enVisionMATHS Online Tutorial Guide 2

Tutorial 2.2: Differentiation

Introduction

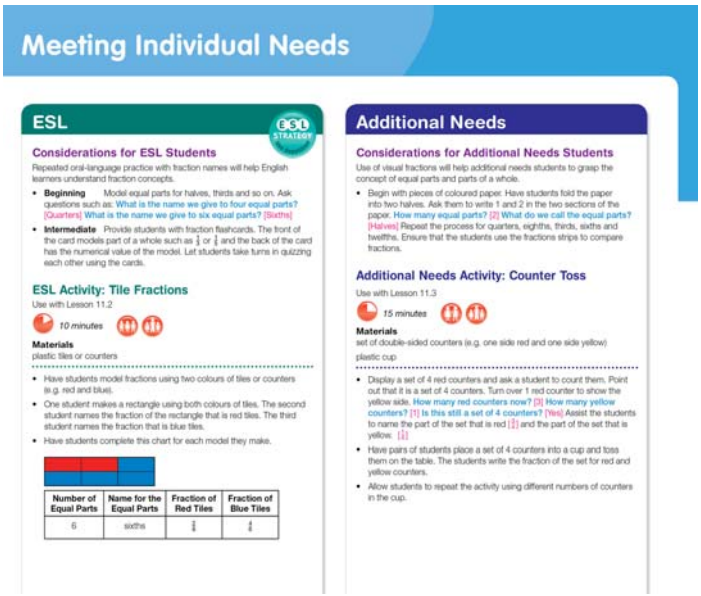
This guide will look at the range of ways that enVisionMATHS caters for differentiation in the classroom; from additional needs to multi-age classrooms.

Differentiation

The amount of differentiation in the classroom depends on the needs of the class as identified in the planning by the teacher. enVisionMATHS is designed to allow for differentiation at all stages and provides resources that allow the planning of pathways for different ages and levels within the classroom.

(Note that pre-assessment is an important step in determining differentiation needs and is explained in the Assessment tutorial.)

Teacher Resource Booklets


Meeting Individual Needs

ESL

Considerations for ESL Students

Repeated oral-language practice with fraction names will help English learners understand fraction concepts.

- **Beginning** Model equal parts for halves, thirds and so on. Ask questions such as: What is the name we give to four equal parts? [Quarters] What is the name we give to six equal parts? [Sixths]
- **Intermediate** Provide students with fraction flashcards. The front of the card models part of a whole such as $\frac{1}{3}$ or $\frac{1}{4}$ and the back of the card has the numerical value of the model. Let students take turns in quizzing each other using the cards.

ESL Activity: Tile Fractions

Use with Lesson 11.2

10 minutes

Materials

plastic tiles or counters

- Have students model fractions using two colours of tiles or counters (e.g. red and blue).
- One student makes a rectangle using both colours of tiles. The second student names the fraction of the rectangle that is red tiles. The third student names the fraction that is blue tiles.
- Have students complete this chart for each model they make.

Number of Equal Parts	Name for the Equal Parts	Fraction of Red Tiles	Fraction of Blue Tiles
6	sixths	$\frac{2}{6}$	$\frac{4}{6}$

Additional Needs

Considerations for Additional Needs Students

Use of visual fractions will help additional needs students to grasp the concept of equal parts and parts of a whole.

- Begin with pieces of coloured paper. Have students fold the paper into two halves. Ask them to write 1 and 2 in the two sections of the paper. How many equal parts? [2] What do we call the equal parts? [Halves] Repeat the process for quarters, eighths, thirds, sixths and twelfths. Ensure that the students use the fractions strips to compare fractions.

