## WORK SAMPLE PORTFOLIO

The 2012 portfolios are a resource to support teachers in planning and implementation of the Foundation to Year 10 Australian Curriculum in the learning area. Each portfolio comprises a collection of student work illustrating evidence of student learning in relation to the achievement standard. At every year level there are three portfolios illustrating satisfactory, above satisfactory and below satisfactory achievement in relation to the standard.

Each portfolio comprises a collection of different student work selected by state and territory nominees, and annotated and reviewed by classroom teachers and other curriculum experts. Each work sample in the portfolio varies in terms of how much time was available to complete the task and/or the degree of scaffolding provided by the teacher.

There is no pre-determined number of student work samples in a portfolio nor are they sequenced in any particular order. Together as a portfolio, the samples provide evidence of all aspects of the achievement standard unless otherwise specified.

As the Australian Curriculum is progressively implemented in schools, the portfolios will continue to be reviewed and enhanced in relation to their comprehensiveness in coverage of the achievement standard and their representation of the diversity of student work that can be used to highlight evidence of student learning.

## THIS PORTFOLIO - Year 2 Mathematics

This portfolio comprises a number of work samples drawn from a range of assessment tasks, namely:
Sample 1 Statistics - Graph audit
Sample 2 Number - Number and money
Sample 3 Number - Tooth fairy
Sample 4 Measurement - Patterns in time
Sample 5 Number - Block of chocolate
Sample 6 Number - Partial array
Sample 7 Number - Skipping along
Sample 8 Geometry - Flip, slide, turn
Sample 9 Measurement - Bike track
Sample 10 Measurement - Objects longer than my thumb
Sample 11 Number - My coins
Sample 12 Geometry - Features of three-dimensional objects
Sample 13 Geometry - Shapes
This portfolio of student work demonstrates the recognition of increasing and decreasing number sequences involving 2s, 3s, 5s and 6s and counting to and from 1000 (WS2, WS6, WS7). The student draws two-dimensional shapes and orders them using informal units of length or area (WS13). The student divides a group of coins or a block of chocolate to create equal groups and demonstrates an understanding of the connection between the group and its fraction (WS11, WS5). The student calculates how an amount of money could be calculated using different combinations of Australian coins (WS2, WS3). The student divides a given number into equal groups and performs

## Mathematics

simple addition and subtraction calculations using a range of strategies (WS6, WS2). The student tells the time to the quarter hour (WS4) and flips, slides and turns an object (WS8). The student recognises features of three-dimensional objects (WS12) and draws and interprets simple maps of familiar locations (WS9). The student collects data, creates lists, tables and picture graphs and makes sense of the data collected (WS1).

The annotated samples in this portfolio provide evidence of most (but not necessarily all) aspects of the achievement standard. The following aspects of the achievement standard are not evident in this portfolio:

- use a calendar to identify the date and the months including the seasons
- describes the outcomes of everyday events.


## Statistics - Graph audit

## Relevant parts of the achievement standard

By the end of Year 2, students recognise increasing and decreasing number sequences involving 2s, 3s and 5s. They represent multiplication and division by grouping into sets. They associate collections of Australian coins with their value. Students identify the missing element in a number sequence. Students recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. They explain the effects of one-step transformations. Students make sense of collected information.

Students count to and from 1000. They perform simple addition and subtraction calculations using a range of strategies. They divide collections and shapes into halves, quarters and eighths. Students order shapes and objects using informal units. They tell time to the quarter hour and use a calendar to identify the date and the months included in seasons. They draw two- dimensional shapes. They describe outcomes for everyday events. Students collect data from relevant questions to create lists, tables and picture graphs.

## Summary of task

Students discussed different ways to display information that they had collected during some class activities. During class time they were asked to display information and interpret data displays.

## Mathematics

## Statistics - Graph audit



## Annotations

Notes

## Statistics - Graph audit



## Annotations

Draws graph but does not reflect the correct information.

## Statistics - Graph audit

## Data Collection and Graphing

TASK: Collect and graph data on what activity students in our class would like to take part in on the last week of school to celebrate the end of year.

