

Mathematics

Year 5
Below 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 5 MATHEMATICS

This portfolio provides the following student work samples:

- Sample 1 Geometry: My angle
- Sample 2 Measurement: Garden bed
- Sample 3 Number: Treasure hunt
- Sample 4 Measurement: How many can you make?
- Sample 5 Number: Who are the fastest swimmers?
- Sample 6 Measurement: Using time
- Sample 7 Measurement: Using perimeter and area
- Sample 8 Geometry: Location and transformation
- Sample 9 Number: Number sentences
- Sample 10 Geometry: Mapping
- Sample 11 Statistics and Probability: Come in spinner
- Sample 12 Number: How do I check my work?

COPYRIGHT

Student work samples are not licensed under the creative commons license used for other material on the Australian Curriculum website. Instead, you may view, download, display, print, reproduce (such as by making photocopies) and distribute these materials in unaltered form only for your personal, non-commercial educational purposes or for the non-commercial educational purposes of your organisation, provided that you retain this copyright notice. For the avoidance of doubt, this means that you cannot edit, modify or adapt any of these materials and you cannot sub-license any of these materials to others. Apart from any uses permitted under the Copyright Act 1968 (Cth), and those explicitly granted above, all other rights are reserved by ACARA. For further information, refer to (<http://www.australiancurriculum.edu.au/Home/copyright>).

Mathematics

Year 5

Below satisfactory

Sample 13 Number: Spring fair

This portfolio of student work shows the measurement and construction of different angles (WS1), comparison of the sizes of fractions by diagrams and calculation and their representation on a number line (WS2, WS5). The student solves problems using the four operations (WS3, WS9) and explains how they know their answers to calculations are reasonable (WS12). The student makes spinners to assist in carrying out simple probability experiments before evaluating the results (WS11) and creates a simple budget (WS13). The student investigates the areas and perimeters of different rectangles (WS7). The student explains the effect of transformations (WS8), locates axes of symmetry of shapes and describes the features of three-dimensional objects using two-dimensional representations (WS4). The student creates maps, locates landmarks and describes directions to locations (WS10). The student converts between 12 and 24 hour time (WS6).

COPYRIGHT

Student work samples are not licensed under the creative commons license used for other material on the Australian Curriculum website. Instead, you may view, download, display, print, reproduce (such as by making photocopies) and distribute these materials in unaltered form only for your personal, non-commercial educational purposes or for the non-commercial educational purposes of your organisation, provided that you retain this copyright notice. For the avoidance of doubt, this means that you cannot edit, modify or adapt any of these materials and you cannot sub-license any of these materials to others. Apart from any uses permitted under the Copyright Act 1968 (Cth), and those explicitly granted above, all other rights are reserved by ACARA. For further information, refer to (<http://www.australiancurriculum.edu.au/Home/copyright>).

Mathematics

Year 5

Below satisfactory

Geometry: My angle

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

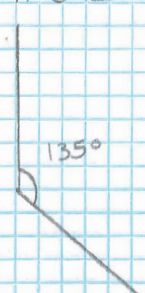
Summary of task

Students had completed a unit of work on angles and their properties. They were given the following problems to solve:

- Can you estimate and draw an angle of approximately 135° without using a protractor?
- I looked at the clock before school and noticed that the hands made an acute angle. What time could it be?
- I looked at the clock before school and noticed that the hands made a right angle. What time could it be? How do you know that you are right?
- I looked at the clock before school and noticed that the hands made a reflex angle. What time could it be? How do you know that you are right?


Geometry: My angle

TASK 1

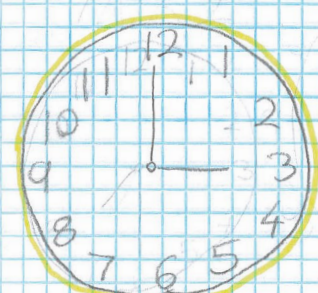


I knew that half is 180° so 135° is half-way through a quarter
 Because I learnt it in class
 Yes, I'm wrong
 Yes $\frac{30}{2}$

TASK 2



6:30am
 In clock version
 Yes, for example 7:00am
 Because I know what time school starts and what a acute angle is



3:00am
 Because I know what a right angle is and the time school starts

Annotations

Estimates and constructs an angle.

