Rules: **The Remainder Game**

Students are in pairs (or can add a 3rd if class numbers dictate it).

Each pair of students should have 15 beans, a six-sided die, 6 bowls or cups, and a whiteboard or other place where they can record their data.

At the beginning of a turn a student decides how many beans they want to use – 13, 14, or 15.

They then roll the die and whatever number they roll is the number of bowls (equal shares) they use.

They distribute the number of beans they chose into the bowls.

If they cannot make equal shares, then they have a remainder.

Students should record each turn of play.  Ie 13÷4 = 3  remainder 1.  (This equation should be stated, “13 beans shared by 4 people gives each person 3 beans and there is 1 remaining bean.”

The remainders should have their own column.

After 5 rounds (or whatever number you choose) pairs of students should add up all their remainders.

The winning pair has the highest total.

Your more mathematically advanced students will realize soon, which number leads to the highest rate of remainders.  (It’s “14”, not “13”, because even though 13 can only be divided evenly by “1”, it only yields remainders of 1 when a 2,3,4, or 6 is rolled.  The number 14 can only be divided evenly by 1 or 2, and the remainder for 3,4, and 6 is “2”, while 5 has a remainder of “4”.  15 has remainders of “3” for 4 and 6, but can also be divided by 3 and 5, so there is only a 50-50 chance that you will have a remainder.  The able mathematicians realize this very quickly.

The Remainder Game

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| # chosen | # rolled | Equal shares picture | Remainder | Number story |
| 13 | 3 |  | 1 | 13-3=4 R1 |
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