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 – FOUNDATION YEAR MATHEMATICS

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

Sample 1	Units of measurement – My day
Sample 2	Location – Treasure map
Sample 3	Geometry – My two-dimensional shapes
Sample 4	Number – Computer numbers
Sample 5	Measurement – Everyone can balance?
Sample 6	Numbers – Counting strategies
Sample 7	Numbers – More or less
Sample 8	Measurement – Which is heavier?

The student work shows that the student can order events and recognise the days of the week (WS1). The student communicates the language of location (WS2) and compares objects to distinguish between heavier and lighter (WS5), and longer and shorter (WS8). The student relates the number names to the correct numeral (WS4, WS6, WS7), sorts and classifies shapes using common characteristics (WS3) and answers simple questions to collect information (WS1).

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Work sample 1:
Units of measurement – My day

Relevant parts of the achievement standard

By the end of the Foundation year, students make connections between number names, numerals and quantities up to 10. They compare objects using mass, length and capacity. Students connect events and the days of the week. They use appropriate language to describe location.

Students count to and from 20 and order small collections. They group objects based on common characteristics and sort shapes and objects. Students answer simple questions to collect information.

Summary of task

Students have been learning how to read the time and connect time to common events and days of the week. For this task, students were asked to:

- given a set of cardboard numbers (1-12), place them in the correct position on the clock
- draw the hands on the clock to reflect the correct time
- describe activities/events in the morning, afternoon and evening
- attempt to order the days of the week in the correct sequence.

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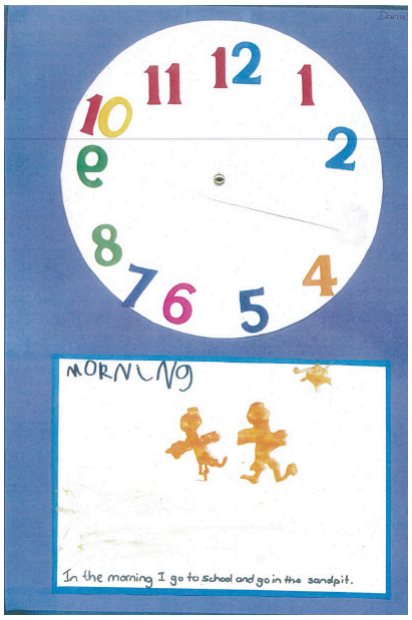
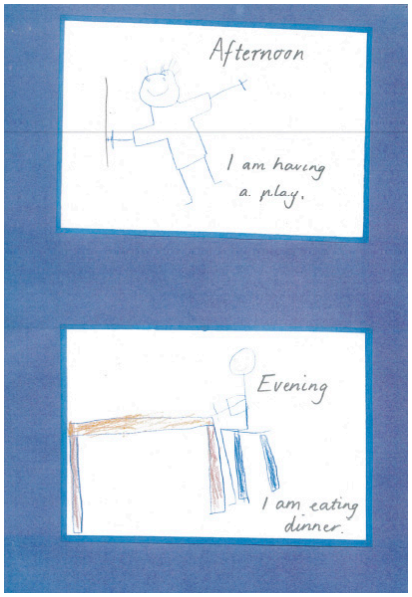
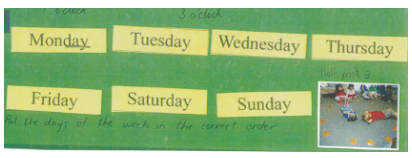
Work sample 1:
Units of measurement – My day







Annotations

Demonstrates an awareness of the 12 numerals and their placement on a clock.

Draws and demonstrates an understanding of the order of events in a day.

Correctly sequences the days of the week.

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.

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Work sample 2:
Location – Treasure map

Relevant parts of the achievement standard

By the end of the Foundation year, students make connections between number names, numerals and quantities up to 10. They compare objects using mass, length and capacity. Students connect events and the days of the week. They explain the order and duration of events. They use appropriate language to describe location.

Students count to and from 20 and order small collections. They group objects based on common characteristics and sort shapes and objects. Students answer simple questions to collect information.

Summary of task

Students have been investigating the everyday language of location. Students were provided with a treasure hunt map and drew and described the pathway from the ship to the treasure. The teacher transcribed the student's words.

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Work sample 2:
Location – Treasure map

Draw the path from your ship to the treasure. Be sure to avoid the obstacles that might be in the way.