Identifies an angle in relation to the time indicated on the clock.

Measurement: Garden bed

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

Students had completed a unit of work on fractions and decimals. They were asked to complete two tasks:

- Divide a large rectangular garden bed into a number of equal plots. What addition and subtraction sentences can you create with fractions by looking at your garden?
- Tom created a number pattern which included the decimal 1.25. What could the pattern be?

Measurement: Garden bed

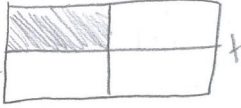
Fractions Task One 1

I am using quarters

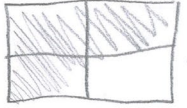
$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} - \frac{1}{4} = \frac{3}{4}$$

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

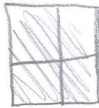
$$\frac{1}{4} + \frac{3}{4} = \frac{4}{4} = 1$$



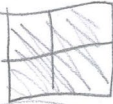
+




=



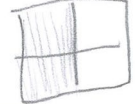
$$\frac{4}{4} - \frac{2}{4} = \frac{2}{4} = \frac{1}{2}$$



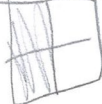
-



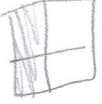
=




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



+



=



Annotations

Divides a shape into one set of equal parts.

Calculates addition and subtraction of fractions with the same denominator.

Copyright

Student work samples are not licensed under the creative commons license used for other material on the Australian Curriculum website. Instead, a more restrictive licence applies. For more information, please see the first page of this set of work samples and the copyright notice on the Australian Curriculum website (<http://www.australiancurriculum.edu.au/Home/copyright>).

Measurement: Garden bed

Task 2

+0.10 +0.10 +0.10 +1.10 +0.10

1.15 ~ 1.25 ~ 1.35 ~ 1.45 ~ 1.55 ~ 2.65

This pattern is going up by 1.10

+0.01 +0.01 +0.01 +0.01 +0.01

1.25 ~ 1.26 ~ 1.36 ~ 1.46 ~ 1.56 ~ 1.66

1.25 ~ 2.25 ~ 3.25 ~ 4.25 ~ 5.25

+1.00

Annotations

Creates and continues some number patterns with tenths and whole numbers.

Copyright

Student work samples are not licensed under the creative commons license used for other material on the Australian Curriculum website. Instead, a more restrictive licence applies. For more information, please see the first page of this set of work samples and the copyright notice on the Australian Curriculum website (<http://www.australiancurriculum.edu.au/Home/copyright>).

