

# Lesson Plan for KNP Activity

## F 7701.1: Fraction Squares - I can share!

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| <b>Teacher Planning Notes:</b>                                                                                                                                                                                                                                                                          |                                          |
| <b>Task Group Number:</b> 7701                                                                                                                                                                                                                                                                          | <b>Task Group Name:</b> Fraction Squares |
| <b>Strand:</b> Fractions                                                                                                                                                                                                                                                                                | <b>Activity Level and Color:</b> 1 Red   |
| <b>KNP Activity Link with access to Printables and Student Instructions:</b><br><a href="/knp/activity.php?id=7701.1&amp;prefix=F">/knp/activity.php?id=7701.1&amp;prefix=F</a>                                                                                                                         |                                          |
| <b>Numeracy Target:</b> Emerging partitioning (e.g. partitioning to create halves, thirds, etc.)<br><a href="#">Numeracy Targets Chart</a>                                                                                                                                                              |                                          |
| <b>Fluency Benchmark:</b> Fractions Fluency with fractions                                                                                                                                                                                                                                              |                                          |
| <b>Kentucky Academic Standard(s):</b> <a href="#">KY.1.G.3</a> , <a href="#">KY.2.G.3</a> , <a href="#">KY.3.G.2</a>                                                                                                                                                                                    |                                          |
| <b>Student-Friendly Learning Target:</b> I am learning to partition rectangles to make two, three or four equal shares.                                                                                                                                                                                 |                                          |
| <b>Suggested Student Grouping(s):</b> partners/small group                                                                                                                                                                                                                                              |                                          |
| <b>Materials:</b><br>Paper cut outs of rectangles (including squares), sorting mat (1 per group), recording sheet (at least 1 per person), people cube (showing 2 to 4 stick figures on each face of the cube), pencils, scissors, straight edge and/or popsicle sticks, tape or glue stick (optional). |                                          |

**Activity Description:**

For one round, each student will need at least two paper cut-outs of a rectangle (including squares). All students should use cut-outs of the same size & shape within one round. A Black line master is included in the print link for different rectangles. (It is recommended that you also make your own of varying sizes and proportions using whatever resources are convenient. See the teacher note.) Explain that the shape is a "cake" (or brownie) that will be shared. Roll the number cube (or choose) a number of people to share the cake. Each student should cut, fold or draw on his or her shape to make equal shares, then place his or her work on the "fair" side of the recording sheet. (If a student makes an error allow him/her to place his/her work on the "not fair" side. Each student should also cut, fold or draw at least one shape that is NOT fair, placing it on the not fair side of the recording sheet. Allow students to use popsicle sticks to plan cuts on the shape.

As students work, ask questions such as "Is that a fair way to share the cake? Do you have the right number of pieces? Does everyone get the same amount of cake? How can you verify that?" You may additionally ask students to color the share for one person and/or name the size of that piece (i.e. half, third, fourth or quarter). Highlight effective strategies. For example, when making fourths, students can halve and halve again.

Model appropriate language using vocabulary such as "halves, thirds, fourths, quarters" and "a half, a third", etc. Students should compare their work. Ask questions such as "Is there more than one way to share the cake fairly?", "How do you know that the shares are equal?", "Is a share in this cake equal to a share in that cake?" and "Would everyone get the same amount if we cut a cake this way as compared to that way?" Bring attention to explanations that emphasize the amount of cake (area of the piece) rather than the shape of the piece. Record the name of the share using the word and not the symbol (i.e. write "one third" and not " $1/3$ "). When students seem comfortable, have students work individually on the recording sheet, specifying if they should show halves, thirds or fourths.

**Teacher Notes:**

If targeting standard 1.G.3, the die should include faces with exactly 2 or 4 stick people (omit 3). As an enrichment, student might be asked to share cakes into 6 or 8 equal pieces. The rectangles may be much larger than those included on the master. For example, each student could be given a full or half sheet of paper. Consider having student place work on chart paper or a bulletin board (replicate the "T-chart" format of Sorting Mat).

The following suggestion comes from the IES Practice Guide "Developing Effective Fractions Instruction for Kindergarten through 8th Grade" on page 15: "Students may be tempted to use repeated halving for all sharing problems, but teachers should help students develop other strategies for partitioning an object. One approach is to have students place wooden sticks on concrete shapes, with the sticks representing the slices or cuts that a student would make to partition the object."

**Evidence of Learning (Diagnostic Assessment of Progress):**

Give student a paper rectangle and ask "Fold or draw on this paper to show me fourths." Similarly, give student a circle and ask for a thirds. (Note - thirds are more difficult than halves or fourths for most students).

**KNP ID #F 7701.1**