

M316K HANDOUT: PROJECT 2, FRACTION LESSON PLAN

Due: Dec 5, 2008

The objective of this project is to write a lesson plan that you might use in a one-on-one or small group situation to develop both conceptual understanding and procedural fluency in one aspect of fractions.

Imagine that you work for a tutoring company and are responsible for writing a certain number of lesson plans that will be used by the other tutors in one-on-one or small group settings. Your company advertises that it helps children build not only procedural fluency in mathematics, the ability to perform computations correctly, but also conceptual understanding, the knowledge of why the process works and an understanding of the underlying structure of mathematics. Each lesson plan should include a set of assessments so that the tutors can check to see if the students have achieved the objective(s) of the lesson. They should be written, using the format and instructions provided below, with enough detail so that other tutors can implement them easily.

Choose one fraction topic from the following list about which to prepare your lesson plan:

1. Definition of Fractions and Creating and Recognizing Equivalent Fractions
2. Creating and Recognizing Equivalent Fractions and Converting between Fractions and Mixed Numbers
3. Comparing Fractions and Recognizing Equivalent Fractions
4. Adding Fractions and Mixed Numbers
5. Subtracting Fractions and Mixed Numbers
6. Multiplying Fractions and Mixed Numbers
7. Dividing Fractions and Mixed Numbers

LESSON PLAN FORMAT

I. **Title:** Lesson Name

II. **Content:** One sentence statement describing the subject of the lesson

III. **Learning Objectives:** What the students will learn. You are required to have both procedural and conceptual outcomes. You might write two sentences as follows:

The students will be able to [name the skill].

The students will understand [a description of the concept].

Be as specific as possible in your description as the remainder of the plan will refer back to these goals.

IV. **Prerequisites:** Indicate what the student must already know or be able to do in order to be successful with this lesson. List at least two specific skills and/or understandings students must possess in order to master the learning objectives of this lesson and write a sentence for each one explaining why it is necessary background knowledge.

V. **Connection to Overall Goals:** Describe how mastery of the learning objectives contributes more generally to an understanding and competency of fractions as defined by the entire list of lesson choices.

VI. Instructional Procedures: Description of what tutors and students will do. This section should be the longest. You should provide example problems with detailed answers for the tutors and suggestions for when a student is ready to move on. You should provide enough detail that a tutor could use your plan without having taken this course and without doing any extra planning beyond reading your plan. Provide a list of problems that you think is more than long enough for an average student to develop understanding and mastery. You might explain why you have chosen the examples, and what you think they illustrate about the topic. It is also usual to write within this section about expected mistakes students might make or questions they might ask. You cannot anticipate everything, nor should you try, but you should provide some ideas for the tutor.

VII. Assessment/Evaluation: Write a list of assessment questions that can be used to check that the learning objectives have been met. These exercises should test for both fluency and understanding, and you should write a sentence about each one describing the skill or concept that it tests. A tutor would use these at the end of a session, or perhaps at the beginning of the next session to check that the objectives have been met and the student is ready to progress.

SCORING RUBRIC

1. Learning Objectives: (6 points) Each objective or set of objectives, the procedural and the conceptual, will be graded out of three points.
2. Prerequisites: (2 points)
3. Connection to Overall Goals: (2 points)
4. Instructional Procedures (10 points): The following five aspects will be graded:
 - Overall plan could be followed by tutor
 - Activities meet the learning objectives
 - Effective presentation of the example problems and solutions
 - Comprehensive explanation of the basis for the choice of example problems
 - Instructional procedures are well-written
5. Assessment/Evaluation (5 points): The following three aspects will be graded:
 - Assessments together address all of the learning objectives
 - Assessments are well-written
 - Commentary about what the assessment measures is correct