Mathematics

Year 5

Below satisfactory

Number: Treasure hunt

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

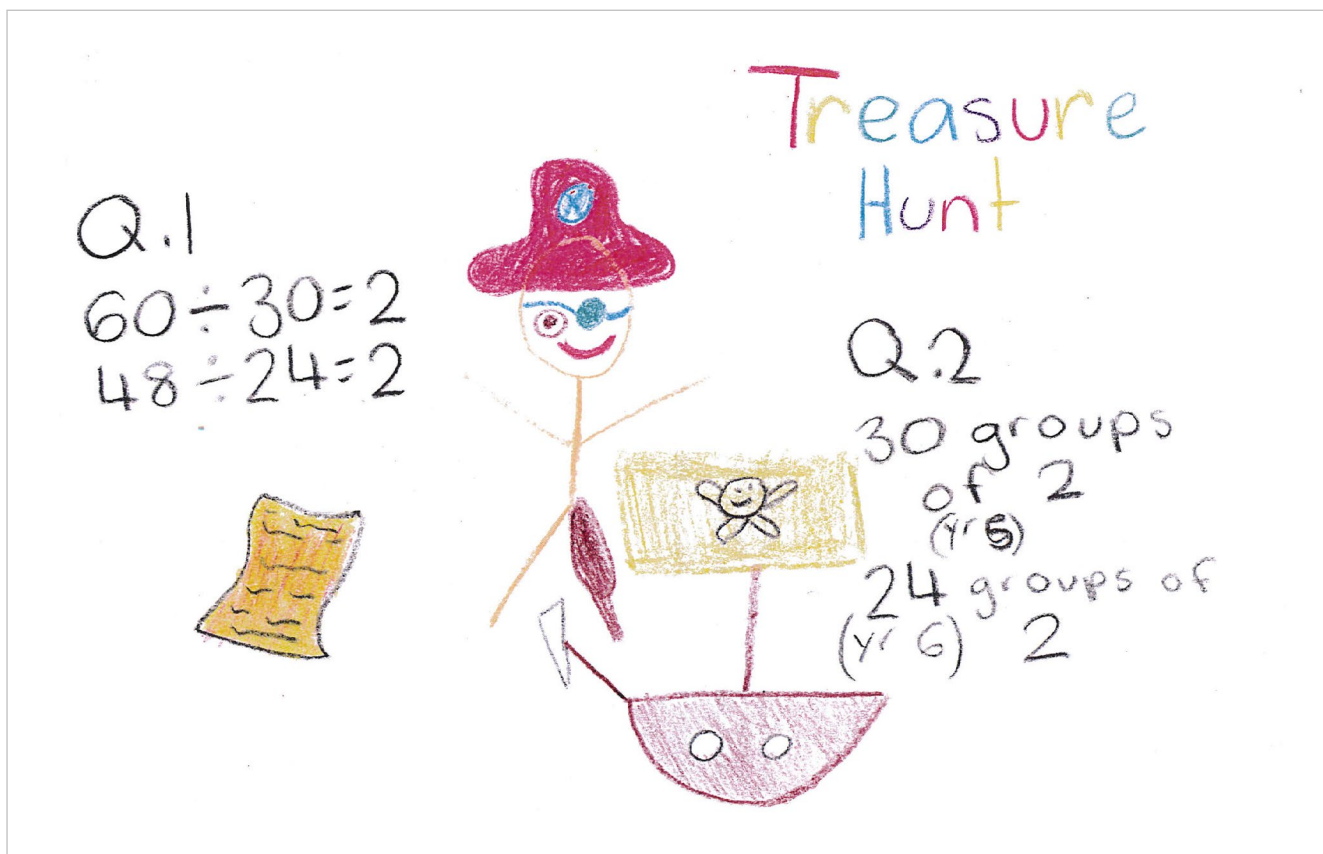
Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

Students were given the following problem to solve after completing a unit of work on multiplication, division, factors and multiples:

- Our teacher is planning a treasure hunt for teams of students in Year 5 and Year 6. There are 48 Year 5 students and 60 Year 6 students. Each team has to have equal numbers and team members are from the same year level.
- What are all the possible team sizes that can participate in the treasure hunt?
- What are the largest possible group sizes that our teacher can have?

Number: Treasure hunt



Annotations

Recognises multiplication as groups of the same size.

Copyright
Student work samples are not licensed under the creative commons license used for other material on the Australian Curriculum website. Instead, a more restrictive licence applies. For more information, please see the first page of this set of work samples and the copyright notice on the Australian Curriculum website (<http://www.australiancurriculum.edu.au/Home/copyright>).

Measurement: How many can you make?

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

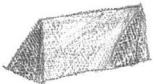

Students had studied three-dimensional objects and their two-dimensional relationships, including nets and features.

Students were given a bag with two-dimensional shapes and asked to make as many three-dimensional objects as they could. They completed the table recoding as much information as they could about the three-dimensional objects. Students were encouraged to use mathematical terms to describe the objects.

Measurement: How many can you make?

HOW MANY CAN YOU MAKE?

Using the *2D shapes* in the bag, make as many *3D objects* as you can. Once you have constructed your 3D object, using the table below record as much information as you can about the 3D object. Remember to name your objects and to use the correct language. You must work independently to complete this task.

