enVisionMATHS Online Tutorial Guide 3

Tutorial 3.2: Diagnostic Assessments

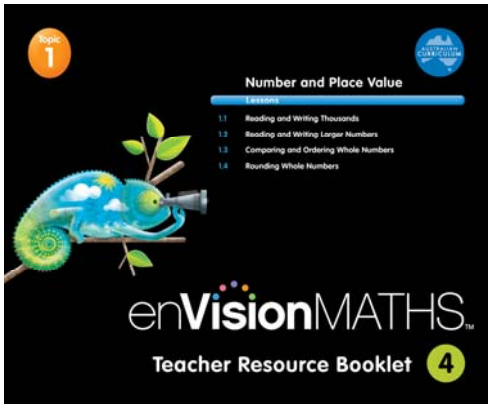
Introduction

This guide will look at the enVisionMATHS diagnostic assessments in more detail. It will also outline the enVisionMATHS assessment recording documents provided on the Teacher Resource DVD.

Diagnostic Assessments

The diagnostic assessments comprise: Interview Assessments (for Years F to 2 only), Pre-Assessments and Post-Assessments.

These are provided in the Teacher Resource Booklets for each topic and also on the Teacher Resource DVD for each year level. Assessments for the year above and the year below are also included on this DVD.



While teachers may wish to simply photocopy and administer each assessment as it appears in the Teacher Resource Booklet, the DVD format allows teachers to select and print appropriate assessments for any concept and also to select assessments from related concepts in the year above or below to allow for differentiation.

Maths Concepts

The diagnostic Pre- and Post-assessments are based on the main maths concepts addressed in each topic. A list of these concepts can be found in the Overview and Implementation Guide for each year level.

Assessing against these concepts ensures that the main concepts in each topic are covered, but also that the Australian Curriculum achievement standards are addressed at each year level.

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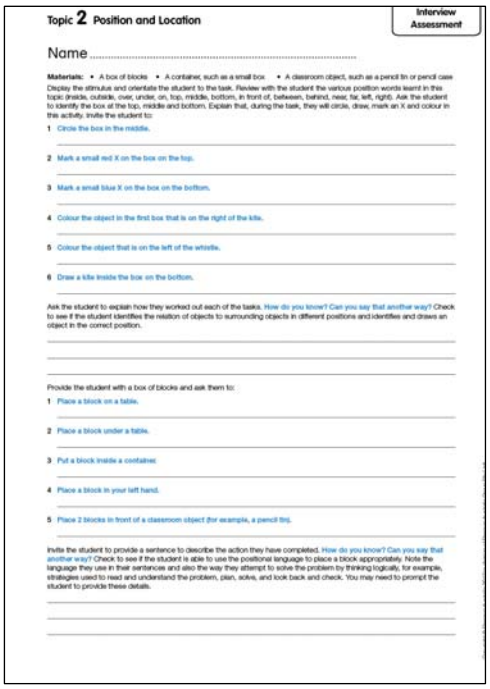
Interview Assessment (Years K to 2)



Topic 2 Position and Location

Interview Assessment

Name .....

Materials: • A box of blocks • A container, such as a small box • A classroom object, such as a pencil tin or pencil case

Display the stimulus and orientate the student to the task. Review with the student the various position words learnt in this topic (inside, outside, over, under, on, top, middle, bottom, in front of, between, behind, near, far, left, right). Ask the student to identify the box at the top, middle and bottom. Explain that, during the task, they will circle, draw, mark an X and colour in this activity. Invite the student to:

1 Circle the box in the middle.

2 Mark a small red X on the box on the top.

3 Mark a small blue X on the box on the bottom.

4 Colour the object in the first box that is on the right of the kite.

5 Colour the object that is on the left of the whistle.

6 Draw a kite inside the box on the bottom.

Ask the student to explain how they worked out each of the tasks. How do you know? Can you say that another way? Check to see if the student identifies the relation of objects to surrounding objects in different positions and identifies and draws an object in the correct position.

