

enVisionMATHS Online Tutorial Guide 5

Tutorial 5.2: Teaching a Year 3 to Year 6 Lesson

Introduction

This guide describes a sequence to follow when teaching a Year 3 to Year 6 enVisionMATHS lesson.

Remember, the teaching sequence is a suggestion. You should feel free to modify it to suit your students and teaching.

Teaching a Year 3 to 6 Lesson

After completing details in the planning document (on the Teacher Resource DVD) and choosing a topic and lesson to teach, find the appropriate teacher resource booklet and familiarise yourself with its contents. Choose the resources you will need from components such as the Activity Zone and the assessment tools.

Introducing the Topic

Introduce the topic using the topic-opener spread found at the start of each topic in the Student Activity Book. Discuss the real-life scenarios presented and the vocabulary.

Topic 11 Fractions

Vocabulary

- halves
- thirds
- quarters
- fifths
- sixths
- eighths
- tenths
- twelfths
- fraction
- numerator
- denominator
- equivalent

The Nigerian flag is made up of 3 equal parts. What is the fraction name for each part?

If $\frac{1}{4}$ of your body's bones are in your feet, what fraction of your bones are not in your feet?

About $\frac{2}{3}$ of the Earth's land surface is desert. What is another way of writing this fraction?

A mosaic is art made using tiles. What fraction of this mosaic is yellow?

154 one hundred and fifty-four

one hundred and fifty-five 155

Note, for Years 5 and 6, introduce the topic by playing the appropriate topic-opener video from the IWB DVD, and then refer to the topic-opener spread.

Pre-assessment

The focus of assessment in enVisionMATHS is both formative and summative; therefore at this point we suggest that you use the associated Pre-assessment as a tool to determine student knowledge in this particular area of mathematics.

The results from this assessment will guide and support teachers in customising instruction and formulating individual or group learning action plans to address individual student needs.

Results and observations can be recorded on the class or student recording templates provided in the Planning documents on the Teacher Resource DVD.

Work out your groups and the resources they will use.

Lesson-based Planning

Note that a lesson using the suggested sequence would generally take at least 2 hour-long Maths sessions to complete.

Familiarise yourself with the notes provided in the lessons section of the Teacher Resource Booklet for the lesson you are teaching.

Topic 11 Lesson 2 Writing Fractions of a Whole

Student Activity Book Pages

What do we already know from the problem? Jim made fruit bars and he served part of the pan to his friends. What do we have to find out? (What part of the whole pan was served and what part was left? The picture isn't complete. There are some equal parts missing. We will complete the picture to find out how many equal parts we have altogether. Draw in the missing parts. How many equal parts altogether? [1])

Which parts of the fractions are the same? (The denominator) Why? (Because the number of equal parts altogether is the same.) Which parts of the fractions are different? (The numerator) Why? (Because the number of parts you are describing is different.)

What does the word 'numeral' represent? (The denominator) How many equal parts is that? [6]

Writing Fractions of a Whole

How can you show and name part of a whole? (Jim made a pan of fruit bars. He served part of the pan to his friends. What part of the whole pan was served? What part was left? A fraction is a symbol, such as $\frac{1}{2}$, which names equal parts of a whole.)

Visual Learning Bridge (VLB)

Problem Solving

1a. Alex and Miguel are both right. If the $\frac{3}{4}$ (A) (the four coloured squares) are moved to go along one of the rows, then we can easily see the whole divided into three equal parts. One of the parts is $\frac{1}{3}$.

1b. Answers will vary. Sample answer: $\frac{1}{3}$ or $\frac{2}{3}$. Show the different ways students represented $\frac{1}{3}$. Did they use drawings, manipulatives or fold paper? Did they write number stories or equivalent fractions?

Topic Focus

Properties of fractions include being divided into equal parts, being named appropriately using the correct numerator and denominator, ordering, comparing, naming equivalent fractions and finding factors of a group.

Quick and Easy Lesson Overview

Objective
Students will understand the model, symbol and words used to describe a fractional part of a whole.

Essential Understanding
A fraction can be used to describe equal parts of a whole.

Vocabulary
fraction, numerator, denominator, whole, total, fractional part, equal parts

Materials
fraction cards (enough for use between two) with a variety of shapes divided into a variety of equal parts, with a variety of parts shaded.

Maths Background for Teachers

Any fraction conveys two important pieces of information. The denominator, the number below the vinculum or the fraction bar, indicates the number of equal parts the whole was divided into. The numerator, the number above the vinculum, indicates how many equal parts the fraction represents.

Set the Purpose

In this lesson, you will learn to name and write the symbol for fractional parts.

Connect

Write on the board $\frac{1}{2}$ and $\frac{2}{3}$. Numbers that are written like this are called fractions. Where have you seen fractions?

Explore the Concept

Write the following story on the board: Pat made a garden in the shape of a rectangle. She divided it into five equal parts. She planted flowers in three of the parts. I will draw Pat's rectangular garden and divide it into five equal parts. What do we do next? (Colour in the three parts that are for the flowers.)

Differentiated Worksheets

Apply

Practice

Challenge

Reflection

In your own words, explain the job of the numerator and the denominator.

On the left side of each lesson spread you will find a reduced size copy of the appropriate Student Activity Book page with the Visual Learning Bridge at the top. This provides you with a quick reference point and offers teacher questions to help support student learning.

