Mathematics

WORK SAMPLE PORTFOLIOS

These work sample portfolios have been designed to illustrate satisfactory achievement in the relevant aspects of the achievement standard.

The December 2011 work sample portfolios are a resource to support planning and implementation of the Foundation to Year 10 Australian Curriculum in English, Mathematics, Science and History during 2012. They comprise collections of different students' work annotated to highlight evidence of student learning of different aspects of the achievement standard.

The work samples vary in terms of how much time was available to complete the task or the degree of scaffolding provided by the teacher.

There is no pre-determined number of samples required in a portfolio nor are the work samples sequenced in any particular order. These initial work sample portfolios do not constitute a complete set of work samples - they provide evidence of most (but not necessarily all) aspects of the achievement standard.

As the Australian Curriculum in English, Mathematics, Science and History is implemented by schools in 2012, the work sample portfolios will be reviewed and enhanced by drawing on classroom practice and will reflect a more systematic collection of evidence from teaching and learning programs.

THIS PORTFOLIO – YEAR 1 MATHEMATICS

This portfolio comprises a number of work samples drawn from a range of assessment tasks, namely:

Sample 1	Numbers – Addition and subtraction
Sample 2	Numbers – Counting to and from 100
Sample 3	Fractions – My half
Sample 4	Money matters
Sample 5	Geometry – Teddy village
Sample 6	Number – Count to and from 100 (skip counting by 2s)
Sample 7	Units of measurement – What time is it?
Sample 8	Patterns – Make a repeated pattern
Sample 9	Familiar events

This portfolio of student work shows an ability to draw and describe pictures using shapes (WS8), represent addition and subtraction (WS1) and skip count by 5s (WS2, WS6). The student models and compares representations of a half (WS3), represents money in various ways (WS4) and tells time to the half hour (WS7). The student uses concrete objects to describe locations (WS5) and position and to continue a pattern (WS8). The student collects and displays data (WS9).

The following aspects of the achievement standard are not evident in this portfolio:

- *explain time durations*
- *describe data displays*
- *partition numbers using place value*
- *order objects based on lengths and capacities using informal units.*

Mathematics

Work sample 1:
Addition and subtraction

Relevant parts of the achievement standard

By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.

Students count to and from 100 and locate numbers on a number line. They carry out simple additions and subtractions using counting strategies. They partition numbers using place value. They continue simple patterns involving numbers and objects. Students order objects based on lengths and capacities using informal units. They tell time to the half hour. They use the language of direction to move from place to place. Students classify outcomes of simple familiar events. They collect data by asking questions and draw simple data displays.

