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
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).
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 it's two rows and there both even and if you plus one on it has to make an odd number. The first number is 11 and here is how:

If you add 6 on all the time you will get the answer. So Lucy could be:

11, 17, 23, 29, 35, 41, 47, 53, 59, 65

Happy birthday
Lucy

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.
Number: Multiplication

Year 4 Mathematics achievement standard

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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 \( x 6 \)
The 20th term in my pattern is 120 because 20 is a multiple of 6. The six times tables are all even.

Larger numbers in the 6 times tables 6000. Because 60 is the 10th term in the 6 times table and you know

These numbers are not in 6x table because they are odd: 7323, 171173, 3731

I am going to look at some numbers and check if they are in the 6 times tables.

\[ \text{1332} \]

\[ \text{1332} \text{ is in the 6 times table.} \]

\[ \text{it is the 222 term} \]

\[ \text{1322} \]

\[ \text{1322 is not in the 6 times table.} \]

\[ \text{because it has a remainder when you divide by 6} \]

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.
Measurement: Quadrilaterals

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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.
Number: Odd and even

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 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?

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.
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.

```
  8 10 24 20
  6 14  9
 36 48 32 21
 40 12 28 30
```

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

* I included 30, 20, 40 and 10 because you can make them in four different ways each. So I have a 4 out of 100 chance of getting each number.

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

* I didn’t include 1 and 100 because you can only make them in one way each. So I only have a 1 out of 100 chance of getting them.

**Annotations**

* Selects only products that occur frequently in the multiplication facts up to 10 x 10.

* Justifies their choice of products by referring to the number of times that each product occurs in the multiplication facts up to 10 x 10.

* Describes the chance of obtaining particular products from the multiplication facts up to 10 x 10.

* Explains why particular numbers were not chosen by identifying the two products that occur least frequently in the multiplication facts up to 10 x 10 and describes the chance of each product.
**Mathematics**

**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?

Draws symmetrical shapes.

Identifies the lines of symmetry in a shape.

Identifies the number of lines of symmetry.

Identifies and describes the types of angles in a shape.

Demonstrates understanding of the meaning of the word ‘symmetrical’.

Indicates that a circle is symmetrical and implies that a circle has an infinite number of lines of symmetry.
**Geometry: Symmetry**

**TASK 2**

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

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**Annotations**

*Creates asymmetrical shapes.*

*Identifies irregular shapes.*

*Explains the features of asymmetrical shapes.*
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.
## Number: Sentences

<table>
<thead>
<tr>
<th>The problem</th>
<th>Representations</th>
<th>Calculator number sentence. Include your answer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter has 14 cats eye marbles and 7 pearly marbles. How many marbles does he have altogether?</td>
<td>14 + 7 = ?</td>
<td>14 + 7 = 21</td>
</tr>
<tr>
<td>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?</td>
<td>12 + 4 = 17</td>
<td>17 - 4 = 13</td>
</tr>
<tr>
<td>The teddy bear weighs 25 grams. The toy car weighs 10 grams. How much more than the teddy is the car?</td>
<td>25 + 10 = ?</td>
<td>25 + 10 = 35</td>
</tr>
<tr>
<td>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?</td>
<td>21 - 8 = 23</td>
<td>23 + 8 = 31</td>
</tr>
<tr>
<td>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?</td>
<td>? + 15 = 30</td>
<td>30 - 15 = 15</td>
</tr>
</tbody>
</table>

### Annotations

- Creates a number sentence using a question mark as the unknown quantity.
- Uses addition to solve a subtraction algorithm.
## Mathematics

### Number: Sentences

<table>
<thead>
<tr>
<th>The problem</th>
<th>Representations</th>
<th>Calculator number sentence. Include your answer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>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?</td>
<td><img src="image1" alt="Image" /></td>
<td>25 - [ ] = 9</td>
</tr>
<tr>
<td>In one class there were 35 children. If 14 went to play soccer, how many are left?</td>
<td><img src="image2" alt="Image" /></td>
<td>30 - [ ] = 29</td>
</tr>
</tbody>
</table>

Can you write an addition and subtraction number sentence for each part/part/whole diagram?

<table>
<thead>
<tr>
<th>20 + 18 = 38</th>
<th>28 - [ ] = 30</th>
</tr>
</thead>
</table>

### Annotations

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

- **Connects addition and subtraction to solve a number sentence.**
Number: Fractions and decimals

Year 4 Mathematics achievement standard

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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

Annotations

- Writes equivalent fractions in words.
- States many equivalent fractions.
- Writes the fraction in the decimal form.
- Represents fractions as parts of a whole.
- Represents fractions as parts of a collection.
- Indicates where fractions can be found in everyday life.
Number: Fractions and decimals

Annotations

Locates equivalent fractions and decimals on a number line.
Measurement: Time word problems

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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

Annotations

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

Uses a multiplicative strategy to convert efficiently between units of time.

Solves a time problem by using subtraction from a given time on an empty number line.

Uses a time algorithm to calculate time duration and solves the problem posed.

Converts from minutes to seconds.

Clearly works through a multi-step word problem recording all calculations to justify their answer and answer the question posed.

---

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

80min = 1:20 > 1hr 10min

I would rather have it for 60 mins because it is longer than 1hr and 10 mins.

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?

9 weeks = 63 days

1 week = 7 days

1 day = 65 days

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?

8:30 - 15

8:15 - 20 = 7:55

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.

1:05

11:30

1:35 - 6 = 11:29

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?

1 min = 60 secs

5 min = 300 secs

12

302 + 12 = 314

- 314 + 10 = 81
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?

\[
3:20 \text{pm} = 15:120 (24\text{hr time}) \quad \text{I took off at 10:15am.} \\
\frac{-5}{10:120} \\
\frac{-5}{10:115}
\]

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?