I sail up and go pass the skull. I pass the lady on the rock and find my treasure.

Annotations

Draws a pathway and uses arrows to indicate direction.

Uses words to describe the pathway to the treasure.

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.

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Work sample 3:
Geometry – My two-dimensional shapes

Relevant parts of the achievement standard

By the end of the Foundation year, students make connections between number names, numerals and quantities up to 10. They compare objects using mass, length and capacity. Students connect events and the days of the week. They explain the order and duration of events. They use appropriate language to describe location.

Students count to and from 20 and order small collections. They group objects based on common characteristics and sort shapes and objects. Students answer simple questions to collect information.

Summary of task

Students have been investigating the properties of familiar two-dimensional shapes.

Students were asked to:

- sort a variety of two-dimensional shapes into the correct order using a teacher provided proforma
- name each shape
- verbalise a definition for each shape, stating characteristics and making generalisations (the teacher transcribed).

The teacher transcribed the answers of the student.

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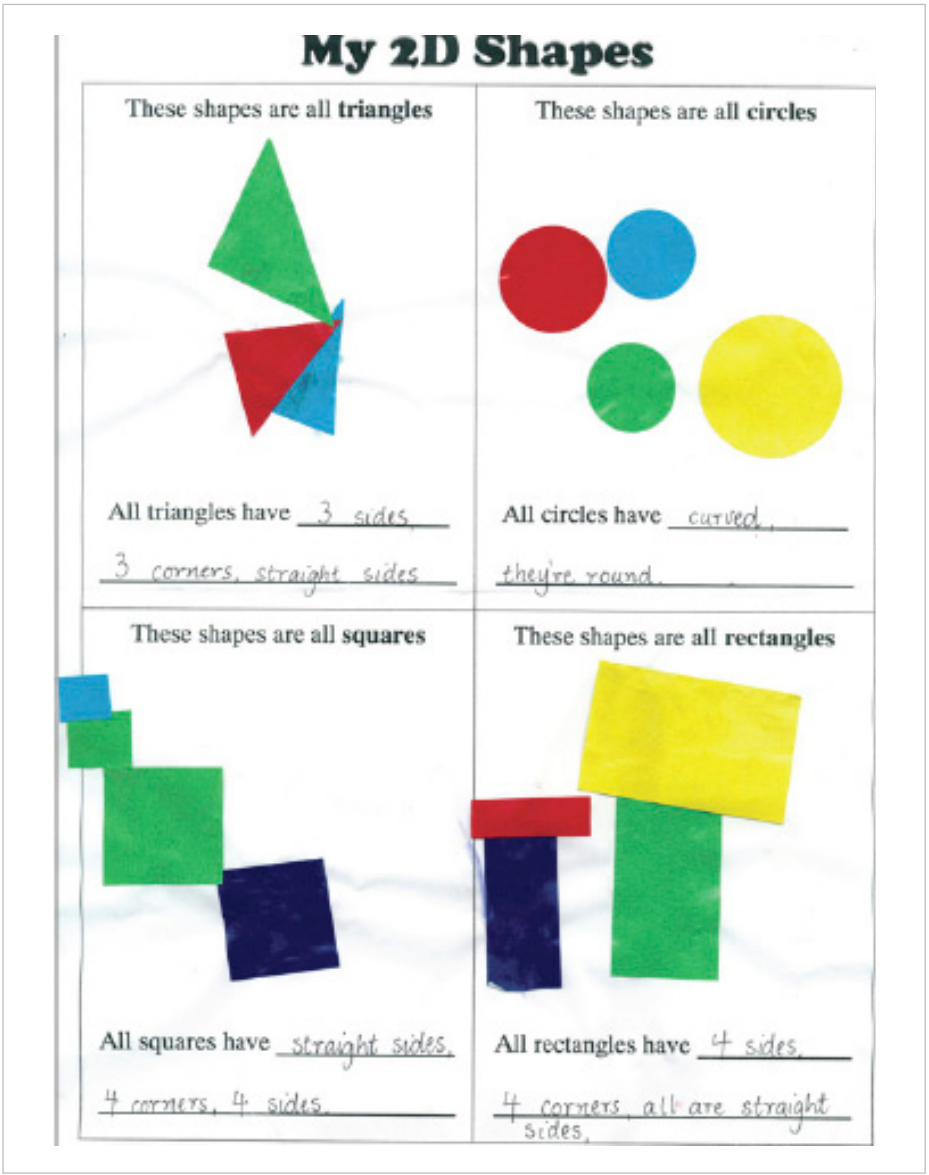
Work sample 3:
Geometry – My two-dimensional shapes



Annotations

Classifies, sorts, names and describes some of the properties of familiar two-dimensional shapes.