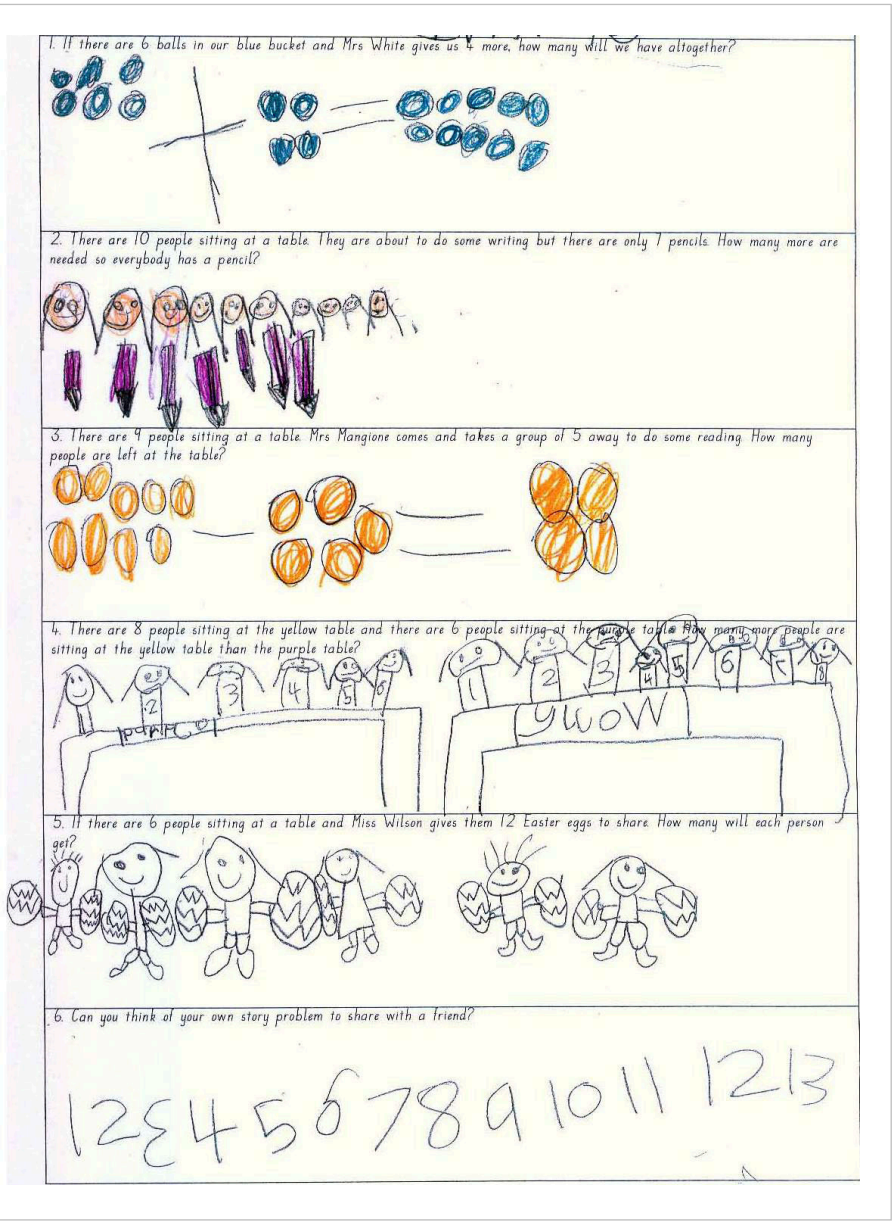
Summary of task

Students have used concrete materials to model addition and subtraction. They are able to count to 100.

Students were asked to solve story problems involving addition, subtraction and finding the difference. They were also asked to visually represent their mathematical understanding.

Mathematics

Work sample 1:
Addition and subtraction



Annotations

Represents the problem visually to find a solution.

Uses a suitable strategy to solve a problem (one to one correspondence).

Successfully applies a visual representation of subtraction.

Uses visual representations to solve a problem (there is no evidence of the solution to the problem).

Demonstrates sharing through picture representation.

Communicates a consecutive number sequence.

Acknowledgment
ACARA acknowledges the contribution of trial school teachers and students for providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.

Mathematics

Work sample 2:
Numbers – Counting to and from 100

Relevant parts of the achievement standard

By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.

Students count to and from 100 and locate numbers on a number line. They carry out simple additions and subtractions using counting strategies. They partition numbers using place value. They continue simple patterns involving numbers and objects. Students order objects based on lengths and capacities using informal units. They tell time to the half hour. They use the language of direction to move from place to place. Students classify outcomes of simple familiar events. They collect data by asking questions and draw simple data displays.

Summary of task

Students used strategies to count and record numbers.

Students wrote two-digit numbers in sequence on a grid provided by the teacher. The teacher varied the starting number (11) to accommodate the range of students' counting skills.

Students worked on their own and many said the numbers quietly to themselves as they completed their grids. They were required to place a row from the grid as indicated on the number line and skip count by 5s.