Rectangular Prism	Cone	Rectangular
A Rectangular Prism has 4 Sides and 6 Faces	A Cone has 2 Sides and one Point.	A Rectangular has 8 Point and has 6 Sides
		

Annotations

Draws a prism and a cone and identifies some of the features.

Mathematics

Year 5

Below satisfactory

Number: Who are the fastest swimmers?

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

Students had been studying a unit of work based on data from the Olympic Games. They had become familiar with ordering decimals on a number line, time in seconds, tenths of seconds and hundredths of seconds.

Students were given tables with information about the results of the Men's 100m Freestyle Semi-Finals from the London Olympic Games. They were asked to order the results from fastest to slowest. They then completed further ordering of decimals and located them on a number line. Students were also asked to think about what could be done in one hundredth of a second.

Number: Who are the fastest swimmers?

Who Were the Fastest 100m Swimmers of 2012?

The tables below contain information from the Men's 100m Freestyle Semi-Finals from the 2012 London Olympic Games.

Task 1

Order the results from fastest to slowest performance, 1st-16th place.

Semi-Final 1

Lane	Athlete	Country	Time in Seconds	Placing
01	GILOT Fabien	France	48.49	10th
02	CIELO Cesar	Brazil	48.17	5th
03	FRASER Brett	Cayman islands	48.92	13th
04	LOUW Gideon	South Africa	48.44	9th
05	MAGNUSSEN James	Australia	47.63	1st
06	LOBINTSEV Nikita	Russia	48.38	8th
07	ROBERTS James	Australia	48.57	11th
08	FRASER Shaune	Cayman Islands	49.07	16th

Semi-Final 2

Lane	Athlete	Country	Time in seconds	Placing
01	AGNEL Yannick	France	48.23	7th
02	JONES Cullen	USA	48.60	13th
03	HAYDEN Brent	Canada	48.21	6th
04	ADRIAN Nathan	USA	47.97	2nd
05	VERSCHUREN Sebastiaan	Netherlands	48.13	4th
06	TIMMERS Pieter	Belgium	48.57	11th
07	CZERNIAK Konrad	Poland	48.44	9th
08	GARCIA Hanser	Cuba	48.04	3rd

Annotations

Orders decimals from lowest to highest.

Mathematics

Year 5

Below satisfactory

Measurement: Using time**Year 5 Mathematics achievement standard**

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

Students had spent a week focusing on comparing and representing 12 and 24 hour time.

They were asked to create a timeline of a typical day in their lives in 12 and 24 hour time and record their day using both digital and analog time. They completed this task in a half an hour time slot.

Measurement: Using time

Year 5 Time

Use the boxes below to show a typical day in your life. Underneath each box record the time that each event happened in 12hr time, 24 hr time and in analogue time

	Get up	breakfast	car	School	marion	on ipod	Dinner	bed	
1									
2	12hr	7:30am	8:00am	8:10am	8:20am	4:00pm	6:00pm	7:00pm	9:00pm
3	24hr	0730	0800	0810	08:20	1600	1800	1900	2100

When would it be useful to use each of the three different time measurements? Give examples

1. You use number 1 in the morning
 you use number 2 in the evening
 you use number 3 after 7:00pm

Annotations

Records times in analog, digital and 24 hour time.

Copyright

Student work samples are not licensed under the creative commons license used for other material on the Australian Curriculum website. Instead, a more restrictive licence applies. For more information, please see the first page of this set of work samples and the copyright notice on the Australian Curriculum website (<http://www.australiancurriculum.edu.au/Home/copyright>).

Measurement: Using perimeter and area

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

Students had completed a unit of work on perimeter and area. They had been given opportunities to practise measuring objects using millimetres, centimetres, metres and calculate area using cm^2 and m^2 .

Students were asked to define area and perimeter and explain how each is calculated. They were then asked to choose shapes to measure and to calculate the perimeter and area of each. They were also asked to identify what units should be used to measure the length of items.

Measurement: Using perimeter and area

Using Perimeter and Area


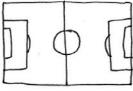



What is perimeter? How can you work it out?