2. Organise how you will collect your data and survey the class to collect your information.


## Annotations

Matches the tally marks to the totals in the frequency table.

## Number - Number and money

## Relevant parts of the achievement standard

By the end of Year 2, students recognise increasing and decreasing number sequences involving $2 s$, 3s and 5 s. They represent multiplication and division by grouping into sets. They associate collections of Australian coins with their value. Students identify the missing element in a number sequence. Students recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. They explain the effects of one-step transformations. Students make sense of collected information.

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## Summary of task

Students had set up a class shop with items at different prices. After working with each other purchasing, selling and calculating total prices and change given, students were assessed by their teacher. The teacher directed the transaction to assess multiple parts of the achievement standard.

## Mathematics

## Number - Number and money



Annotations

Acknowledgement
ACARA acknowledges the contribution of Australian teachers and education authorities in providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.

## Number - Tooth fairy

## Relevant parts of the achievement standard

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## Summary of task

Students had been studying array and grouping. They were asked to solve a problem by using grouping and arrays.

## Number - Tooth fairy



## Annotations

Demonstrates equivalent amounts of money using different coin denominations.

Accurately uses an addition symbol when adding coins.

Accurately calculates $\$ 2$ using combinations of different coins.

Recognises that 5 cents is the smallest coin and would require the most coins to make \$2.

## Units of measurement - Patterns in time

## Relevant parts of the achievement standard

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## Summary of task

Students wrote the minutes around an analogue clock and described the number patterns created e.g. 5, 10, 15...
Students divided the clock into quarters and highlighted numbers related to 'half past', 'quarter to' and 'quarter past'.

Mathematics

## Units of measurement - Patterns in time



## Annotations

Describes and demonstrates their understanding of one half, one quarter and one eighth.

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## Number - Block of chocolate

## Relevant parts of the achievement standard

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## Summary of task

Students were asked to divide a block of chocolate into different groups to accommodate different possibilities of division of the block of chocolate.

## Number - Block of chocolate



## Annotations

Creates number sentences and pictures to show multiple solutions to a question.

Recognises that when dividing, numbers can be smaller than a whole.

Represents division by making equal groups.

## Number - Block of chocolate

## PROBLEM 1

I have a 30 piece block of chocolate.

What might my chocolate block look like?


IID 3 rows of 10
Record as many possibilities as you can.
lecount in 15s 2 times


Locount in $5 s$ bo times
30 count in $3 s$ 10 times


## Number - Partial array

## Relevant parts of the achievement standard

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## Summary of task

Students had been studying arrays and grouping. They were asked to solve a problem by using grouping and arrays.

## Number - Partial array



## Annotations

Articulates strategies used to find a solution.

Recognises that is is easier to count in 5 s rather than in 7 s .

Demonstrates alternative ways to solve the problem.

## Number - Skipping along

## Relevant parts of the achievement standard

By the end of Year 2, students recognise increasing and decreasing number sequences involving $2 s$, 3s and 5 s. They represent multiplication and division by grouping into sets. They associate collections of Australian coins with their value. Students identify the missing element in a number sequence. Students recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. They explain the effects of one-step transformations. Students make sense of collected information.

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## Summary of task

Throughout the year students have engaged in many activities counting forwards and backwards to and from 1000 starting at given points, initially counting by $2 \mathrm{~s}, 3 \mathrm{~s}, 5 \mathrm{~s}$ and 10 s and then other sequences. Students were encouraged to use strategies to help them complete the number patterns such as using a hundreds chart and an empty number line.

## Number - Skipping along



## Transformation - Flip, slide, turn

## Relevant parts of the achievement standard

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## Summary of task

Students were asked to describe a transformation using diagrams and words.

Transformation - Flip, slide, turn


Annotations


Flips, slides and turns a two-dimensional shape.