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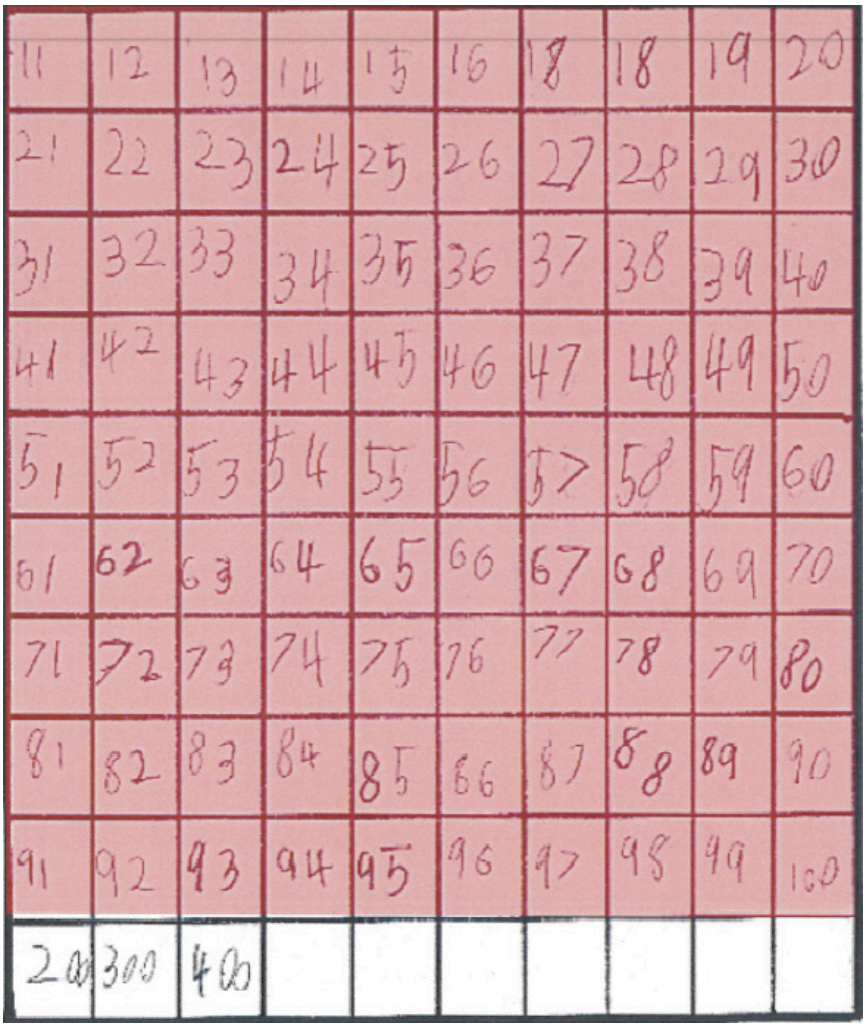
Work sample 2:
Numbers – Counting to and from 100



Annotations

Demonstrates the ability to count to 100 (from the starting point of 11).

Places numbers (a skip counting sequence) on a number line.

Understands the concept of skip counting by 5's but has made an error with counting.

Acknowledgment
ACARA acknowledges the contribution of the Department of Education WA for providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.

Mathematics

Work sample 3:
Fractions – My half

Relevant parts of the achievement standard

By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.

Students count to and from 100 and locate numbers on a number line. They carry out simple additions and subtractions using counting strategies. They partition numbers using place value. They continue simple patterns involving numbers and objects. Students order objects based on lengths and capacities using informal units. They tell time to the half hour. They use the language of direction to move from place to place. Students classify outcomes of simple familiar events. They collect data by asking questions and draw simple data displays.

Summary of task

Students were given two different-sized paper circles. They were asked to fold both circles in half, label the parts and cut along the folds.

Students compared the halves.

Students discussed 'halves of different wholes can be different sizes'. The teacher transcribes the words of the student.