Perimeter is where you get a shape like the ~~area~~ area and then you count how many squares in the shape then add them up.

What is area? How can you work it out?

area is where you draw a shape and 800 together like 800 the you add 1180 then you add 800 and 1180 like 2360 and 1180 like 3960

What unit should you use to measure the perimeter of these items?

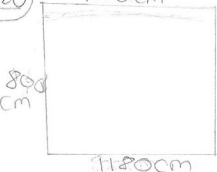
				
Chess Board cm	Soccer Pitch m	Window m	Chewing Gum Packet cm	House Floor Plan m

What unit should you use to measure the area of these items?

				
Car Park m	Sand Pit m	Book Cover cm	Mobile Phone cm	Front of House m

Choose an object whose perimeter you can measure using **CENTIMETERS**. Measure it and record how you did it. Use a diagram to help you. Then calculate the area of the object. Explain how you worked it out.

800 1180



1180 cm

800 cm


Perimeter: $800 + 2360 = 3960$

Area: $1180 \times 800 = 944000$

1180 = length
800 = width

Choose an object whose perimeter you can measure using **METRES**. Measure it and record how you did it. Use a diagram to help you. Then calculate the area of the object. Explain how you worked it out.

110 1700



1700

110

Perimeter: $110 + 3400 = 3510$

Area: $1700 \times 110 = 187000$

1700 = length
110 = width

Annotations

Selects appropriate formal units to measure objects.

Demonstrates an understanding of area and perimeter but confuses the rules when calculating.

Geometry: Location and transformation

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

Students had completed a unit of work about line and rotational symmetry, translation, rotation, reflection and the enlargement transformation of two-dimensional shapes.

Students were asked to draw two-dimensional shapes and follow the language of position to transform, enlarge and record the lines of symmetry in the shapes. They were then asked to enlarge a two-dimensional shape using grid paper.

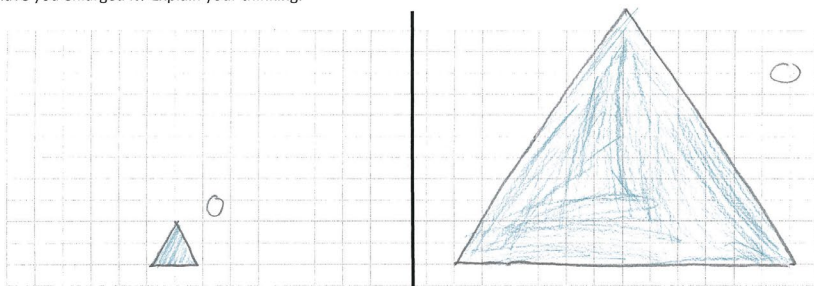
Geometry: Location and transformation

Location & Transformation – Year 5

- Draw three different 2 dimensional shapes in the first column.
- In the first row, show how the shape can be translated in different ways. Describe what you did.
- In the second row, show how the shape can be rotated in different ways. Describe what you did.
- In the third row, show how the shape can be reflected. Describe what you did.
- Show how many lines of symmetry each shape has.

Shape 1 (Translate)				
Shape 2 (Rotate)				
Shape 3 (Reflect)				

On the left side of the grid draw a simple picture. Enlarge the same picture on the right side of the grid. By how much have you enlarged it? Explain your thinking.



Annotations

Demonstrates that shape remains the same under translation.

Understands that rotating changes position but not shape.

Recognises that enlargement increases the size of the object.

Mathematics

Year 5

Below satisfactory

Number: Number sentences

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

Students had completed class tasks involving number sentences and unknown quantities.

Students were asked to complete a task to describe numbers in a number sentence in a variety of ways. This task was completed under timed conditions.

Number: Number sentences

Number Sentences

Instructions!