## Measurement - Bike track

## Relevant parts of the achievement standard

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## Summary of task

Students, in pairs, were provided with grid paper to design a bike track within the school grounds or the local park. Students discussed their layout, such as ensuring the route did not cross itself and provided an entry/exit to the school grounds.

Students drew their map and were asked to describe their bike tracks, using positional language, in relation to other structures or pathways.

Please note the grid paper is not relevant to the task.

## Measurement - Bike track



Come in the gate. 60 left at the pond. keep going down to the trees and go around the seat and head to building $C$. Turn around, go up and out the gate.

## Annotations

Designs and positions objects on a map.

Uses positional language to write a description of how to navigate through school grounds.

## Measurement - Objects longer than my thumb

## Relevant parts of the achievement standard

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## Summary of task

Students were asked to collect objects from the classroom that they could measure using their thumb as a measuring device. They were required to measure the objects and order them according to their length in comparison to their thumb.

## Measurement - Objects longer than my thumb

Find objects that are longer than your thumb.
Can you measure and order them by length?

How will you measure your objects?
How can you best record your findings?
How do you know you are right?
What difficulties did you have measuring some of your objects?
Could everyone have exactly the same answers? Why or why not?

1. My pencil case $\quad$ Twill measure
with a ruler
21 cm .

2. My pencil
$\longrightarrow$
I will



$$
2
$$

matchsticks matchsticks.

## Acknowledgement

ACARA acknowledges the contribution of Australian teachers and education authorities in providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.

## Annotations

Finds three objects longer than student's thumb: pencil case, pencil and glue stick.

Uses a ruler to accurately measure each item.

Measures a glue stick using informal units such as matchsticks.

## Number - My coins

## Relevant parts of the achievement standard

By the end of Year 2, students recognise increasing and decreasing number sequences involving 2s, 3s and 5s. They represent multiplication and division by grouping into sets. They associate collections of Australian coins with their value. Students identify the missing element in a number sequence. Students recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. They explain the effects of one-step transformations. Students make sense of collected information.

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## Summary of task

Students were given 16 'coins' and asked to divide them into equal groups and describe each group as a fraction of the original number. Students were asked to use number sentences to record their findings and to think of as many possibilities as they could.

## Number - My coins



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## Annotations

Demonstrates an understanding of dividing objects into equal groups allows for equivalent fractions to be written.

Shows that $8 / 16$ is the same as $1 / 2$ of the group.

Shows how each group must have the same number of items in it to represent the fraction as quarters.

Shows that $2 / 16$ is the same as $1 / 8$.

## Geometry - Features of three-dimensional objects

## Relevant parts of the achievement standard

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## Summary of task

Students have had prior experience with three-dimensional shapes and use of correct terminology. They have used Venn diagrams.

Students were asked to group collections of three-dimensional objects which demonstrated the following features:

- three-dimensional objects that are prisms
- three-dimensional objects without vertices
- three-dimensional objects with curved surfaces
- three-dimensional objects with flat surfaces


## Geometry - Features of three-dimensional objects



## Annotations

Creates and types riddle on a computer.

Constructs a two-dimensional shape using information technology.

Describes some features of a threedimensional object.

## Geometry - Shapes

## Relevant parts of the achievement standard


#### Abstract

By the end of Year 2, students recognise increasing and decreasing number sequences involving 2s, 3s and 5s. They represent multiplication and division by grouping into sets. They associate collections of Australian coins with their value. Students identify the missing element in a number sequence. Students recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. They explain the effects of one-step transformations. Students make sense of collected information.

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## Summary of task

Students had an understanding of two-dimensional shapes and their properties from previous units. They had completed class activities on length and area. They were asked to draw five different two-dimensional shapes of different sizes and then order the shapes according to their area. Students were prompted to think about what tools would be the best to use to complete the task and how they would go about it before starting. They were given access to mathematical materials.

## Geometry - Shapes



## Annotations

Understands that there are various informal units that could be used to compare the areas of each shape.

Draws two-dimensional shapes.
Orders two-dimensional shapes based on their area.

Recognises that measuring the area of a circle is more complicated than that of a 4 sided shape.

