

**Fifth Grade Math  
Higher Order Thinking (H.O.T.) Lesson 5  
Tangram Fractions**

**Wednesday, November 28, 2007**

**Learning Objectives:**

The student will be able to –

1. Deconstruct a shape into given smaller shapes (in multiple different arrangements)
2. Find part-to-whole fractional relationships
3. Find fraction-of-a-fraction relationships (need to multiply fractions)

**Language Objectives:**

The student will be able to –

1. Provide appropriate definition for equivalent fractions
2. Use fractional language, for example: fourth, quarter, third, etc.

**Materials:**

1. Math message
2. Tangram puzzle pieces
3. Lesson Worksheets
4. [Additional worksheets from M<sup>3</sup> project served as supplements]

**Procedures:**

1. Have students complete math message that involves drawing equivalent fractions.
2. Present students with tangram puzzle pieces. Challenge them to put the pieces together to make a square.
3. Once one student has created the square, hand out the key and ask students to create the big square shown on the picture. Explain how the ultimate objective will be for them to find the fractional parts of each smaller shape to the bigger square.
4. Hand out scaffolding pages in succession. Allow students to complete one before handing out the next one. Ask students to find ways to break up these shapes into smaller shapes using the shapes from the puzzle. Ask them to make observations about this process and what they notice. Students should find at least 4 ways to break up the shapes on the 2<sup>nd</sup> and 3<sup>rd</sup> pages.
5. Discuss the fractions on each page.
6. Direct students to look at the big square puzzle again and find fractional relationships from each shape to the larger square.
7. Distribute hint and think cards as necessary.

**Closure:**

Have students reflect on the process and what they have learned about fractions from this activity.

**Assessments:**

1. Observations
2. Student work – drawings and fractional notations
3. Whole-class discussion to review vocabulary