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.

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Work sample 4:
Numbers – Computer numbers

Relevant parts of the achievement standard

By the end of the Foundation year, students make connections between number names, numerals and quantities up to 10. They compare objects using mass, length and capacity. Students connect events and the days of the week. They explain the order and duration of events. They use appropriate language to describe location.

Students count to and from 20 and order small collections. They group objects based on common characteristics and sort shapes and objects. Students answer simple questions to collect information.

Summary of task

Students have been using counting strategies to count from 0 to 20.

Students were presented with a computer graphic display consisting of a number of objects. They were asked to group similar objects together and count the number of objects in each group.

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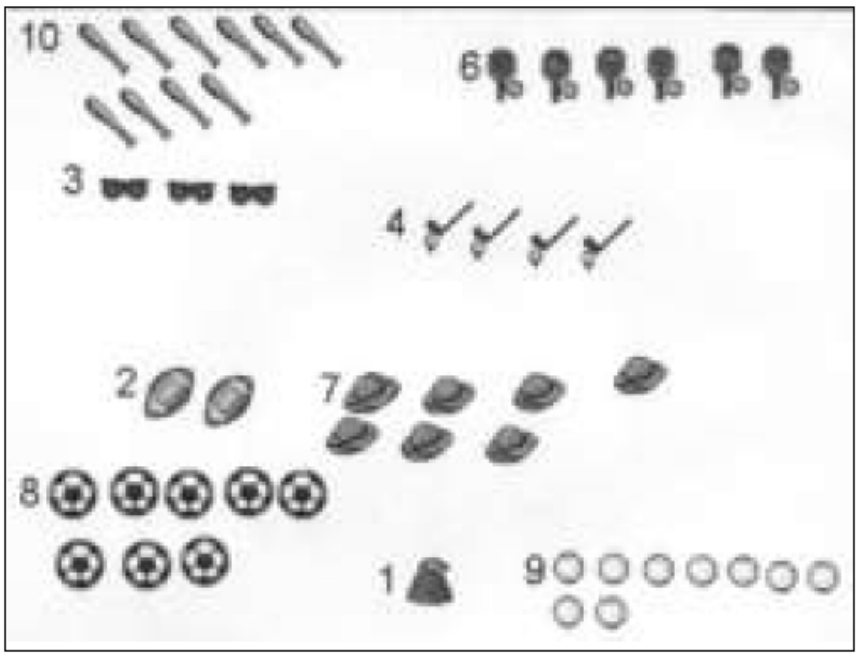
Work sample 4:
Numbers – Computer numbers



Annotations

Groups similar objects together and records the number of objects in each group.

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.

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Work sample 5:
Measurement – Everyone can balance?

Relevant parts of the achievement standard

By the end of the Foundation year, students make connections between number names, numerals and quantities up to 10. They compare objects using mass, length and capacity. Students connect events and the days of the week. They explain the order and duration of events. They use appropriate language to describe location.

Students count to and from 20 and order small collections. They group objects based on common characteristics and sort shapes and objects. Students answer simple questions to collect information.

Summary of task

In previous lessons students have been comparing objects according to length and capacity.

Students stood with their arms outstretched to simulate an equal arm balance. The teacher held an object in each hand and asked students to predict and demonstrate what would happen to their arms if the objects were placed in their hands.

Students were then given the objects to explain their actions and check their predictions.

Students recorded their results by drawing and labelling a picture.