Provide the student with a box of blocks and ask them to:

1 Place a block on a table.

2 Place a block under a table.

3 Put a block inside a container.

4 Place a block in your left hand.

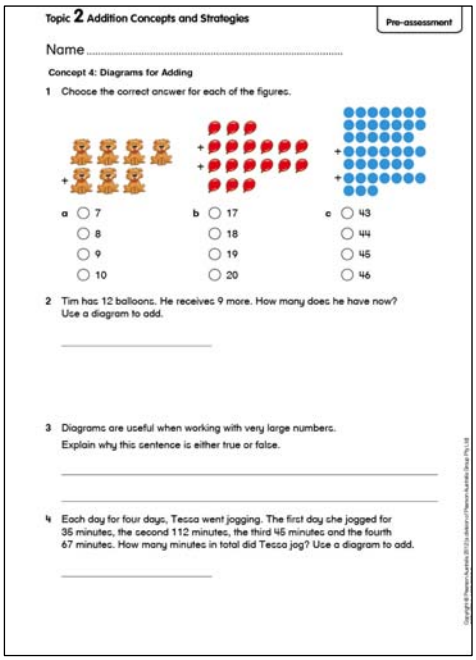
5 Place 2 blocks in front of a classroom object (for example, a pencil tin).

Invite the student to provide a sentence to describe the action they have completed. How do you know? Can you say that another way? Check to see if the student is able to use the positional language to place a block appropriately. Note the language they use in their sentences and also the way they attempt to solve the problem by thinking logically, for example, strategies used to read and understand the problem, plan, solve, and look back and check. You may need to prompt the student to provide these details.

This is a one-on-one informal, oral assessment strategy. Although intended as a pre-assessment, there is also value in using it as a post-assessment.

The Interview Assessment is designed to allow younger students to demonstrate their level of understanding by explaining the thinking behind their choices. This format takes the place of the reasoning question included in the diagnostic assessments for Years 3 to 6.

Pre-assessment



Topic 2 Addition Concepts and Strategies

Pre-assessment

Name .....

Concept 4: Diagrams for Adding

1 Choose the correct answer for each of the figures.

a ○ 7 ○ 8 ○ 9 ○ 10

b ○ 17 ○ 18 ○ 19 ○ 20

c ○ 43 ○ 44 ○ 45 ○ 46

2 Tim has 12 balloons. He receives 9 more. How many does he have now? Use a diagram to add.

3 Diagrams are useful when working with very large numbers. Explain why this sentence is either true or false.

4 Each day for four days, Tessa went jogging. The first day she jogged for 35 minutes, the second 112 minutes, the third 45 minutes and the fourth 67 minutes. How many minutes in total did Tessa jog? Use a diagram to add.

Pre-assessment helps to gauge the ability of students in a particular area of mathematics, providing information about their strengths and weaknesses.

The results of this assessment will guide and support teachers in customising instruction for individual student needs. This form of assessment should be administered at the beginning of each topic. It covers both prerequisite material and new content.

Answers for the pre-assessment are given at the back of each Teacher Resource Booklet.

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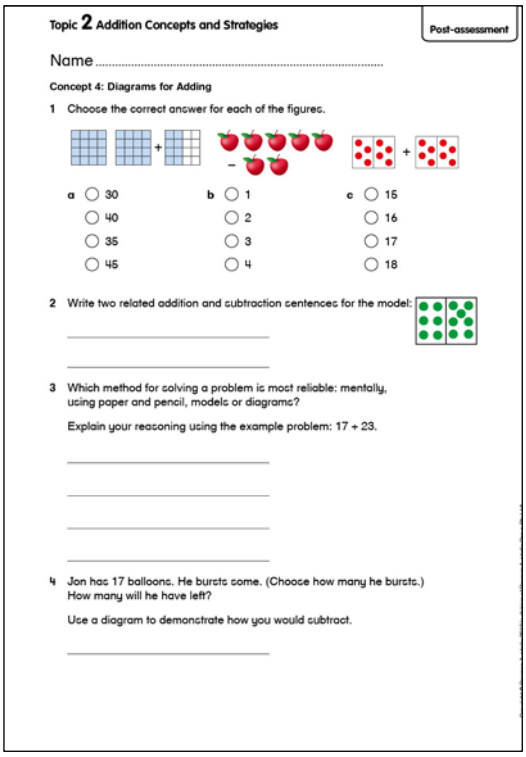
Post-assessment



Topic 2 Addition Concepts and Strategies

Post-assessment

Name .....