On the right hand page, you will find the Topic Focus and Quick and Easy Lesson Overview for this lesson.

Whole Class Teaching

Start each lesson by setting the purpose and developing the maths concept by making connections to students' previous learning. Encourage students to share their thinking and make connections using words, pictures and digital or concrete manipulatives.

Next, watch the Visual Learning Animation on the Interactive Whiteboard DVD, to engage students and deepen their maths understanding. While teaching with the animations, stop after certain frames and take time to discuss the mathematics, visual images and connections being made. Encourage students to ask and answer peer questions.

Note that Visual Learning Animations are supplied for Years Foundation to 4. As stated earlier, topic-based videos are supplied instead for Year 5 and 6. Visual Learning Bridges are still supplied for Years 5 and 6.

Look at the associated Visual Learning Bridge on the Interactive Whiteboard DVD or at the top of the Student Activity Book page. Take time to further explore and reinforce students' maths understanding using the questions provided in the Teacher Resource Book.

Topic 11 Lesson 2

Understand it!
A fraction can be used to describe equal parts of a whole.

Visual Learning Bridge (VLB)

Writing Fractions of a Whole
How can you show and name part of a whole?
Kim made a pan of fruit bars. He served part of the pan of bars to friends. What part of the whole pan was served? What part was left?
A **fraction** is a symbol, such as $\frac{1}{2}$ or $\frac{2}{3}$, which names equal parts of a whole.

What You Write
Numerator \rightarrow 4 \leftarrow 4 equal parts served
Denominator \rightarrow 9 \leftarrow 9 equal parts **altogether**
Numerator \rightarrow 5 \leftarrow 5 equal parts left
Denominator \rightarrow 9 \leftarrow 9 equal parts **altogether**
The **numerator** tells how many equal parts are described. It is the number above the fraction bar.
The **denominator** tells the total number of equal parts. It is the number below the bar.

What You Say
Four-ninths of the pan of fruit bars was served.
Five-ninths of the pan of fruit bars was left.

Continue to explore the maths concept with your students, using the whole class Teaching Focus activity provided. You may choose to make use of Tools4Maths at this point to demonstrate an understanding or particular question.

For students having difficulty understanding particular maths concepts or those requiring more challenging activities, Error intervention and Extension activities and prompts are provided to support individual student needs.

Guided and Independent Response

Students can then work independently (or in small groups or within a guided teacher group) to complete the associated page in their activity book.

Each lesson page is specifically designed for students to answer a selection of mental computation, guided practice, reasoning, independent practice and problem-solving questions. There is plenty of space for working out. The emphasis is on exploring and applying rather than repetitive practice.

Answers, including expanded answers to the problem-solving questions, are provided in the Teacher Resource Booklet.

Differentiated Small Group Work

At this point you could organise your students to work in like ability or mixed ability groups to revisit, practise or extend their learning. For Years 3 to 6 it is envisaged that students would work on different activities at each learning centre.

One group could work with you on a guided activity revisiting the Visual Learning Animation, Teaching Focus activity or Student Activity Book page.



Groups could work on Activity Zone cards (including the digital card using Tools4Maths). For each topic in years 3 to 6 there are:

- 2 Minds cards (with two copies of each)
- 3 Investigations cards (with 2 copies of each),
- 4 Games cards (with one copy of each) and
- 1 Digital card (with 4 copies of each).

(As part of your planning, you will need to choose which lessons to use the various cards in as the cards are topic- rather than lesson-linked.)

Students record their Activity Zone learning in their Maths Thinking Skills Books.

You could also have a group completing a specific Replay, Practice or Challenge differentiated worksheet (these worksheets could also be used for homework). There are three worksheets for every lesson.

Whole Class and Individual Reflection

Use the reflection questions provided in the Teacher Resource Booklet to gain some insight into your students' maths learning. Encourage your students to think aloud and share maths strategies, processes and understandings used throughout the lesson. Discuss areas of expertise as well as challenges. Students then have the opportunity to record their reflections in their Maths Thinking Skills Book or present examples of their new learning using Tools4Maths, which is also found on the Interactive Whiteboard DVD.

Assessment

During each lesson, take time to work with small groups and individuals to gauge how students are going with each new maths concept. Take time to record anecdotal notes; including capabilities, challenges and goals. Use the recording documents provided for assessment from the Teacher Resource DVD.

Class: _____										
Topic 1 Number and Place Value										
Student Name	Thousands		Larger Numbers		Comparing and Ordering		Observations/Notes			
	Pre	Post	Pre	Post	Pre	Post				
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
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18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
Class: _____										
Topic 2 Addition Concepts and Strategies										

Class: _____			
Topic 1 Number and Place Value			
Observable Skills:			
Reads and writes numbers up to six digits			
Reads and writes numbers in the thousands			
Compares and orders numbers			
Rounds whole numbers to tens and hundreds			
Uses reasoning to compare numbers			
Observations/Notes			
	Pre Assessment	Post Assessment	
Thousands			
Larger Numbers			
Comparing and Ordering			
Other Observations			

After completing each maths concept, have students complete the associated Post-assessment task. This consists of multiple-choice, short-answer, reasoning and problem-solving questions and will provide information about a student's achievement on a particular topic.

For further information on teaching using enVisionMATHS, please see the Overview and Implementation Guides and Teacher Resource Booklets for any year level.