Additional Needs Activity: Counter Toss

Use with Lesson 11.3

15 minutes

Materials

set of double-sided counters (e.g. one side red and one side yellow)

plastic cup

- Display a set of 4 red counters and ask a student to count them. Point out that it is a set of 4 counters. Turn over 1 red counter to show the yellow side. How many red counters now? [3] How many yellow counters? [1] Is this still a set of 4 counters? [Yes] Assist the students to name the part of the set that is red [$\frac{3}{4}$] and the part of the set that is yellow. [$\frac{1}{4}$]
- Have pairs of students place a set of 4 counters into a cup and toss them on the table. The students write the fraction of the set for red and yellow counters.
- Allow students to repeat the activity using different numbers of counters in the cup.

Individual Needs

For each topic in each year level, the Teacher Resource Booklets provide extra activities for individual needs including ESL and additional needs students. Error intervention tips and extension ideas are also provided for each lesson.

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Skills Trace

The Skills Trace at the start of each Teacher Resource Booklet gives an at-a-glance view of what lessons in the year above and below also relate to the current lesson, providing the means to plan for a multi-age and/or differentiated classroom.

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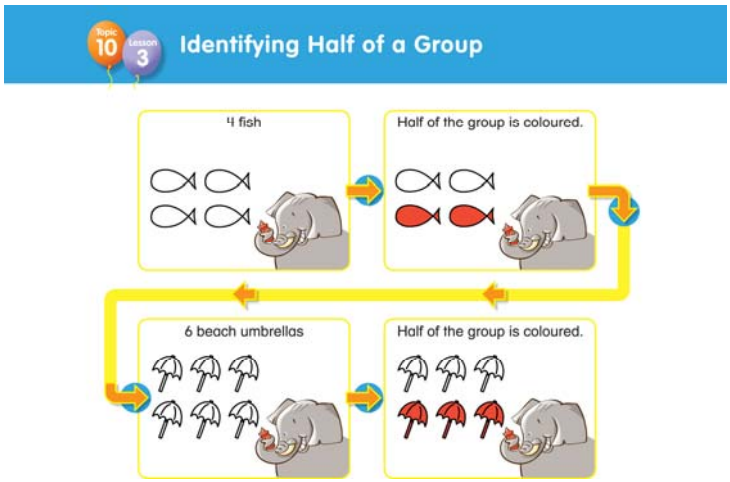
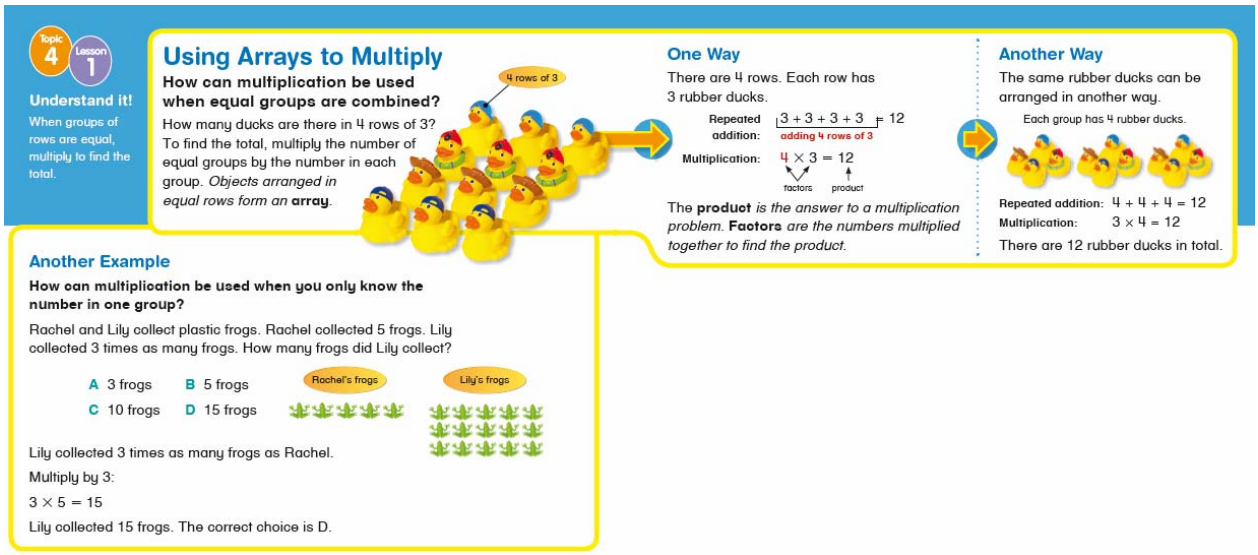
Visual Learning Bridge