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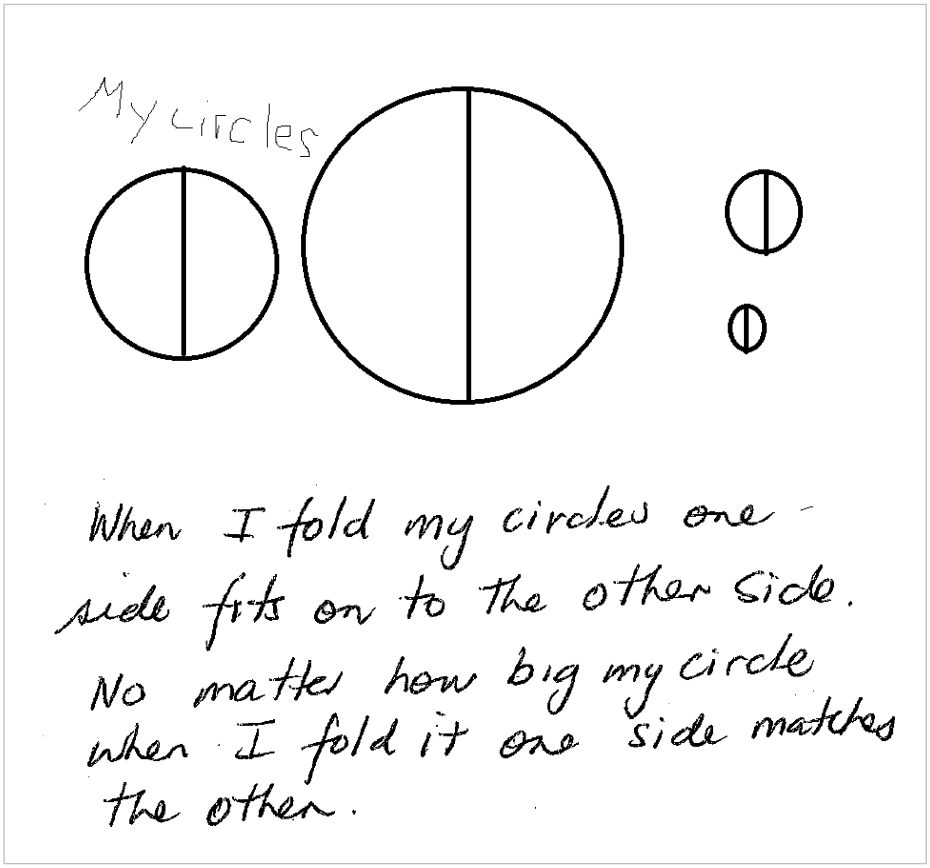
Work sample 3:
Fractions – My half



Annotations

Demonstrates a recognition that one half is one of two equal parts of a whole.

Acknowledgment
ACARA acknowledges the contribution of the NSW Department of Education and Communities for providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.

Mathematics

Work sample 4:
Money matters

Relevant parts of the achievement standard

By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.

Students count to and from 100 and locate numbers on a number line. They carry out simple additions and subtractions using counting strategies. They partition numbers using place value. They continue simple patterns involving numbers and objects. Students order objects based on lengths and capacities using informal units. They tell time to the half hour. They use the language of direction to move from place to place. Students classify outcomes of simple familiar events. They collect data by asking questions and draw simple data displays.

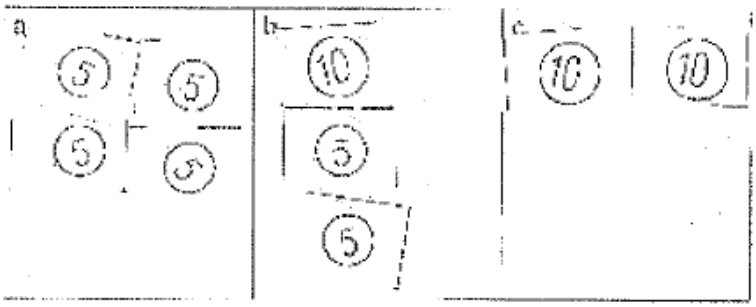
Summary of task

In this task students recognised different ways of presenting set values of money.