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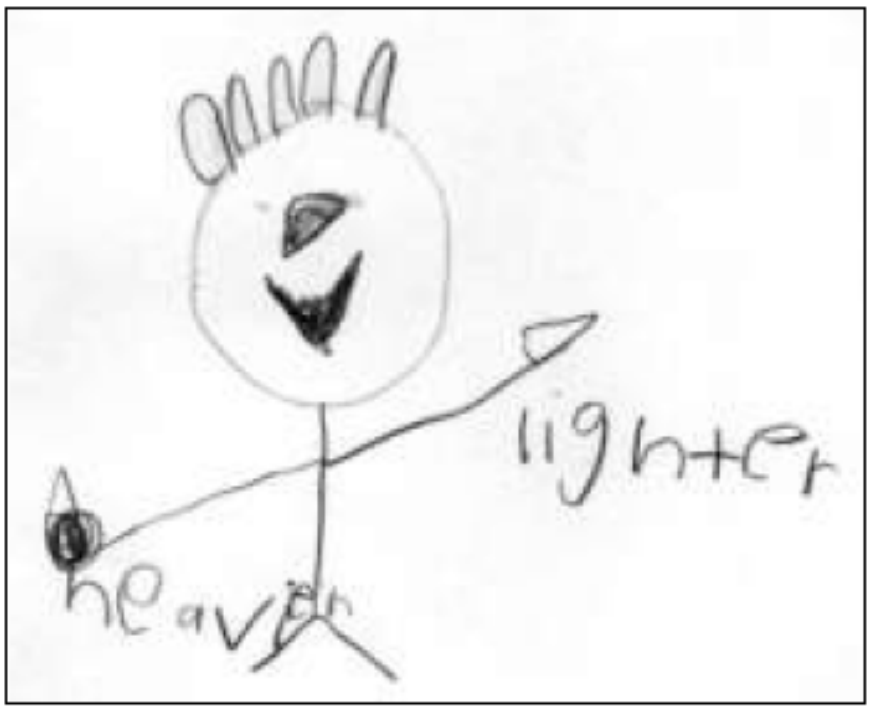
Work sample 5:
Measurement – Everyone can balance?



Annotations

Predicts, draws and records which object is heavier (mass).

Uses direct comparison to determine which object was heavier.

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.

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Work sample 6:
Number – Counting strategies

Relevant parts of the achievement standard

By the end of the Foundation year, students make connections between number names, numerals and quantities up to 10. They compare objects using mass, length and capacity. Students connect events and the days of the week. They explain the order and duration of events. They use appropriate language to describe location.

Students count to and from 20 and order small collections. They group objects based on common characteristics and sort shapes and objects. Students answer simple questions to collect information.

Summary of task

Students have been investigating the links between quantities, number names and numerals.

Students were given a variety of objects and were asked to group them according to a common attribute. They placed the grouped objects in a line and counted them out loud. They then assigned a written numeral to each group.

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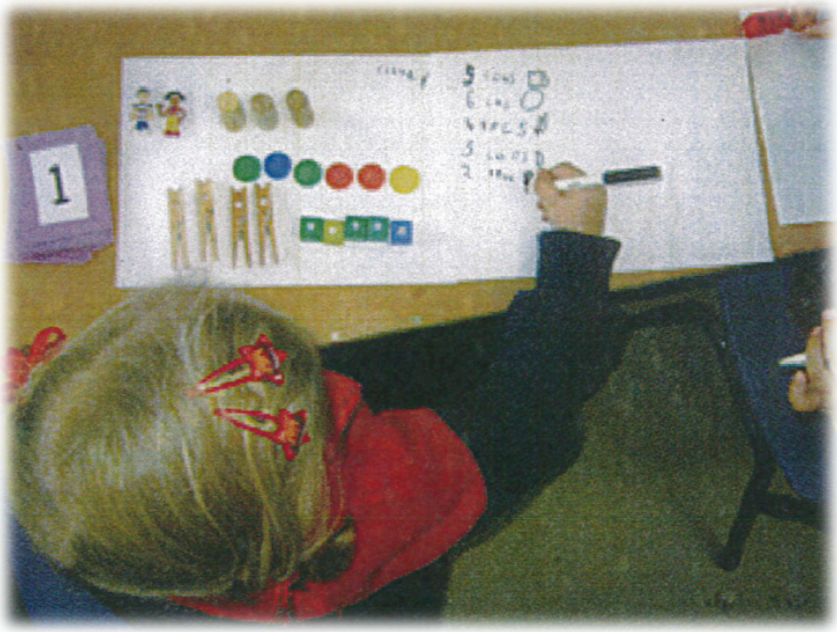
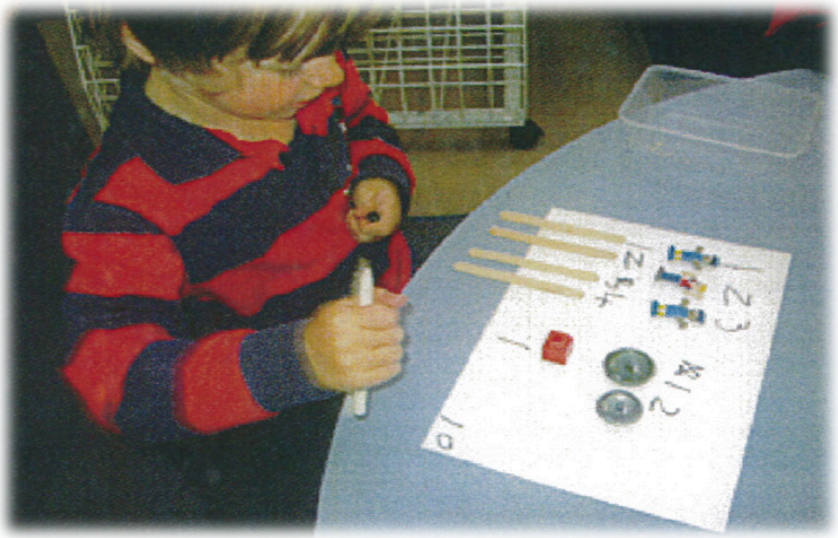
Work sample 6:
Number – Counting strategies