There is a Visual Learning Bridge (or VLB) for each lesson in each topic for Years F to 6. These Visual Learning Bridges can be found on the IWB DVD or Teacher Resource DVD and are also reproduced in the Teacher Resource Booklets at all year levels and Student Activity Books (for Years 3 to 6 only).These visually represent maths concepts in a variety of ways to suit different learners. They provide a visual reference to the important lesson concept for students, which can be revisited.

Year F to 2



Year 3 to 6



'Another example' is added to VLBs where appropriate. This presents the concept in a different example to consolidate understanding.

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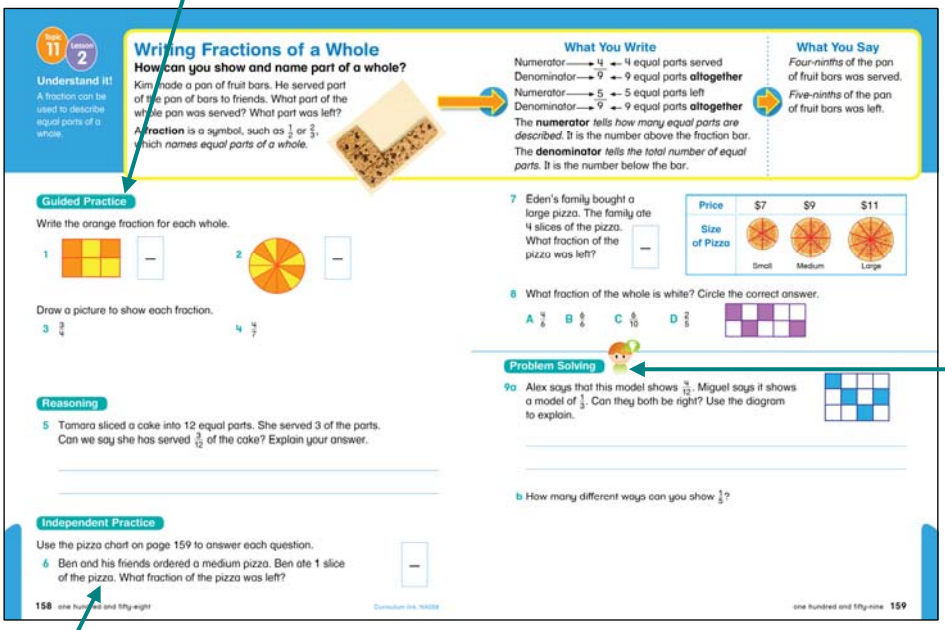
Student Activity Book

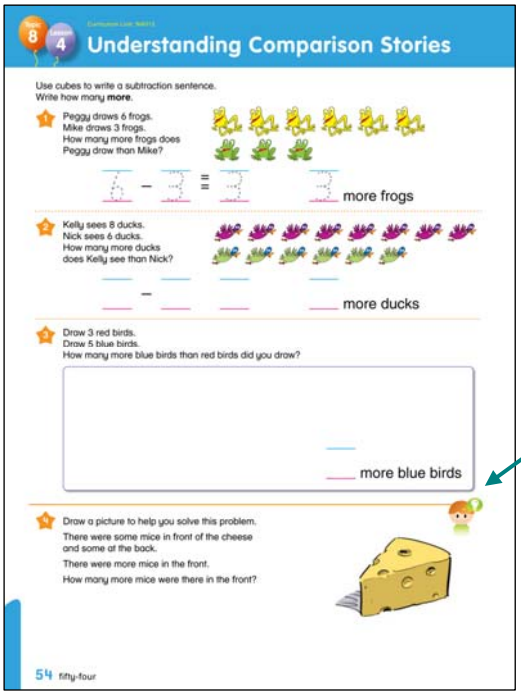
The Student Activity Book Lesson pages across Years 3 to 6 provide differentiation possibilities through the many different features and practice examples on each page.