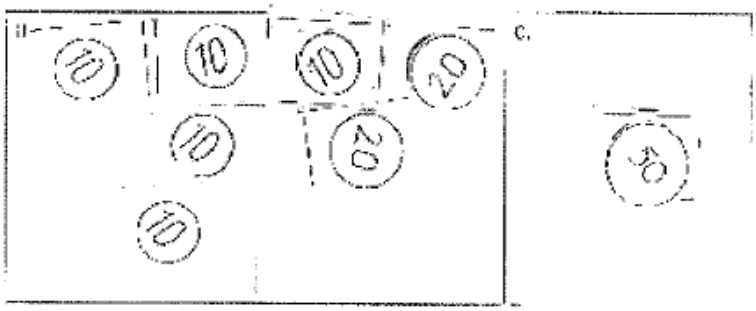
Students were given a collection of 5, 10, 20 and 50 cent coins (or cardboard shapes representing these). They demonstrated and recorded different ways of making 20 cents, 50 cents and $1 using the coins.

Mathematics

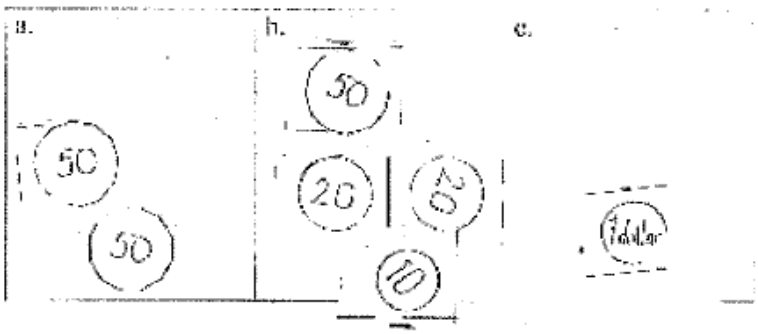
Work sample 4:
Money matters



2. In the space below glue coins (from the sheet provided) to make different amounts of 50c.



3. In the space below glue coins (from the sheet provided) to make different amounts of $1.



Annotations

Demonstrates a recognition of a collection of coins to make a pre-determined value, with some errors.

Acknowledgment
ACARA acknowledges the contribution of trial school teachers and students for providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.

Mathematics

Work sample 5:
Geometry – Teddy village

Relevant parts of the achievement standard

By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.

Students count to and from 100 and locate numbers on a number line. They carry out simple additions and subtractions using counting strategies. They partition numbers using place value. They continue simple patterns involving numbers and objects. Students order objects based on lengths and capacities using informal units. They tell time to the half hour. They use the language of direction to move from place to place. Students classify outcomes of simple familiar events. They collect data by asking questions and draw simple data displays.

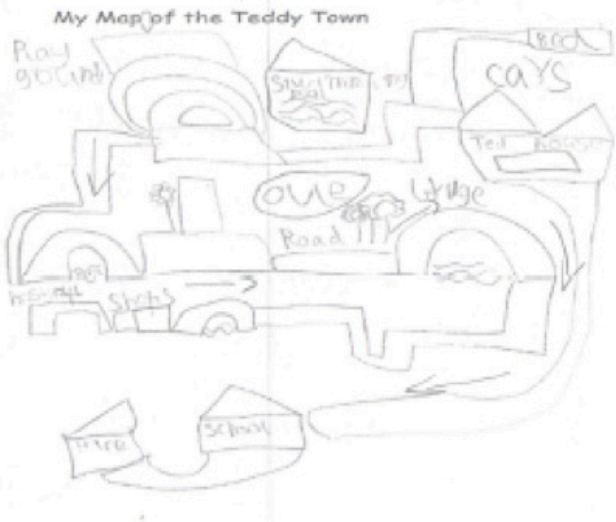
Summary of task

Students have been studying both two-dimensional shapes and three-dimensional objects prior to this activity.

Students were asked to build a teddy village using both two-dimensional and three-dimensional blocks. They created a map of the village and verbally described how they would move from one part of the village to the other. The teachers' aid assisted in the labelling of the student's drawing and transcribing their explanation.