Annotations

Sorts, classifies and counts objects using numerals from 1 to 10.

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.

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Work sample 7:
Number – More or less

Relevant parts of the achievement standard

By the end of the Foundation year, students make connections between number names, numerals and quantities up to 10. They compare objects using mass, length and capacity. Students connect events and the days of the week. They explain the order and duration of events. They use appropriate language to describe location.

Students count to and from 20 and order small collections. They group objects based on common characteristics and sort shapes and objects. Students answer simple questions to collect information.

Summary of task

Students were provided with groups of squares. A group contained up to 10 squares in total. This task assessed a student's ability to count to 10 and compare small groups of objects.

Students were asked to order and count the number of squares.

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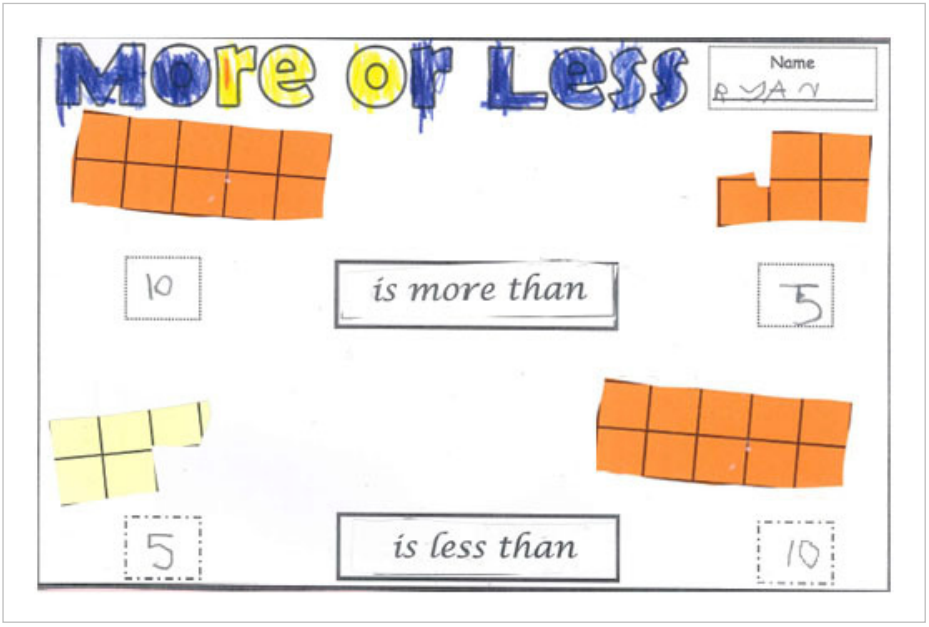
Work sample 7:
Number – More or less



Annotations

Demonstrates an understanding of the relationship between a number and a quantity (up to 10).

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.

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Work sample 8:
Measurement – Which is heavier?

Relevant parts of the achievement standard

By the end of the Foundation year, students make connections between number names, numerals and quantities up to 10. They compare objects using mass, length and capacity. Students connect events and the days of the week. They explain the order and duration of events. They use appropriate language to describe location.