Concept 4: Diagrams for Adding

1 Choose the correct answer for each of the figures.

a ○ 30 ○ 40 ○ 35 ○ 45

b ○ 1 ○ 2 ○ 3 ○ 4

c ○ 15 ○ 16 ○ 17 ○ 18

2 Write two related addition and subtraction sentences for the model:

3 Which method for solving a problem is most reliable: mentally, using paper and pencil, models or diagrams?

Explain your reasoning using the example problem: 17 + 23.

4 Jon has 17 balloons. He bursts some. (Choose how many he bursts.) How many will he have left?

Use a diagram to demonstrate how you would subtract.

Post-assessment provides teachers with information about students' achievement on a particular topic that has just been studied.

These results help determine whether an individual student requires revision of, or intervention in, their topic. It also allows teachers to chart a student's progress from the beginning of the topic to the end and gives them information to report back to parents.

Answers for the post-assessment are given at the back of each Teacher Resource Booklet.

Assessment Formats

Each of the diagnostic pre- and post-assessments incorporate a range of assessment styles. Different approaches to, and formats for, assessment are required to measure the mathematical knowledge, skills and attitudes of students.

For Years F to 2, each pre- and post-assessment contains three different-styled questions, and for Years 3 to 6 there are four different-styled questions.

Multiple Choice

The first question in the assessments is multiple-choice. Multiple-choice questions are helpful in implementing a quick and practical assessment task for students. These questions measure students' levels of mathematical fluency and allow a quick and direct opportunity for identifying strengths and weaknesses in students' maths ability. The multiple-choice style of assessment also reflects the style used in NAPLAN at Years 3, 5, 7 and 9.

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Short Answer (Free-response)

The second question in the assessments is a short-answer question. Free-response assessment helps to eliminate students guessing the correct answer. Students answer a question and may have the opportunity to represent their answer pictorially. These questions can be more open-ended but should not be too wordy as they could restrict some students' access to maths learning due to language barriers.

Reasoning (Years 3 to 6)

An open-ended question designed to measure students' reasoning ability is included as question three in the assessments for Years 3 to 6. Students' reasoning includes their capacity for logical thought and actions such as analysing, proving, evaluating, explaining, inferring, justifying and generalising. The reasoning questions ask students to demonstrate their level of understanding by explaining the thinking behind their choices. This allows teachers to elicit a wealth of information about students' reasoning, making it possible to identify misconceptions and inconsistencies. It allows teachers to identify emerging ideas in students' thinking so that they can be clarified, shared and formalised.

Reasoning in Years F to 2 is assessed using the Interview Assessment.

Problem Solving

The final question in each assessment involves problem solving. Problem-solving assessment allows students to demonstrate their problem solving skills by applying various mathematical problem-solving techniques to non-routine problems. Students are assessed on how they organise information, decode graphic representations, make generalisations and justify conclusions from data.

The problem-solving assessment questions appear at the end of each assessment so students are challenged to think about which maths tools or processes they need to apply to formulate their answers.

