



Curriculum Units by Fellows of the National Initiative
2008 Volume V: Estimation

The Power of Estimation

Guide for Curriculum Unit 08.05.06, published September 2008

by Francisca Eunice G. Rebullida

This curriculum unit teaches estimation in an explicit and practical way. It is designed for fifth grade Math in English as a Second Language class and could be modified for students in the regular class. This unit presents the key concepts in estimation such as place value and the order of magnitude, relative place value, expanded form in relation to rounding off numbers, using area models and sampling to produce estimates. Estimation is more than just "taking a guess". It requires reasoning to find a useful approximation. The order of magnitude demonstrates the importance of the power of ten in affecting real world quantities or approximations. Students make meaningful connections to the values of numbers. The sampling method is a strategy for estimating numbers of irregularly scattered objects. Literature books are incorporated in teaching the unit to help English language learners learn the mathematical concepts as well as develop their listening, speaking, reading and writing skills. Furthermore, the unit provides essential vocabulary words that they can connect to their native language. Each book shows estimation concepts and strategies. The integration of math/reading language arts incorporates the skills of estimating, calculating and reasoning. Do the students really understand the value of one million? Read and enjoy *A Million Dots* written by Andrew Clements. Students will see what a million looks like when they read the book. Be fascinated when you see how the power of ten dots gets magnified to 100, to 1000 to 10,000, to 100,000 to 1,000,000. How long would it take you to finish reading *A Million Dots*? It would take you eleven and a half days!

(Developed for Science and Math, ESL grade 5; recommended for Math and Science, grade 5)

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