



**TEACHING ELEMENTARY MATHEMATICS
MULTIPLICATION
USING CONCRETE MATERIALS TO EXPLORE ABSTRACT CONCEPTS**

EDUO 9520 (1-3 units)

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COURSE DESCRIPTION

“Multiplication” gives greater meaning to multiplication concepts through [interactive activities](#) that the teacher may use with their whole class or in learning centers with small groups. The activities are consistent with common core standards and can easily be adapted to the needs of all students. (Most of the activities have extensions or modifications that allow the teacher to “tailor” the materials to the needs of their students.) The course is structured so that the teacher can choose the assignments they want to accomplish depending on the number of units (1, 2, or 3) they are taking, or select the assignments most appropriate for the students they are teaching.

OBJECTIVES

The teacher will:

1. Develop engaging student mathematical materials
2. Prepare/construct interactive activities that can be used in learning centers or with the whole class
3. Model multiplication concepts in a variety of presentations, in particular using equal additions, arrays, and factor trees

GRADING RUBRIC

A to A-	B+ to B-	Unacceptable/Resubmit
All assignments completed with good evidence of presented lesson(s)	Assignments completed	Assignments missing and/or incomplete
Followed directions for organization of assignment submissions	Poor organization of submissions	Unorganized submission - did not follow directions
Clear relevant, detailed, and thoughtful reflections	Relevant reflections, but lacking detail and insight	Irrelevant or unclear reflections

ASSIGNMENTS/REQUIREMENTS

There are two kinds of assignments: Staff Training and Major Activities.

Staff training assignment:

- Read a five page illustrated section on teaching multiplication and answer three questions
- Draw a map of your current classroom
- Draw a map of your room set up for learning centers

Major Activities:

There are eighteen activities for teaching multiplication concepts. Many of the activities have additional extensions suggested for further exploration. There are more activities provided than are needed to meet the requirements for this course. You will need to choose the activities that are appropriate for you and your students.

The chart and descriptions below lists the requirements for earning one, two, or three units.

Staff Training Components are to be completed regardless of how many units are taken.

Units	One	Two	Three
Major Activities	4	7	10
Extensions	1	3	5
Reflections	1	2	4

One unit:

- Complete the staff training assignment (B1)
- Choose, prepare, and present any four of the eighteen major activities, one related extension activity and 1 reflection for a total of five activities to complete this section
- Write a paragraph on one of the completed student activities reflecting on your experience teaching the lesson

Two units:

- Complete the staff training assignment (B1)
- Choose, prepare, and present any seven of the eighteen major activities and three related extension activities, for a total of ten activities to complete this section
- Write a paragraph for each of two completed student activities reflecting on your experiences teaching those lessons

Three units:

- Complete the staff training component (B1)
- Choose, prepare, and present any ten of the eighteen major activities and five related extension activities, for a total of fifteen activities to complete this section
- Write a paragraph for each of four completed student activities reflecting on your experiences teaching those lessons

Documentation

To document the completion of each activity submit two items:

1. A photograph showing students engaged in the activity
2. A sample of student work

(Include the appropriate number of reflections with the documentation)

Instructions for coursework submission:

When you have completed your assignments, post all coursework at one time in the Completed Coursework DropBox at the bottom of the course page. You are allowed 9 months to complete the course. If you have questions about the course, you can reach your graders by email or phone.

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For questions concerning your registration or transcripts, contact us at info@dominicanCAonline.com or see <http://dominicancaonline.com/Dominican-CA-Online-FAQ> for more information.

COURSE ASSIGNMENTS LIST

B1 Staff Training Component: Teaching Multiplication

B1a Introduction

B1b Classroom Set Up (Physical Environment)

B2 Major Activities and Extensions

B2a Major Activity: Candy Store

B2a1 Extension: Write a word problem

B2a2 Extension: Write a word problem involving money

B2a3 Extension: Design a pet shop

B2b Major Activity: Multiplication Machine

B2b1 Extension: Make a subtraction or division machine

B2b2 Extension: Make a giant multiplication machine

B2c Major Activity: Multiplication Quilt

B2c1 Extension: Make a large quilt

B2c2 Extension: Make a quilt square for addition, subtraction, or division

B2d Major Activity: Pentagon Multiplication

B2d1 Extension: Use a number cube instead of a dodecahedron

B2e Major Activity: Spring into Multiplication

B2e1 Extension: Design your own spring creation

B2e2 Extension: Apply this activity to addition, subtraction, and division

B2f Major Activity: Ladybug Multiplication

B2f1 Extension: Beetle multiplication

B2g Major Activity: The Bean Machine

B2h Major Activity: Building Rectangles

B2i Major Activity: Quilt Square Puzzles

B2i1 Extension: Use blank patterns to create additional puzzles

B2i2 Extension: Art project: Discover "nine-square" patterns

B2i3 Extension: Make a paper quilt

- B2j Major Activity: Coordinate Grid Tic-Tac-Toe
- B2k Major Activity: Dinosaur Multiplication
 - B2k1 Extension: Write two-step word problems
- B2l Major Activity: Domino Tic-Tac-Toe
- B2m Major Activity: Domino Square Puzzles
 - B2m1 Extension: Create and solve four-domino puzzles
- B2n Major Activity: Factor Trees
 - B2n1 Extension: Construct large factor trees
 - B2n2 Extension: Explore prime factorization
- B2o Major Activity: Pattern Block (copyright) Multiplication
 - B2o1 Extension: Find two-color solutions and write equations for them
- B2p Major Activity: Fractured Factors
 - B2p1 Extension: Make a large tabletop puzzle
- B2q Major Activity: Branch Multiples
 - B2q1 Extension: Cut and paste the fifth generation of branches
 - B2q2 Extension: Construct a “four-branch” tree
 - B2q3 Extension: Construct a giant “two-branch” tree on a wall
 - B2q4 Extension: Observe branching patterns in tree branches,
compare patterns to the American sycamore tree branch
- B2r Major Activity: Building Rectangular Prisms
 - B2r1 Extension: Find the surface area of a prism