- Choose 15 different numbers between 0 and 100
- Express each number in two different ways using mixed operations

	Number	First way	Second way
	Eg. 3	$3 = 6 \times 4 - 3 \times 7$	$3 = 56 \div 7 \div 2 - 1$
1.	5	$5 = 2 + 3$	$5 = 10 - 5$
2	10	$10 = 5 \times 2$	$10 = 5 + 5$
3	12	$12 = 3 \times 4$	$12 = 10 + 2$
4	15	$15 = 20 - 10$	$15 = 10 + 5$
5	20	$20 = 2 \times 10$	$20 = 10 + 10$
6	25	$25 = 20 + 5$	$25 = 30 - 5$
7	30	$30 = 20 + 10$	$30 = 25 + 5$
8	36	$36 = 40 - 4$	$36 = 30 + 6$
9	40	$40 = 2 \times 20$	$40 = 80 \div 2$
10	50	$50 = 100 \div 2$	$50 = 10 + 40$
11	60	$60 = 30 + 30$	$60 = 100 - 40$
12	70	$70 = 100 - 30$	$70 = 2 \times 30$
13	80	$80 = 2 \times 40$	$80 = 40 + 40$
14	90	$90 = 100 - 10$	$90 = 45 + 45$
15	100	$100 = 10 \times 10$	$100 = 50 + 50$

Annotations

Performs operations in the correct order.

Uses one operation to make the number.

Copyright

Student work samples are not licensed under the creative commons license used for other material on the Australian Curriculum website. Instead, a more restrictive licence applies. For more information, please see the first page of this set of work samples and the copyright notice on the Australian Curriculum website (<http://www.australiancurriculum.edu.au/Home/copyright>).

Mathematics

Year 5

Below satisfactory

Geometry: Mapping

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

Students had studied maps and used a compass.

Students were asked to draw a treasure island map, to create a scale and compass rose, and to impose a grid and coordinates. They were required to write a set of directions, using compass points or grid coordinates, to the location of a hidden treasure on their map. Students exchanged maps and followed the directions to find the treasure. They were encouraged to comment on the scale used.