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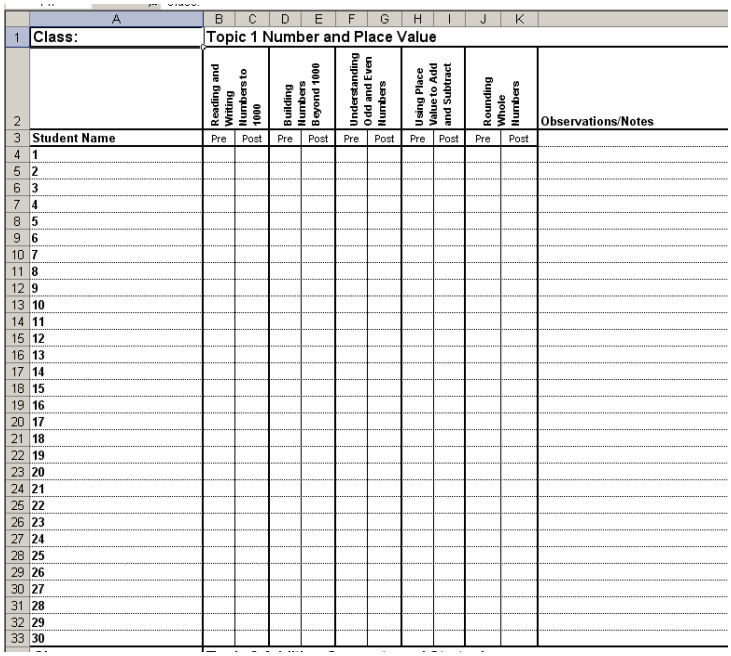
Assessment Recording

Class and Student Record templates are provided in the planning documents on the Teacher Resource DVD for each year level.

These templates are Microsoft Excel documents that can be tailored for individual class needs. They have been arranged by enVisionMATHS topic and assessment concept, with space for teachers to record notes or add formulae as appropriate.



	A	B	C	D	E	F	G	H	I	J	K
1	Class:	Topic 1 Number and Place Value									
2		Reading and Writing Numbers to 1000		Building Numbers Beyond 1000		Understanding Odd and Even Numbers		Using Place Value to Add and Subtract		Rounding Whole Numbers		Observations/Notes
3	Student Name	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
4	1											
5	2											
6	3											
7	4											
8	5											
9	6											
10	7											
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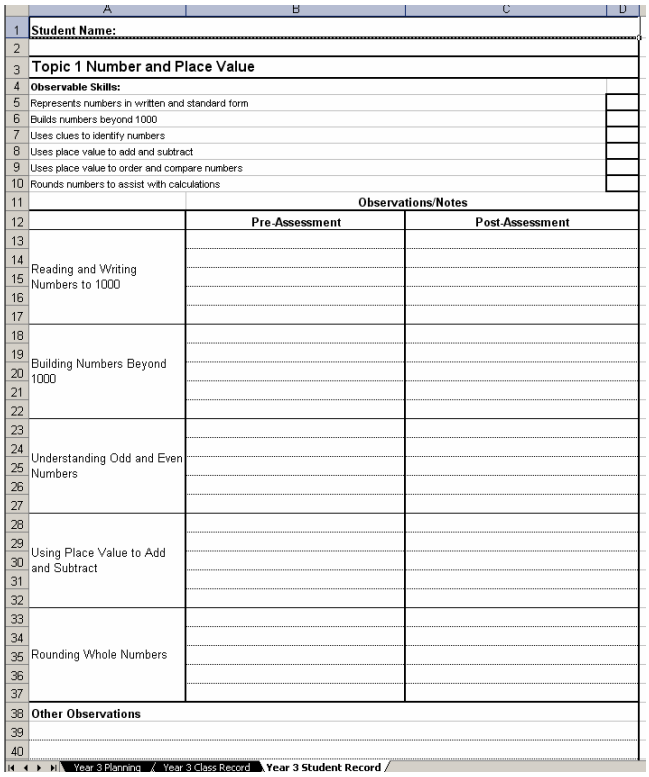

Student Name:		
Topic 1 Number and Place Value		
Observable Skills:		
Represents numbers in written and standard form		
Builds numbers beyond 1000		
Uses clues to identify numbers		
Uses place value to add and subtract		
Uses place value to order and compare numbers		
Rounds numbers to assist with calculations		
	Observations/Notes	
	Pre-Assessment	**Post-Assessment**
Reading and Writing Numbers to 1000		
Building Numbers Beyond 1000		
Understanding Odd and Even Numbers		
Using Place Value to Add and Subtract		
Rounding Whole Numbers		
Other Observations		

Year 3 Planning | Year 3 Class Record | Year 3 Student Record

For further information, please read the Assessment sections in the Overview and Implementation Guide and Teacher Resource Booklets for any level of enVisionMATHS.

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