

Teaching Elementary Mathematics – Fractions
Using Concrete Materials to Explore Abstract Concepts

EDUO 9555 1-4 Semester Credit(s)/Unit(s)

Instructor: Ron Kremer

rkremer@dominicancaonline.com

You must be currently teaching students to successfully complete this course.

Note: This is a Public syllabus of the course. For a full detailed syllabus please email the instructor.

Public Syllabus

Course Overview

Fractions can be very abstract. This course endeavors to make them as concrete as possible. The level of difficulty ranges from simply cutting shapes into halves, fourths, and eighths... to building three-dimensional models of mixed decimals using heavy grid paper and scotch tape. As often as possible the student activities are presented as independent learning centers, but can be easily taught as whole class activities.

Course Objectives

The teacher will:

1. Collect/develop mathematical materials and manipulatives that engage students in interactive, exploratory activities.
2. Model fraction concepts in a variety of presentations, in particular, simple unit fractions at the primary levels, and equivalent common fractions and decimal fractions at the intermediate levels.
3. Provide opportunities for students to engage in open-ended problem-solving using scientific method: Collecting data from an exploration, posting and evaluating the data, looking for patterns and organizing the data in order to find missing solutions.

Course Relation to CCS or other Professional Standards

This course aligns to the standards for: *2010 K-12 California's Common Core Content Standards for Mathematics*. Following are examples of some of the standards that are related to the activities in this course.

Grade Three – Number and Operations: Fractions

2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.
3. b. Recognize and generate simple equivalent fractions.

Grade Four – Number and Operations: Fractions

3. c. Add and subtract mixed numbers with like denominators.
- d. Solve word problems involving addition and subtraction of fractions.

Grade Five – Number and Operations: Fractions

1. Add and subtract fractions with unlike denominators.
7. Add, subtract, multiply... decimals to hundredths, using concrete models or drawings.

Course Assignments

A Staff training Component: Teaching Fractions

1. Read an illustrated section on teaching fractions and setting up a classroom for learning centers. Then answer several questions related to those topics.
2. Draw a map of your classroom showing how it would look set up for learning centers.

B Student Activities and Extensions

There are twenty-five activities for teaching fraction concepts. Many of the activities have additional extensions suggested for further exploration. There are more activities provided than are needed to meet the requirements of this course. You will need to select the activities that are appropriate for you and your students. For some of the activities you will be asked to write a reflection on your experiences in teaching the lesson.

The chart below lists the requirements for earning one to four units.
(Staff training component is required regardless of how many units are taken.)

Credits/Units	One	Two	Three	Four
Student Activities	4	8	12	15
Extensions	1	3	4	7
Reflections	1	2	3	5

Course Assessment Rubric

Excellent: Meets or exceeds course requirements

Acceptable: Majority of work meets course requirements

Not Acceptable: Needs considerable improvement

A to A-

B+ to B-

Unacceptable/Resubmit

Staff training sections A1 and A2 completed with relevant answers based on the content.	Staff training sections A1 and A2 completed. Some answers are generalities, not based on the content.	Staff training sections A1 and A2 incomplete or missing.
All student activities completed. Photo-documentation shows evidence of student participation and examples their work.	All student activities completed. Partial photo-documentation of student work, or content of photos is not relevant.	Student activities missing. No photo-documentation.
Complete heading at the top of each completed assignment.	Incomplete or incorrect headings at the top of several assignments.	Missing headings at the top of assignments.
All completed assignments organized following the order of the checklist, with the completed checklist at the top of the submission.	Poor organization of completed assignments. Checklist not placed at the top of the submission.	Unorganized submission- did not follow directions. No checklist included.
Clear, relevant, detailed, and thoughtful reflections.	Relevant reflections, but lacking in detail and insight.	Missing reflections, or reflections are irrelevant.
Submission is free of spelling and/or grammatical errors.	Submission has several spelling and/or grammatical errors.	Submission has numerous spelling and/or grammatical errors.

- You are allowed 9 months to complete to course.
- For questions involving your registration please contact us at support@dominicanCAonline.com or call (800) 626-5080. To change your address, link to your Dominican Store account at https://www.dominicancaonlinestore.com/store/index.php?main_page=login
 - For Dominican Self-Guided course information, link to <http://dominicancaonline.com/Domincian-CA-Online-FAQ>