Students count to and from 20 and order small collections. They group objects based on common characteristics and sort shapes and objects. Students answer simple questions to collect information.

Summary of task

Prior to this task, students have made measurements of a variety of objects using informal units. Students completed a worksheet comparing objects using mass.

They used informal units to determine the weight of objects and recorded them on their worksheet.

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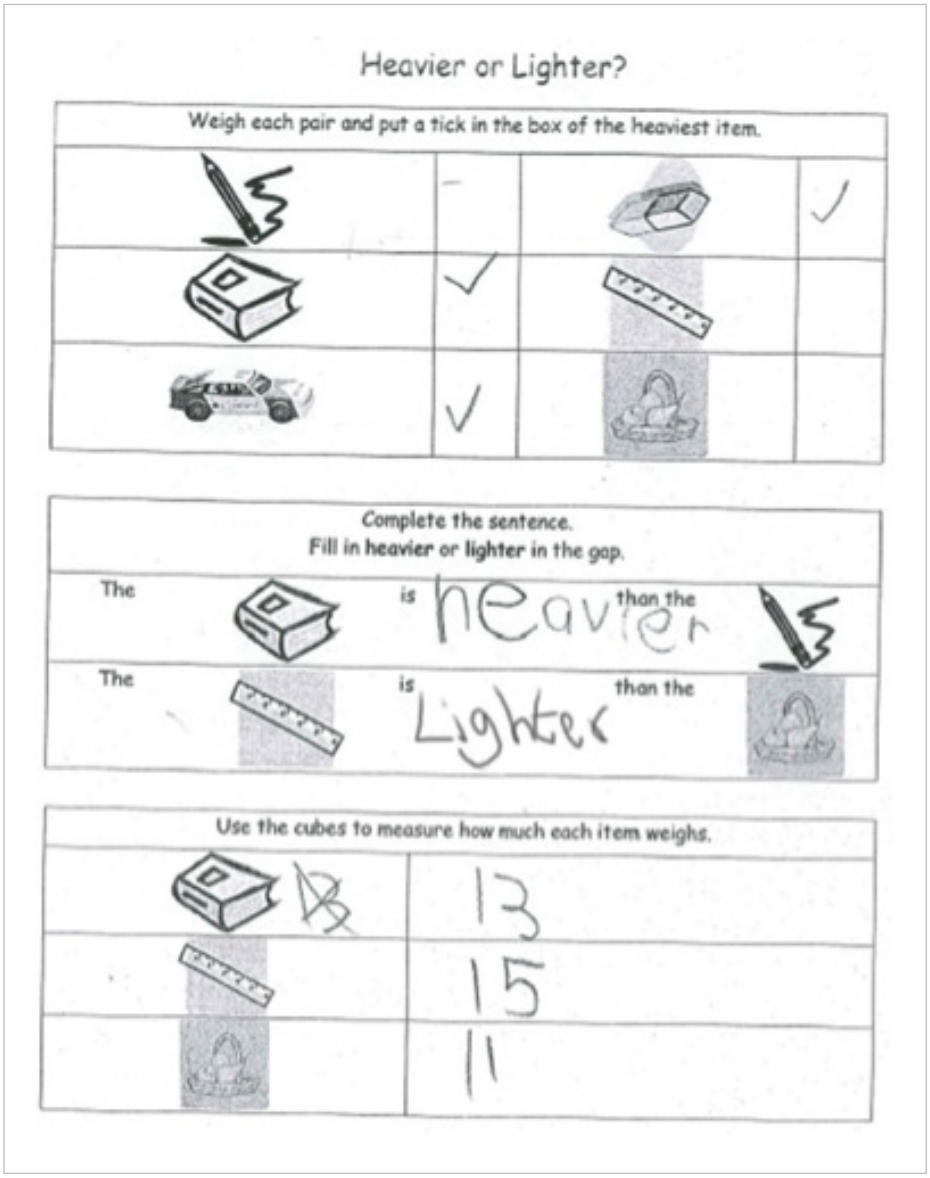
Work sample 8:
Measurement – Which is heavier?



Annotations

Uses informal units of measurement to directly compare objects to show which is heavier (mass).

Uses appropriate language of mass such as "heavier" and "lighter" to compare objects.

Connects number names, numerals and quantities to record how much each item weighs.

Represents data through the use of a simple table.

Uses informal units to measure mass but draws incorrect conclusions when comparing one object with another.

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.