Mathematics

Work sample 5:
Geometry – Teddy village



I start at my house and walk through the playground. I walk pass the hospital to the shops. I go over the bridge to my school.

Annotations

Demonstrates an ability to build a model using two-dimensional shapes and three-dimensional objects.

Represents their own village model with a drawing.

Highlights direction of movement through the village using arrows.

Explains using the language of direction how to move from their house to the school.

Acknowledgment
ACARA acknowledges the contribution of trial school teachers and students for providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.

Mathematics

Work sample 6:
Number – Count to and from 100 (skip counting in 2s)

Relevant parts of the achievement standard

By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.

Students count to and from 100 and locate numbers on a number line. They carry out simple additions and subtractions using counting strategies. They partition numbers using place value. They continue simple patterns involving numbers and objects. Students order objects based on lengths and capacities using informal units. They tell time to the half hour. They use the language of direction to move from place to place. Students classify outcomes of simple familiar events. They collect data by asking questions and draw simple data displays.

Summary of task

In this task students were asked to demonstrate how to skip count and locate numbers on a line.

Students were given a set of cards between 1 and 100. They were asked to place them in order on a number line. Students described number sequences by skip counting in 2s.

Mathematics

Work sample 6:
Number – Count to and from 100 (skip counting in 2s)

Annotations

Demonstrates they can count to 100 – skip counting by 2s.

Demonstrates an ability to place these numbers onto a prepared number line.

Acknowledgment
ACARA acknowledges the contribution of trial school teachers and students for providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.

Mathematics

Work sample 7:
Units of measurement – What time is it?

Relevant part of the achievement standard

By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.

Students count to and from 100 and locate numbers on a number line. They carry out simple additions and subtractions using counting strategies. They partition numbers using place value. They continue simple patterns involving numbers and objects. Students order objects based on lengths and capacities using informal units. They tell time to the half hour. They use the language of direction to move from place to place. Students classify outcomes of simple familiar events. They collect data by asking questions and draw simple data displays.

Summary of task

Students have been learning how to tell the time.

Students were presented with diagrams of several analogue and digital clock faces and were asked to match each clock face to a written description. Times given were on the hour or half past the hour.

