. column graph
2. picture graph
3. electronically created graph

**Data Assessment Task Part 4**

Write a justification statement to support your choice of visual representation. Remember to also justify why you didn't choose an alternate visual representation.

I chose the column graph because it was easiest to read

## Annotations

*Justifies the selection of a column graph by referring to ease of interpretation.*

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## Statistics and probability: One minute challenge

### Year 4 Mathematics achievement standard

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*By the end of Year 4, students choose appropriate strategies for calculations involving multiplication and division. They recognise common equivalent fractions in familiar contexts and make connections between fraction and decimal notations up to two decimal places. Students solve simple purchasing problems. They identify unknown quantities in number sentences. They describe number patterns resulting from multiplication. Students compare areas of regular and irregular shapes using informal units. They solve problems involving time duration. They interpret information contained in maps. Students identify dependent and independent events. They describe different methods for data collection and representation, and evaluate their effectiveness.*

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### Summary of task

The students had completed work on the topic of chance twice during the year. They had participated in activities using dice, coins and spinners and had predicted the chance of events occurring and identified events that can't happen at the same time.

This assessment was given after the second series of lessons. Students were asked to independently complete a series of tasks related to chance.



## Statistics and probability: One minute challenge

### Why can't this happen?

Consider the following events, what event cannot happen if other does.

If the sun is rising it cannot Be night time at the same time.

If it is dry it cannot wet at the same time.

If I roll a 5 in a six sided die I cannot roll a 1,2,3,4,6 at the same time.

Create 2 of your own events where one cannot happen if the other happens.

If it is raining it cannot be sunny.  
When your asleep you can't be awake.

### Annotations

*Identifies events that cannot happen at the same time as particular given events.*

*Describes pairs of everyday events that cannot happen at the same time as each other.*

# Mathematics

Year 4  
Satisfactory

## Geometry: Angles

### Year 4 Mathematics achievement standard

The parts of the achievement standard targeted in the assessment task are highlighted.

*By the end of Year 4, students choose appropriate strategies for calculations involving multiplication and division. They recognise common equivalent fractions in familiar contexts and make connections between fraction and decimal notations up to two decimal places. Students solve simple purchasing problems. They identify unknown quantities in number sentences. They describe number patterns resulting from multiplication. Students compare areas of regular and irregular shapes using informal units. They solve problems involving time duration. They interpret information contained in maps. Students identify dependent and independent events. They describe different methods for data collection and representation, and evaluate their effectiveness.*

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### Summary of task

Students had completed a ten-lesson integrated unit of work on The Olympics and angles.

Students were asked to create a report for a TV show explaining angles in the environment. Students were given two lessons to complete the task.

# Mathematics

Year 4  
Satisfactory

## Geometry: Angles



### Annotations

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