



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 predetermined 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
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- 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 x 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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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 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 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

I know the number has to be an odd number because for the first part its two for the first part its two rows and there both even and if rows and there both even and if rows and there both even and if and here on it has to make you plus one on it ha I know the number has to If you add 6 on all the time you will get the answer. So Lucy could 11,17,23,29, 35, 41, 47, 53, 59, 65 Happy Sirthday

Annotations

Communicates a logical approach to finding the answer to the number sentence problem.

Communicates a clear written answer to the problem.

Generalises the result to give all possible answers 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.

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 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? 6, 12, 18, 24, 30, 36, 42, 48, 54, 60 The rule of My Pattern is x6 The 20th term in mg fattern is 120 because The six timestables are all even Larger numbers in the 6 timestables 6000 Because 60 is the loth term in the 6 times table and you have These numbers are not in bx table because they are odd: 7323, 171173, 3731 I am going to look at Some numbers and check if they are in the b times takes. 1332 . 651352 1332 is in the 6 timestable it is the 222 term 1322 5)1322 az 1322 is not in the b time Stable because it has a remader when you divide by

Annotations

Demonstrates a multiplication number pattern that includes 60.

Finds the 20th term in the sequence.

States numbers that would be included in the multiplication number pattern and those that would not be included with some justification.

Demonstrates if a term is in the sequence or not and which term it would be in the sequence.

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Measurement: Quadrilaterals

Year 4 Mathematics achievement standard

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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 parallelogram that has the same area as the irregular shape.

Draws a trapezium that has the same area as the irregular shape.

Draws a number of rectangles that have 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



Annotations

Demonstrates an understanding of the meaning of consecutive numbers and adds a variety of three consecutive numbers.

Draws conclusions based on their calculations.

Generalises the result and demonstrates where it does not work.

Shows the addition of three four-digit numbers.

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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

Annotations 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. Selects only products that occur 10 × 10. Justifies their choice of products by Select 4 numbers from your grid and explain why you included them. 2041 Nud up to 10 × 10. Describes the chance of obtaining facts up to 10×10 . Choose 2 numbers you didn't include on your grid and write why you didn't choose them. not chosen by identifying the two

frequently in the multiplication facts up to

referring to the number of times that each product occurs in the multiplication facts

particular products from the multiplication

Explains why particular numbers were products that occur least frequently in the multiplication facts up to 10 × 10 and describes the chance of each product.

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Geometry: Symmetry

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 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



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Geometry: Symmetry



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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.



Year 4 Above satisfactory

Number: Sentences

may wish to use alagrams or number sente	nces.	
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?	14+7=27	14t/=
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?	12-47	17442=
The teddy bear weighs 25 grams. The toy car weighs 10 grams more than the teddy. How heavy is the car?	25+10=3	25+10=
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?	17-8=24	3124-L
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?	P+15=30	30-45=E

Annotations

Creates a number sentence using a question mark as the unknown quantity.

Uses addition to solve a subtraction algorithm.

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Year 4 Above 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?	25-[2]=9	25-9-
In one class there, were 30 children 14 went to May Out Stall How many are still in slow many are	14 ? 30	30-14=
Can you write an addition and subtraction n 	number sentence for each part/part/whole	e diagram?
	12 1	3
DALLER DE MO]
15-17-18528 20-22	18	>
•	10	

Annotations

Writes a problem to match a number sentence with an unknown quantity.

Connects addition and subtraction to solve a number sentence.

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Number: Fractions and decimals

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 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



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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



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Measurement: Time word problems

	Annotations
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? 3:20pm = 15:20(24hr time) 1 took off at 10:15am.	Interprets and uses am and pm notation when solving a time problem.
10:15 10:15 10:20 15:20	Applies appropriate strategies to work backwards from a given time.
You play for 30 hours a week. List some possible times for your play routine.	
How many minutes in a week as you spend not playing? I. Spend 8280 mins Not playing in G The arr of the second secon	<i>Converts days to hours and hours to minutes to answer the question posed.</i>
Add up the total amount of clean you get each weak. Predict how much clean you will get	
tomorrow night and why? I will get 10 hrs of sleep tommorow since 9pm -> 7am 10/my mum always tells me to go to sleep 70hrs 1 9pm and wake up at 7am.	Calculates the total amount of sleep in one week.
gpm 70m 70m 70m 70m	Makes a prediction and provides a reason.
Write a time problem that involves the following times 8:00 am, 1 hour 20 min George ran a race. He race storts at 8:00 am, and it finishes at 9:20. How long did he run the race for ? Ihr and 20 mins	Creates a time problem using part of the given information in the question and the other part in the solution to the problem.





Number: Sausage sizzle

Year 4 Mathematics achievement standard

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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 teaching of the unit.

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







Number: Sausage sizzle



Annotations

Applies knowledge of multiplication facts up to 10×10 to perform calculations involving multiplication and division.

Converts a decimal to a fraction to simplify a calculation involving multiplication with a decimal.

Multiplies a decimal by a power of ten efficiently.

Records working out in a clear and logical manner when problem-solving.

Justifies the pricing of an item.

Calculates expected income from sales.

Calculates expected profit from sales.

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Number: Sausage sizzle



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Statistics: Data

Year 4 Mathematics achievement standard

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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.







Statistics: Data







Statistics: Data

Data Assessment Task Part 2

<u>Predict</u> the <u>total number</u> of given devices that Year 4 students have in their homes.

Devices	Number Of Devices
iPad	5
Mini iPad	
Mobile Phone	34
Tablet	7
Laptop Computer	5
Desktop Computer	24
Gaming Device	30
TOTAL NUMBER OF DEVICES	

Annotations

Makes predictions in investigations.

<u>Record</u> in the table below the <u>actual</u> 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	55
Desktop Computer	23
Gaming Device	68
TOTAL NUMBER OF DEVICES	

Records data from surveys.

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Statistics: Data



Annotations

Ensures that the vertical scale is of an appropriate length to display the data accurately.

Selects and constructs an electronicallycreated column graph to represent the data collected.

Selects and uses appropriate labels for the axes.

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.



Reasons mathematically to justify selection of a particular data display.

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Statistics and probability: One minute challenge

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

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



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Statistics and probability: One minute challenge

Why can't this happen?	Annotations
Consider the following events, what event cannot happen if other does. If the sun is rising it cannot <u>be</u> <u>SUNDOWN</u> at the same time. If it is dry it cannot <u>AMP of Wet</u> at the same time. If I roll a 5 in a six sided die I cannot <u>foo fool a</u> 2 <u>lice</u> at the same time.	Identifies events that cannot happen at the same time as particular given events.
Create 2 of your own events where one cannot happen if the other happens. IF I finish a test, I cannot be still doing the test at the same time. If I use all my money, I cannot have money left.	Describes pairs of everyday events that cannot happen at the same time as each other.





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. 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.





Year 4 Above satisfactory

Geometry: Angles



Annotations

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