Guided Practice questions – allow students to apply the concept with teacher support



Problem-solving questions – allow all students to be challenged to varying degrees, so that they can come up with an appropriate answer

Independent Practice questions – allow confident students to progress at their own speed



The Student Activity Books for Foundation to Year 2 have a different format with fewer sections, but still include problem solving for every lesson

Activity Zone Cards

The Activity Zone cards at each year level are particularly designed to provide differentiated activities in class.

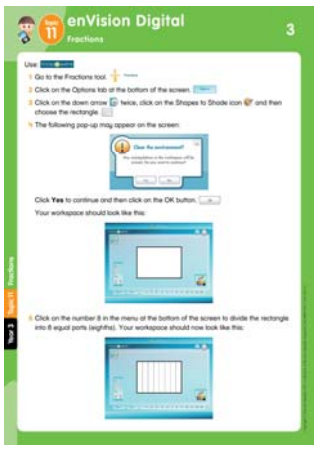
enVision Minds Cards

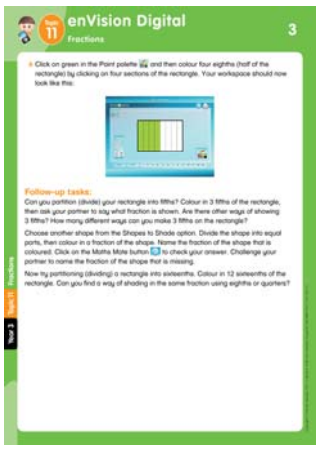
These are provided for years 3 to 6. The front of each card introduces a mental maths strategy. The back contains quiz questions in groups of six, with each group becoming progressively more difficult, allowing success for all levels of ability.

Note that there are no Minds Cards for Foundation to Year 2. Mental Computation activities are provided in each Teacher Resource Booklet for these year levels.

enVision Digital Cards

These cards can be used independently by students or with teacher support in group situations. Follow-up tasks are provided on each card as an extension activity.





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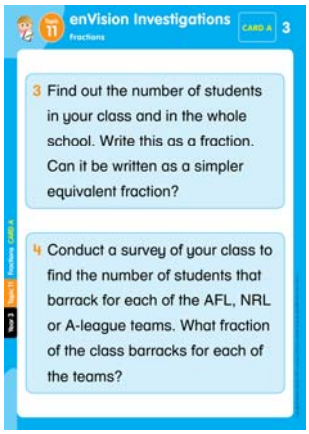
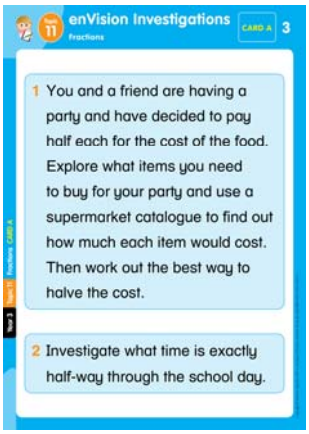
enVision Investigations Cards

These cards provide two to four real-life investigations related to the topic. These investigations are progressively more challenging by the end of the card.