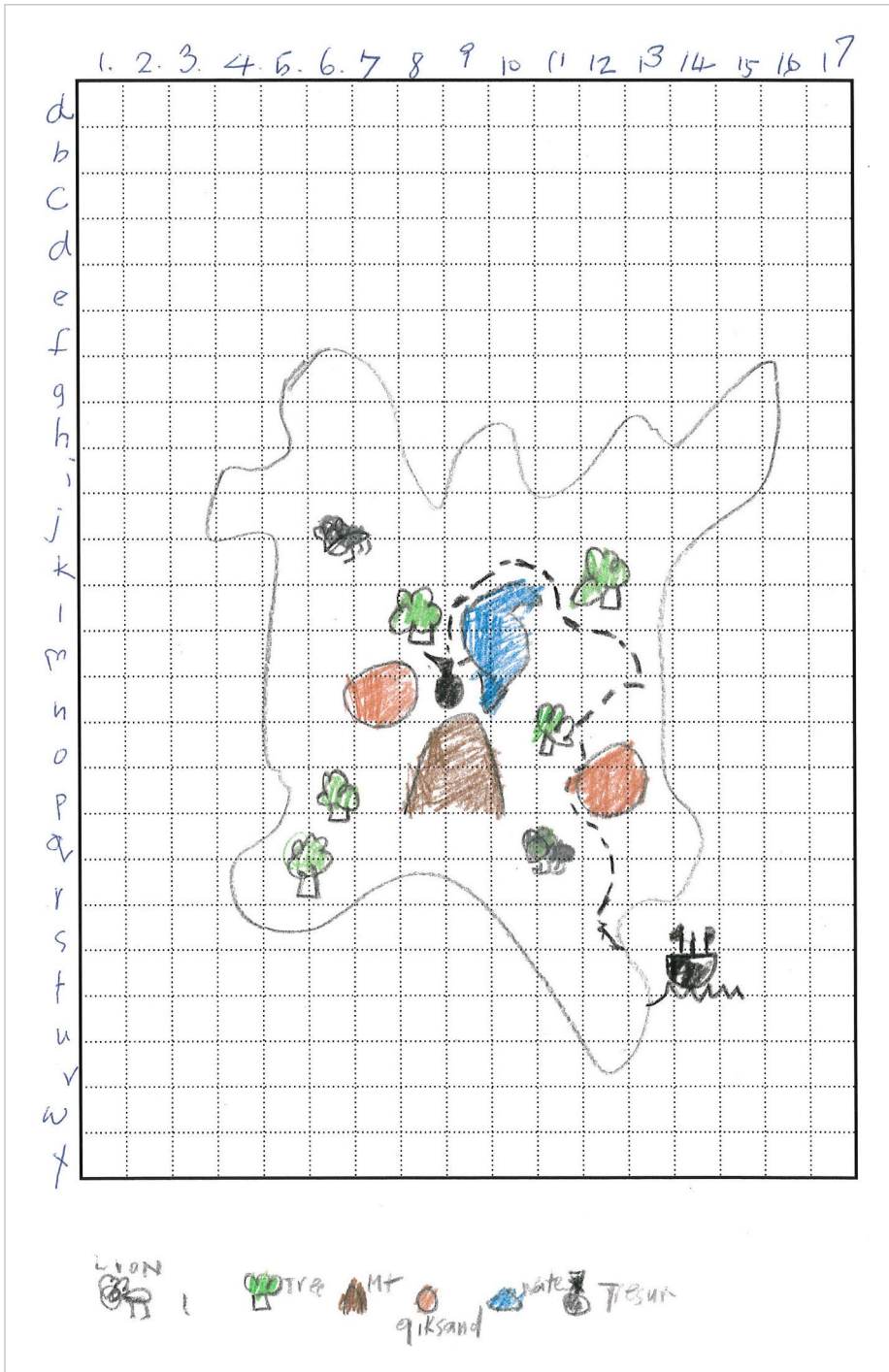
Mathematics

Year 5

Below satisfactory

Geometry: Mapping

Annotations



Identifies landmarks on the map.

Copyright

Student work samples are not licensed under the creative commons license used for other material on the Australian Curriculum website. Instead, a more restrictive licence applies. For more information, please see the first page of this set of work samples and the copyright notice on the Australian Curriculum website (<http://www.australiancurriculum.edu.au/Home/copyright>).

Statistics and Probability: Come in spinner

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

This task was the culmination of a series of activities dealing initially with the language of chance and then conducting simple chance experiments. The students had discussed fair and unfair spinners and the numerical chance of a particular result happening.

Students were required to make three spinners. One of the spinners had four colours but there was not an equal chance of spinning each colour. The second spinner had six numbers on it with an equal chance of spinning each number and the third spinner had six numbers on it with an unequal chance of spinning each of the numbers. Students were required to pose questions, predict the chance of the outcomes and then conduct the task. Students were asked to record all answers in tables and graphs. After completing the task students compared their results with other class members and interpreted the results.

Statistics and Probability: Come in spinner

Spinna 1
I predict the colour will be green because theres more of them. Then it will land on blue

Spinna 2
I predict the colour will be any

Spinna 3
I predict number 6 because its higher.

Annotations

Makes some predictions about the possible results of the experiments in relation to specific spinners.

Statistics and Probability: Come in spinner

Annotations

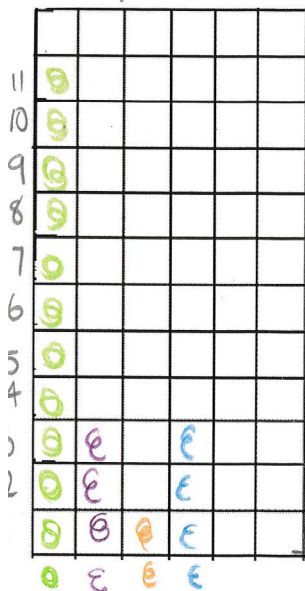
Spinna 1

Colour	Talli	Total
green		11
purple		3
orange		2
blue		4

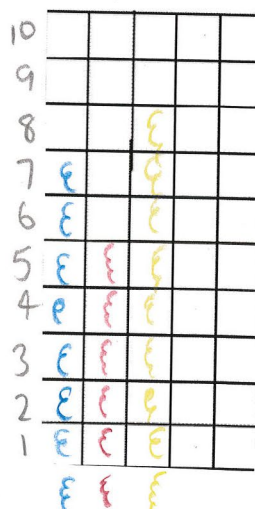
Spinna 2

Colour	Talli	Total
blue		7
red		5
yellow		8

Spinna 1



Spinna 2



Records the results of the experiment using tally marks and totals.

