

Overview

This set of three units will assist teachers to implement the Bar Model Method”, a pedagogical strategy that is widely used in Singapore to help students solve word problems. The bar model method exemplifies and makes visible the part-whole thinking that is key to so much of primary mathematics and it provides students with an efficient and effective problem-solving tool across many mathematics topics. It can also be used to help students to make sense of formal algebra.

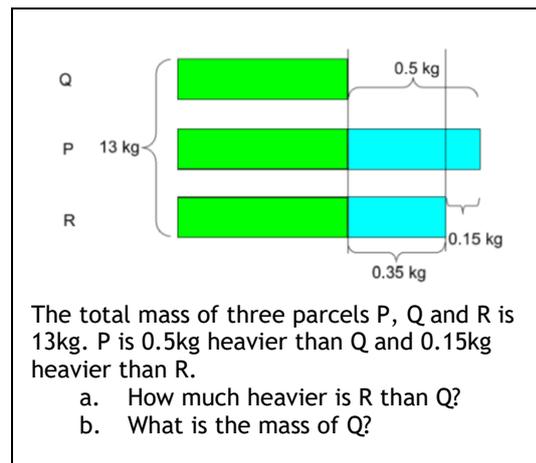
Units will contain student and teacher materials, problems and suggested solutions, and slideshows for optional use.

Australian Curriculum: Mathematics

The bar model method is relevant to all aspects of the Number strand and its applications.

Core development team

Associate Professor Lee Ngan Hoe (Team Leader), Dr Cheng Lu Pien, Dr Ng Kit Ee Dawn, Dr Paul Shutler, Dr Yeo Kai Kow Joseph (Singapore) assisted by an advisory group of Australian teachers.



Trialling Requirements

We are asking teachers to trial one unit with their class. For Years 5 and 6, trialling the whole unit is best, but we appreciate feedback from partial trials for Years 7 and 8.

Unit content and availability is up to date at time of writing but may change to a small extent.

Materials can be accessed from the Members section of the reSolve website <http://www.resolve.edu.au>. Email mbi@science.org.au to trial.

Feedback to help us improve the lessons can be provided by:

- Completing the short online survey (link is provided on the lesson plans) AND
- Completing the feedback questions at the end of each lesson, and emailing to us AND/OR
- Making comments on the lesson plan, scanning and emailing to us OR
- Phoning us or emailing if preferred.

Some of our best feedback is obtained when another teacher observes the lesson. If you are able, have a colleague observe and provide additional feedback, or if you wish, contact us to arrange for an external observer.

For information about Special Topics, contact Director of Special Topics Kaye.Stacey@science.org.au or Lucy.Bates@science.org.au. To find out more about reSolve Mathematics by Inquiry, visit <http://resolve.edu.au> or contact mbi@science.org.au.

Term 3 2017

| Unit | Year | Summary | Program Time | Date Available |
|--|------|---|-------------------------|----------------|
| Unit 1: Introduction to the Bar Model Method | 5 | Introduces students to the various types of bar models for solving mathematics word problems: part/whole models and comparison models applied to addition, subtraction, and multiplication/division. Two lessons include addition and subtraction of fractions. Students learn to visualize and represent the mathematical quantities and relationships within a problem, thus improving their ability to solve problems. | 8 x 60min approx | 31 July 2017 |
| Unit 2: Bar Model Method in Problem Solving | 6 | This unit will further build on students' use of bar models in solving mathematical word problems. Students will learn how to employ it as a heuristic in handling more challenging mathematics problems. The objective of this module is to promote critical and creative thinking with the bar models to solve non-routine tasks. The unit will include an introductory lesson for classes who have not covered Unit 1. | Approximately 8 lessons | September 2017 |

Term 4 2017

| Unit | Year | Summary | Program Time | Date Available |
|--|------|---|-------------------------|----------------|
| Unit 3: Bar Model Method & Secondary Maths | 7/8 | This unit will introduce students to the bar model method and show how it can be used to assist in solving problems involving secondary mathematics topics such as fractions, ratio and percentages. The bar models also support students in introductory algebra and solving problems using algebraic equations. | Approximately 8 lessons | November 2017 |