<table>
<thead>
<tr>
<th>Day</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>5</td>
</tr>
<tr>
<td>Tue</td>
<td>4</td>
</tr>
<tr>
<td>Wed</td>
<td>4</td>
</tr>
<tr>
<td>Thur</td>
<td>4</td>
</tr>
<tr>
<td>Fri</td>
<td>4</td>
</tr>
<tr>
<td>Sat</td>
<td>6</td>
</tr>
<tr>
<td>Sun</td>
<td>6</td>
</tr>
</tbody>
</table>

I spend 820 mins. Not playing in a week.

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

<table>
<thead>
<tr>
<th>Night</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>8</td>
</tr>
<tr>
<td>Wed</td>
<td>8</td>
</tr>
<tr>
<td>Sat</td>
<td>8</td>
</tr>
</tbody>
</table>

I will get 10 hrs of sleep tomorrow since my mum always tells me to go to sleep by 9pm and wake up at 7am.

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

George ran a race. The race starts at 8:00 am and it finishes at 9:20. How long did he run the race for? 1 hr and 20 mins.

Annotations

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

Applies appropriate strategies to work backwards from a given time.

Converts days to hours and hours to minutes to answer the question posed.

Calculates the total amount of sleep in one week.

Makes a prediction and provides a reason.

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

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?

<table>
<thead>
<tr>
<th>Sausages</th>
<th>Rolls</th>
<th>Sauce</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 sausages = $5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>450 sausages = $225</td>
<td></td>
<td></td>
</tr>
<tr>
<td>450 sausages = $225</td>
<td></td>
<td></td>
</tr>
<tr>
<td>450 rolls = $112.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>460 serves = $45.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 serves = $383.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cost:** $383

### Price of Sausages: Explain Why?

I would sell the sausages for $3 each because it is a reasonable price and I can make a profit.

### Income: What is the total amount of money you will collect after selling all the sausages?

\[ \text{Income} = \frac{450}{4} \times 3 = 135 \times 3 = 405 \]

### Profit: How much money can you make?

Remember you need to pay back the start up cost.

\[ \text{Profit} = 405 - 400 = 5 \]


### Annotations

- Applies knowledge of multiplication facts up to 10 x 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

Helping Out

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

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

1 AUD = 2.5 PGK
500 AUD = 2.5 x 500 AUD = 1250 PGK

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

20 desks = 30 x 20 = 600 PGK
20 chairs = 20 x 20 = 400 PGK
125 books = 2 x 125 = 250 PGK

20 desks + 20 chairs + 125 books = 1250 PGK

Annotations

Converts from one currency to another using multiplication.

Applies knowledge of multiplication facts up to 10 x 10 to perform calculations involving two-digit and three-digit numbers.

Selects quantities of each item that are appropriate for the context and for total amount of money available.

Adapted from ASIC’s MoneySmart Teaching Digital Resource:
teaching-resources/asic-helping-out?page=2&alfy=0&alfa=0&alfb=146
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.
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?

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

My favourite fast food is:

I chose this because: The question is better because with the other one you could end up with 50 types of fast food but in this one there is only a small selection.
## Statistics: Data

### Data Assessment Task Part 2

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

<table>
<thead>
<tr>
<th>Devices</th>
<th>Number Of Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPad</td>
<td>5</td>
</tr>
<tr>
<td>Mini iPad</td>
<td>6</td>
</tr>
<tr>
<td>Mobile Phone</td>
<td>34</td>
</tr>
<tr>
<td>Tablet</td>
<td>7</td>
</tr>
<tr>
<td>Laptop Computer</td>
<td>3</td>
</tr>
<tr>
<td>Desktop Computer</td>
<td>24</td>
</tr>
<tr>
<td>Gaming Device</td>
<td>30</td>
</tr>
<tr>
<td><strong>TOTAL NUMBER OF DEVICES</strong></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Devices</th>
<th>Number Of Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPad</td>
<td>28</td>
</tr>
<tr>
<td>Mini iPad</td>
<td>7</td>
</tr>
<tr>
<td>Mobile Phone</td>
<td>6</td>
</tr>
<tr>
<td>Tablet</td>
<td>3</td>
</tr>
<tr>
<td>Laptop Computer</td>
<td>55</td>
</tr>
<tr>
<td>Desktop Computer</td>
<td>23</td>
</tr>
<tr>
<td>Gaming Device</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL NUMBER OF DEVICES</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Annotations

- **Makes predictions in investigations.**
- **Records data from surveys.**
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 electronically because I am more fond of electronically because they are more precise. I didn’t choose the others because they aren’t as pressed and aren’t as fun.

Annotations
Ensures that the vertical scale is of an appropriate length to display the data accurately.
Selects and constructs an electronically-created column graph to represent the data collected.
Selects and uses appropriate labels for the axes.
Reasons mathematically to justify selection of a particular data display.
Statistics and probability: One minute challenge

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

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

**Annotations**

Records the results of repeated trials of a chance experiment.

Identifies the outcome with the highest frequency in a chance experiment.

Recognises that the observed frequency of each outcome after repeated trials in a chance experiment can be different from the expected frequency.

Recognises when the results of previous trials in a particular chance experiment do not affect the results of subsequent trials and provides an explanation using the language of chance.

Creates a variety of chance statements with different likelihoods to the given statements.

Identifies the probability of chance events using percentages ranging from 0% to 100%.

Orders events from least likely to most likely to occur.
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 sunset at the same time.
If it is dry it cannot be damp or wet at the same time.
If I roll a 5 in a six sided die I cannot roll a 2 in at the same time.

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.

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**

**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.*

*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 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.
Geometry: Angles

Annotations