Statistics and Probability: Come in spinner

Spinna 3 - numbers

Number	Tally	Total
6	 	7
5		3
4		0
3		4
2		2
1		3

6 spun the most because it got 7.
 1 made a mistake with 4.

I compared my spinna numbers
 they were different.

Annotations

Reflects on results.

Mathematics

Year 5

Below satisfactory

Number: How do I check my work?

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

Throughout the year, students had completed many mental calculation sessions as an introduction to mathematics lessons. They had been explicitly taught a variety of strategies to check their answers to calculations and to explain how these worked.

Students were given three calculations to complete and were asked to explain the reasonableness of their answers, in a 20-minute timeframe.

Mathematics

Year 5

Below satisfactory

Number: How do I check my work?

Work out the following algorithms, and then explain how you checked the reasonableness of your answer.

$\begin{array}{r} 456 \\ \times 19 \\ \hline 9521 \end{array}$	<p>I times every number by one or nine and if there are extra numbers I put them on top.</p>
$\begin{array}{r} 1723 \\ 26347 \\ - 9828 \\ \hline 18514 \end{array}$	<p>To make sure my trading is right I add the answer with the bottom row ex: $9+8=17$</p>
$2514 + 357 + 5249 + 12345$ $\begin{array}{r} 2514 \\ 357 \\ 5249 \\ 12345 \\ \hline 20465 \end{array}$	<p>I add them right to left and top to bottom.</p>

Annotations

Demonstrates some understanding of the use of trading when finding the answer to a subtraction algorithm.

Describes how working backwards from an answer using the opposite operation can be used to check an answer but does not refer to the processes of rounding or estimation.

Calculates the answer to an addition algorithm involving more than two addends with different numbers of digits.

Copyright

Student work samples are not licensed under the creative commons license used for other material on the Australian Curriculum website. Instead, a more restrictive licence applies. For more information, please see the first page of this set of work samples and the copyright notice on the Australian Curriculum website (<http://www.australiancurriculum.edu.au/Home/copyright>).

Mathematics

Year 5

Below satisfactory

Number: Spring fair

Year 5 Mathematics achievement standard

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

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. Students compare and interpret different data sets.

Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator. Students continue patterns by adding and subtracting fractions and decimals. They find unknown quantities in number sentences. They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12 and 24 hour time. Students use a grid reference system to locate landmarks. They measure and construct different angles. Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. Students pose questions to gather data, and construct data displays appropriate for the data.

Summary of task

Students were preparing to run a stall selling 'spider drinks' at the school spring fair. They were asked to create a simple budget to run the stall and work out how much ice-cream, soft drink and cups they could buy within their budget. The cost of ingredients and cups were provided to the students as follows:

- Total funds: \$150.00
- Ice-cream: \$3.50 per 4-litre container
- Soft drink: \$2.00 per 1-litre or \$2.50 for 2 litres
- Plastic cups: \$1.99 for 25 cups.

Mathematics

Year 5

Below satisfactory

Number: Spring fair

budget 150\$

Ice cream 4L = 3.50\$

Soft drink 1L = 2\$

40 cups per 4L of ICE cream and
40 cups per 4X Soft

cup = 2.5 drink cup = 100ml soft drink

(50% ice cream 50% soft drink)

576 L of 5760 soft drink = 1152\$ odd for
Ice cream 1.00 = 370\$

2500ml of soft drink and
Ice cream

Annotations

Lists the total budget.

Lists the unit price of each item.

Calculates the number of serves in the total amount of ice-cream and soft drink to be purchased.