Estimating Fractional Parts

**Materials:**

* 1 red dice\*
* 4 random polyhedral dice\*\*
* a set of parentheses
* 3 operation dice\*\*\*
* Notebook paper
* Pencil

**Objective:**

Using dice and order of operations, students are to get closest to a target number.

**Process:**

1. Pairs need 1 red dice, 4 random polyhedral dice, a set of parentheses, and 3 operational dice.
2. Roll the red dice. This is the Target Number.
3. Roll the remaining dice (4 polyhedral dice and 3 operational dice).
4. Students rearrange the numbers and use the operations in any form to get as close to the target number as possible.
	1. Students may use their parenthesis if necessary, to comply with order of operations.
5. On notebook paper, students record their mathematical phrase.

\*The *red dice* may be substituted for dice of any color and any number of sides. We suggest using a polyhedral dice that is designated specifically for the target number.

\*\*The *4 random polyhedral dice* may be any color and have any number of sides. We suggest using four different polyhedral dice to provide a variety of numbers. For example, use a six-sided dice, a 10-sided dice, a 20-sided dice, and a 10-sided dice with multiples of tens.

\*\*\*Operation dice should not contain an equal signs or inequality signs. If operation dice have blank sides, either provide students with a free choice for an operation or use a permanent marker to make other operation signs like $\sqrt{x}, \sqrt[e]{x}, x^{2}, x^{e},$ etc.