

Nerdo the Mathnificant Dicey Situation

Overview

This is a trick which is numeric in the process, but can be solved algebraically. This is a group activity which everyone can do individually.

Materials

Two large foam dice

Steps

1. Pick a volunteer (V) to be in charge of this trick.
2. Turn your back to the audience and tell them to follow your instructions.
3. Have V roll both dice.
4. Ask V to add the numbers on the dice.
5. Instruct V to pick up one of the dice and add its bottom number to the total.
6. Instruct V to roll that same die again.
7. Add the number rolled to the total.
8. You can now turn around and look at both dice
9. Add 7 to numbers facing up and announce that this is the V's number.

Math

3. $x =$ number on the first die, $y =$ number on the second die.
4. $\text{Sum} = x + y$
5. Since the sum of any number on a die and the number opposite it equals 7, the opposite $= 7 - x$. Sum is now $x + (7 - x) + y$
6. $z =$ number on last roll.
7. Sum is now $x + (7 - x) + y + z$
8. This simplifies to $7 + y + z$
9. In other words 7 plus the sum of the two dice showing.

Example

3. $x = 3, y = 5$
4. $x + y = 3 + 5 = 8$
5. $7 - x = 7 - 3 = 4, 4 + 8 = 12$
6. $z = 2$
7. $12 + 2 = 14$
8. $z + y = 2 + 5 = 7 + 7 = 14$