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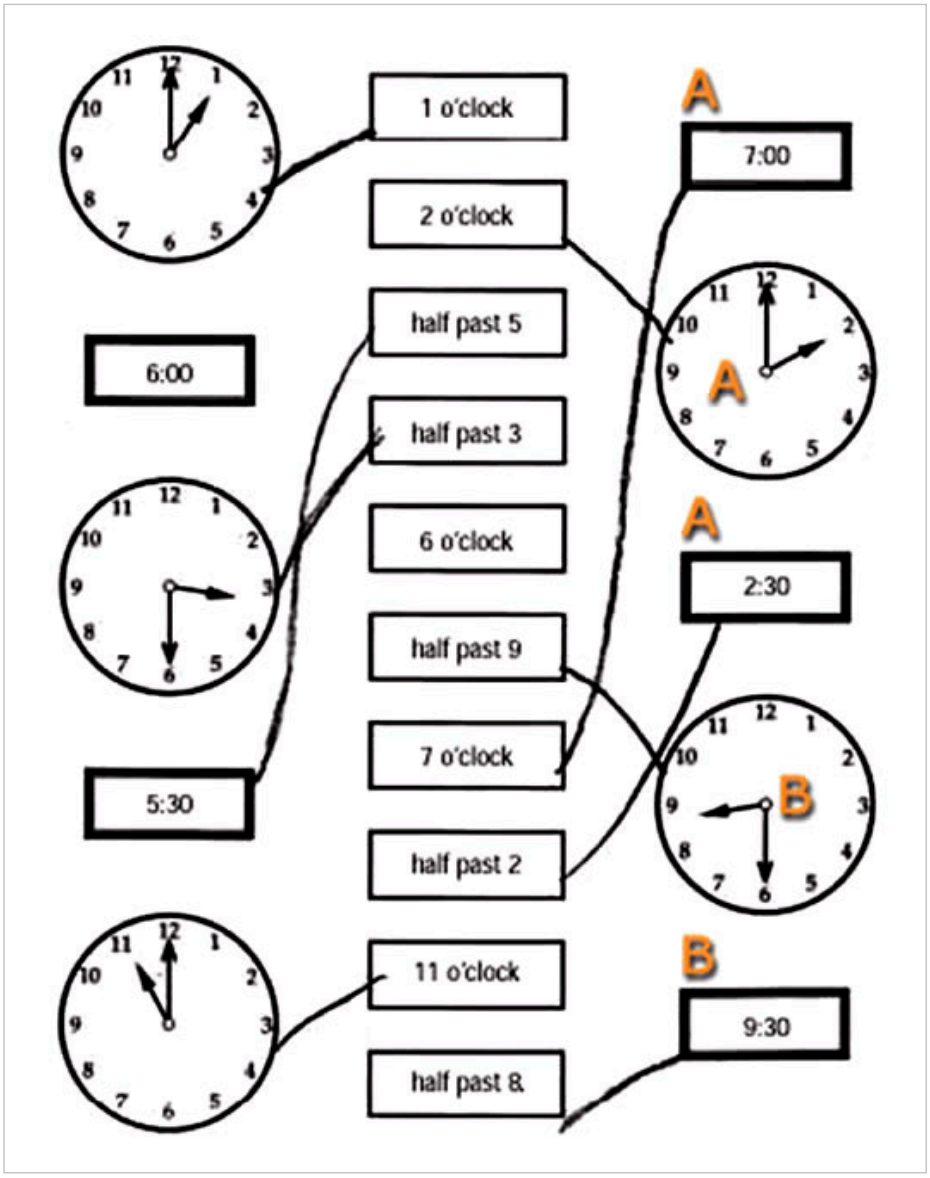
Work sample 7:
Units of measurement – What time is it?



Annotations

Identifies and matches the time on a digital clock in hours and minutes and on an analogue clock using o'clock and half past (A).

Confuses half past eight and half past nine on both analogue and digital clocks (B).

Acknowledgment
ACARA acknowledges the contribution of the VELS (Victoria Essential Learning Standards) for providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.

Mathematics

Work sample 8:
Patterns – Make a repeated pattern

Relevant parts of the achievement standard

By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.

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Summary of task

This activity involved students collecting objects and creating a repeating pattern. Students were encouraged to record this information in their own way on their drawings.

In pairs, students were given collections of materials such as coloured counters, cubes and were asked to make a pattern that repeats.

Students then used drawings to show what they had done.

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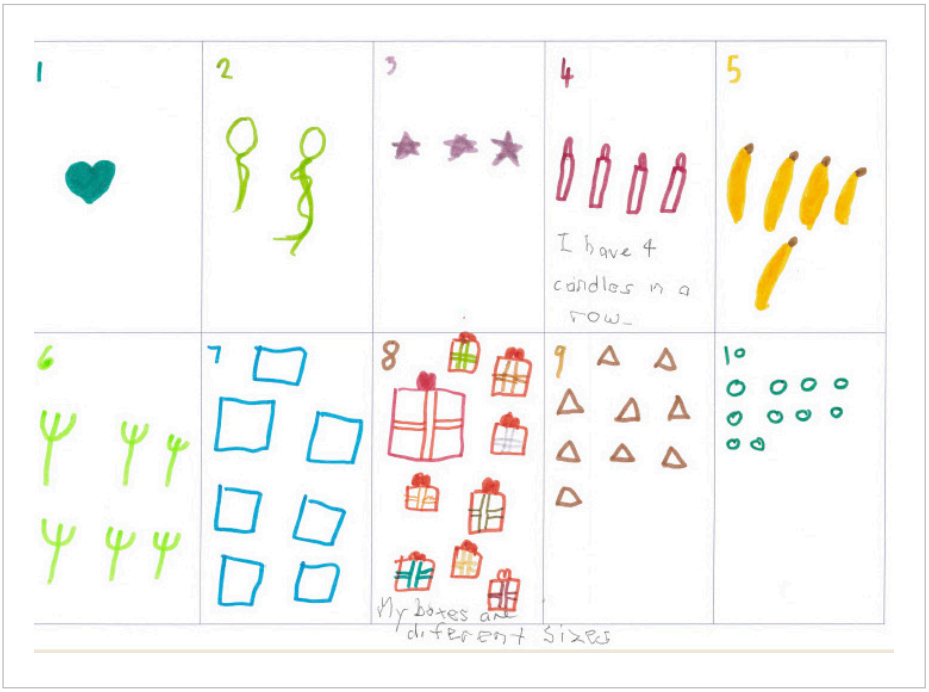
Work sample 8:
Patterns – Make a repeated pattern



