

Box The Numbers

This is a game for two players, played on a small grid of dots – in any rectangular array. Between each “square” of dots record a positive or negative integer – shown in *figure a*.

On each turn, a player adds a vertical or horizontal edge between neighboring dots – Shown in *figure b*.

If you complete a square, record your initial, color it in, or mark it as yours. Keep score on separate piece of paper. When the whole board has been claimed, add and subtract the points to find each player’s total score.

Whoever has the most points at the end wins.

Variations:

- Make a larger grid of dots.
- Increase the size of the numbers
- Use fractions and or decimal along with integers,
- Add in a little multiplication to super charge your scores.

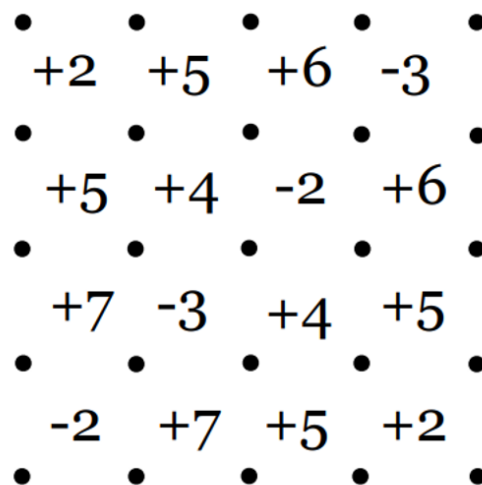


fig. a

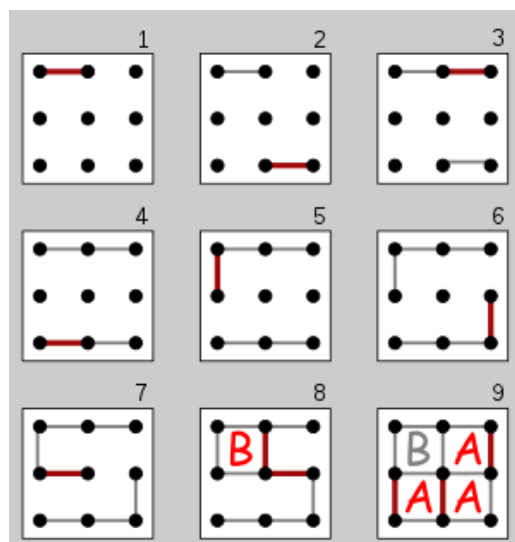


fig. b

Counter Example

Counterexample is a fun, quick way to highlight how to disprove conjectures by finding a counterexample. The leader (usually the teacher, though it can be a student) makes a false statement that can be proven false with a counterexample. The group tries to think of a counterexample that proves it false.

The best statements usually have the form “All _____s are _____” or “No _____s are _____.” You can also play around with statements like “If it has _____, then it can _____.”

- All birds can fly. (Counterexample: penguins)
- All books have pictures in them.
- If something produces light, then it is a light bulb.
- If something has stripes, then it is a zebra.
- (harder) No square has a perimeter equal to its area. (Counterexample: a 4 by 4 square.)
- Multiply two numbers and you end up with a product greater than both the numbers you started with.
- The factors of a number (not including itself) add up to less than that number. I.e., 16 has factors 1, 2, 4, and 8. Their sum is 15, which is less than 16.
- If a rectangle’s perimeter is not an integer, neither is it’s area.

Dear 4th & 5th Grade Families,

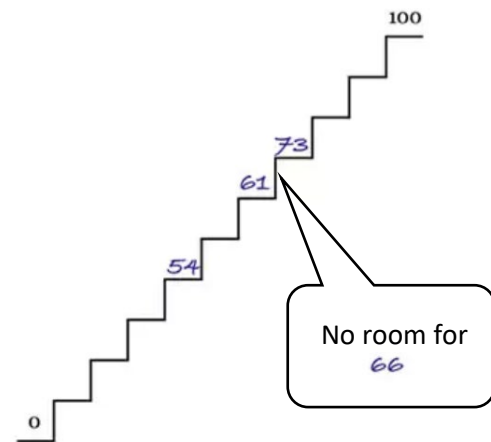
Here is a fun, simple math game that you can play with your child(ren) at home during this week.

Fill the stairs.

Create a staircase 0 – 100 with 11 steps. Roll two *ten-sided dice* or pick two single digit cards to make a two-digit number and write it in on one of the stairs. Each number you write in must be bigger than all the numbers below it, and smaller than all the numbers above it. If you can't use a number, write down the number under the stairs, and skip your turn.

The game is over if someone fills in all the steps in their staircase.

Variations: Discuss what you can you change to make the game easier or more challenging.



In order to get numbers like 44 or 99 you will need two sets of dice or numbers. Since many families may not have two 10-sided dice around, you can use the attached spinner and cards, or go to virtual dice roller at: <https://www.google.com/search?q=dice+roller>

