

MATH FRIM 4

Plo's:

1. Use skip counting (both forward and backward) to support their understanding of pattern in multiplication
2. Demonstrate the process of multiplication (three-digit by one-digit numbers), using manipulatives, diagrams, and symbols
3. Recall multiplication facts up to 81
4. Justify their choice of method for multiplication (using estimation, calculators, mental mathematics, manipulatives, algorithms)
5. Verify solutions to multiplication problems by using estimation and calculators

Lesson/Topic	Objectives/Learning Outcomes	Activities	Materials
1. Multiplication review and representation (arrays)	<ul style="list-style-type: none"> - Students will review what they know in multiplication - Students will use a variety of techniques to solve their multiplication problems - Students will review the terminology: factors and products <p>Plos: 2,3</p>	<ol style="list-style-type: none"> 1. Hook: I give 10 students two Smarties each then ask the class: each student has 2 Smarties, how many do they have total? Students give answers, ask them how they solved it. (give everyone else two Smarties) 2. Discussion: where else could we use multiplication 3. Students will answer a variety of multiplication questions on the board individually using their choice of materials and then share their method of multiplication with the class. 4. Present to the students the methods that weren't used. Terminology: factor, product. 5. Homework: invent 5 of your own multiplication questions and show your answer as well as all your work, choosing whatever method works best for you. Answer math journal question: which method is best for me? How am I going to remember how to do it? 	Base ten blocks Grid paper Scrap paper
2. a) Multiplication tables and skip-counting	<ul style="list-style-type: none"> - Students will be able to skip-count up to 10 using music and actions - Students will relate skip-counting to the multiplication table - Students will review the term "multiples" <p>Plos: 1,3</p>	<ol style="list-style-type: none"> 1. Hook: Discuss how when I was in grade 4 my favorite thing to do was to skip-count 2. Distribute hundred chart and discuss how it can help us skip-count. Sing the skip-counting song for 2 and show an example of mathercise. 3. Students will break into groups and invent skip-songs or mathercises for the numbers 2-10 and then teach what they came up with to the class. Students will then use these skip songs to help them fill out a multiplication chart (<i>Math Makes Sense</i>, p. 120). 4. Discuss "multiples" (what this means and how it relates to skip-counting) 5. Homework: pages 121-122 of <i>Math Makes Sense 4</i>, Math Journal: how can skip counting help me with multiplication? 	Hundred chart Multiplication chart <i>Math Makes Sense 4</i> , p. 120-122
3. Multiplication patterns	<ul style="list-style-type: none"> - Students will use calculators to observe multiplication patterns - Students will observe the rule for multiplying numbers by factors of 10, 100 and 1000 <p>Plos: 4,5</p>	<ol style="list-style-type: none"> 1. Hook: "What's 1×1, 1×10, 1×100? Do you see a pattern? Now let's try this with calculators..." 2. Students punch in a variety of combinations into their calculator using multiples of 10 and recording their results to discover the pattern (<i>Math Makes Sense 4</i>, p.131) and then share the pattern with their partner and then the class. 3. Homework: <i>Journeys in Math 4</i>, p. 128-129, Math Journal: what's the pattern when multiplying by factors of 10, 100 and 1000? Give an example of each illustrating this. *Extra practice <i>Math Makes Sense 4</i>, p. 133-134, <i>Quest 2000 Grade 4 Extra Practice and Testing Matters</i>, p. 90. 	Calculators <i>Journeys in Math 4</i> , p. 128-129
4. Estimating multiplication	<ul style="list-style-type: none"> - Students will review rounding up and down - Students will solve questions using rounding to estimate multiplication problems <p>Plos: 2,4,5</p>	<ol style="list-style-type: none"> 1. Hook: "what's rounding?" Refer back to the unit we did in January, where we rounded to the nearest ten. 2. Students work with a partner to solve the questions on the board using rounding. Ex. 36×4 They then check their answer with a calculator to see how close they got to the answer. 3. Homework: <i>Quest 2000 Grade 4 Extra Practice and Testing Matters</i>, p. 97. Math Journal: how can rounding up help us solve multiplication problems? 	<i>Quest 2000 Grade 4 Extra Practice and Testing Matters</i> , p. 97

5. Multiplying two-digit numbers	- Students will further develop their mathematical skills to be able to solve two by one digit multiplication problems Plos: 2,4	1. Hook: Ask the students to remember some of the techniques that they used the first lesson to solve the one-digit multiplication. 2. In groups students will attempt to answer some two-digit times one-digit questions on the board using either the given technique by the teacher (breaking apart and multiplying by tens, then units, then adding them together) or a technique of their choice. 3. Homework: <i>Journeys in Math 4</i> , p. 130-131. *Extra practice: <i>Quest 2000 Grade 4 Extra Practice and Testing Matters</i> , p. 99	<i>Journeys in Math 4</i> , p. 130-131
6. Multiplying three-digit numbers	- Students will continue to develop their mathematical skills to be able to multiply three by one digit numbers - Students will relate the multiplication of three digit numbers to a real-life context Plos: 2,4	1. Hook: Class discussion: “Based on how we solved the two-digit multiplication problems, how do you think we could solve the three-digit multiplication problems?” 2. Money problems: multiplying three-digit money. - Review place value, review the fact that 100 cents= 1 dollar - Students each get a money sheet. In a group, they solve the multiplication questions on the board by representing it with the money. Ask for the answer in cents, then dollars and cents. Ask how this relates to base ten blocks. Ex. If I want to buy three cookies and they cost \$5.25 each, how much will I need in total? 3. Homework: <i>Journeys in Math 4</i> , p. 132-133. Math Journal: Make up a simple money problem multiplying three digits and one digit and solve. Ex. I want to buy a cupcake for my 4 best friends and but they cost \$5.25 each, how much am I going to need in total to buy them?	<i>Journeys in Math 4</i> , p. 132-133 <i>Quest 2000 Grade 4 Teacher Support Package</i> , p.39.
7. Problem-solving with multiplication	- Students will relate multiplication to real-life context using all that they have learnt in the unit. Plos: 1,4,5	1. Hook: So now that we’ve studied multiplication, let’s look at some real-life questions that involve multiplication as well as do 2. Students solve a variety of questions from the board using multiplication in real-life context (problem-solving) then discuss as a class their answers. Students then move to individually answering math problems based on the FSAs. Ex. I’ve set up math stations for Mme. Z’s grade 4 class. There are 7 stations and each group gets 5 minutes at every station, how long will we need for each group to get through each station? Ex. There are 415 students at our school and I want to give them each 5 Smarties, how many Smarties will I need in total? 3. Give students multiplication questions based out of and similar to the grade 4 FSAs. 4. For homework: <i>Journeys in Math 4</i> , p. 136 (even questions) *Extension: odd questions.	http://www.bced.gov.bc.ca/assessment/fsa/en_samples/gr4_numeracy_pt.pdf Grid Money Base Ten Blocks

Connelly, Ralph D. et al. *Journeys in Math 4*. Canada: Ginn and Company, 1987.

Morrow, Peggy et al. *Math Makes Sense 4*. Toronto: Pearson Education Canada, 2004.

Van de Walle. *Elementary and Middle School Mathematics*. Toronto: Pearson Education Canada, 2005.

Wortzman, Ricki et al. *Quest 2000 Exploring Mathematics*. Don Mills: Addison-Wesley Publishers, 1996.

http://www.bced.gov.bc.ca/assessment/fsa/en_samples/gr4_numeracy_pt.pdf accessed March 12th, 2007.

<http://www.bced.gov.bc.ca/irp/mathk7/apannc.htm> accessed March 12th, 2007.