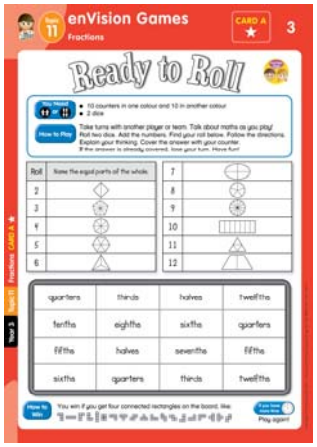


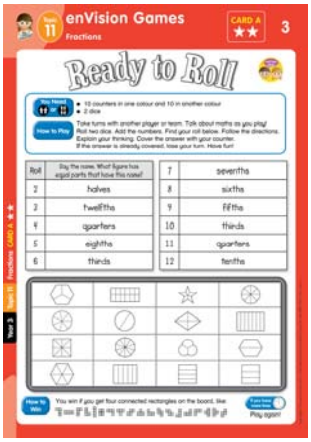


Note that there are 2 investigations only per card in Foundation to Year 2.

enVision Games Cards

The enVision Games cards are two-sided. The first side (*) is suitable for all students and the second side (**) is an extension.





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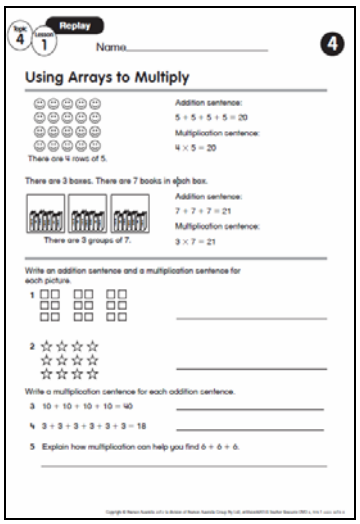
Teacher Resource DVD

The Teacher Resource DVD is provided with the Overview and Implementation Guide for each year level. This DVD provides Differentiated Worksheets, Visual Learning Bridges, diagnostic Pre- and Post-assessments and editable teacher planning and recording documents. It provides resources for the year below and the year above as well as the current year, which allows for valuable differentiation possibilities.

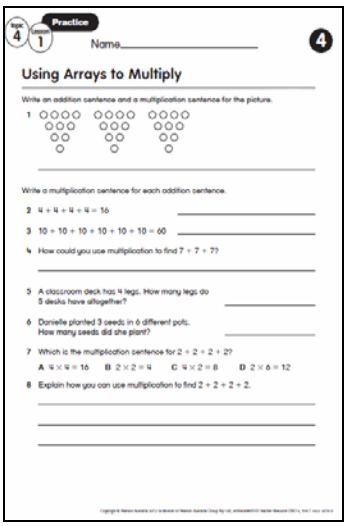
Differentiated Worksheets

Three Differentiated Worksheets are provided for each lesson within each topic in each year level. These are designed for below-level (Replay), at-level (Practice) and above-level (Challenge) students, with the teacher directing students to the appropriate worksheet.


Replay

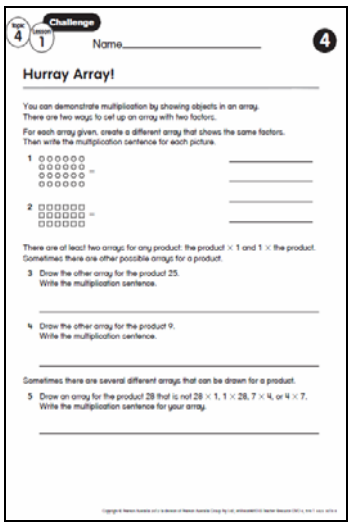
Name

Using Arrays to Multiply


Practice

Name

Using Arrays to Multiply


Challenge

Name

Hurray Array!

These worksheets can be used in any number of ways: as homework, as group work, for extra practice, for extension work or revision in class.

The Multi-age Classroom

enVisionMATHS is a flexible program. The abundance of interrelated resources such as Activity Zone cards, Visual Learning Animations or Videos, Differentiated Worksheets and Tools4Maths can be selected and used with different age and ability groups as required.

Specific advice on implementing enVisionMATHS in multi-age classrooms is provided on pages 41 to 43 of each Overview and Implementation Guide.

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