Annotations

Demonstrates an ability to design, develop and continue a pattern with grouped objects.

Acknowledgment
ACARA acknowledges the contribution of the trial school teachers and students for providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.

Mathematics

Work sample 9:
Familiar events

Relevant parts of the achievement standard

By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They identify representations of one half. They recognise Australian coins according to their value. Students explain time durations. They describe two-dimensional shapes and three-dimensional objects. Students describe data displays.

Students count to and from 100 and locate numbers on a number line. They carry out simple additions and subtractions using counting strategies. They partition numbers using place value. They continue simple patterns involving numbers and objects. Students order objects based on lengths and capacities using informal units. They tell time to the half hour. They use the language of direction to move from place to place. Students classify outcomes of simple familiar events. They collect data by asking questions and draw simple data displays.

Summary of task

Students have been investigating activities during the day.

Students were asked to complete a worksheet with some guidance.

Mathematics

Work sample 9:
Familiar events

1. What time do you get up on school days? 7am
2. What time do you get up on weekends? 8am
3. What transport do you use to get to school? walk.

WALK CAR BUS BIKE

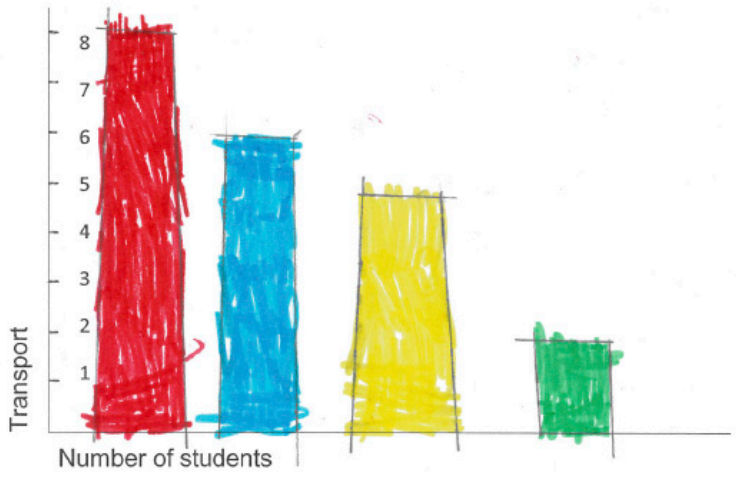
4. What time do you have dinner? 6.30 pm
5. What time do you go to bed? 7.30 pm

From the class results below, draw bar chart of the results. Describe how you compare with the class.

Transport	Number of students
WALK	8
CAR	6
BUS	5
BIKE	2

On the diagram colour the columns.

WALK – RED
CAR – BLUE
BUS – YELLOW
BIKE – GREEN



Annotations

Identifies appropriate times during the day for familiar events.

Constructs a bar graph to represent data from a simple table.

Acknowledgment
ACARA acknowledges the contribution of trial school teachers and students for providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.