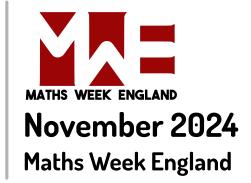
MathsJam Shout



Maths Week is a week-long FREE celebration of all things maths - aiming to raise the profile of the subject whilst, at the same time, encouraging people to pursue maths by promoting a more positive and inclusive approach. Visit the website at **mathsweekengland.co.uk** for free resources, including daily video puzzles, problem solving activities and more.

Puzzles Bits and Pieces

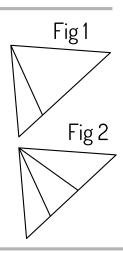
Three friends together play 2 computer games, each of which they can play only once. Game A takes 15 minutes and Game B takes 5 minutes. The problem is that there are only 2 computers. Ignoring the time taken to swap players, what is the minimum time needed for all 3 friends to play both games?

You are allowed to perform two operations with numbers: "doubling" and "increasing by 1". If you start from zero, what is the smallest number of moves needed to build up to exactly 100? Is there a general rule for how many operations you need to get to a number?



+1

In Figure 1, a single line is dropped from the top of a triangle to its base, and a total of 3 triangles (of any size) are formed. In figure 2, two lines are dropped and a total of 6 triangles are formed. How many triangles in total will be formed if I drop ten lines from the top to the base?



Make Flippin

Based on a 1994 article in Mathematics in School by Peter Padilla, which credits an unamed 'Australian colleague'.

You will need: printouts (from the link below), scissors, paper glue

Use the instructions provided to make a Digit Flipper (three different designs of flipper are included in the printout).

ach flinner:

Some guestions to ask, for each flipper:

- How many different four-digit displays can be made?
- What is the largest/smallest total possible?
- What is the largest/smallest product possible?
- Use a random number generator to create a total. Can you find (one or more) arrangements of the flipper so that this total can be made using those four numbers and addition/subtraction/multiplication/division?
- How many different two-digit numbers can be found (running in any direction)?
- Find all the two-digit primes, two-digit squares and two-digit cubes you can make on each flipper.

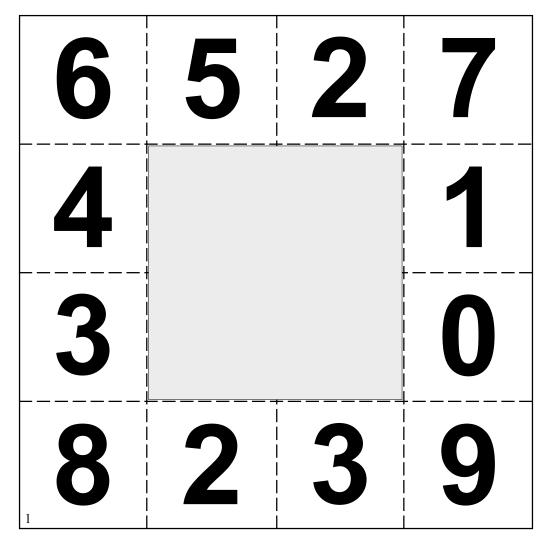


Printout: bit.ly/digit-flippers

MathsJam Shout is a monthly sheet of ideas for activities to do at a MathsJam night. It's created using suggestions from a different MathsJam each month, and if you'd like to submit suggestions for a month in the future, email **katie@mathsjam.com** for details.

MathsJam is a monthly opportunity for like-minded self-confessed maths enthusiasts to get together in a pub and share stuff they like. Puzzles, games, problems, or just anything they think is cool or interesting. Monthly MathsJam nights happen in over 70 locations around the world, on the second-to-last Tuesday of each month. To find your nearest MathsJam, visit the website at **www.mathsjam.com**.

Digit Flippers



- 1. Cut around the outside line of the square.
- 2. Using the dotted lines as guides, fold the whole sheet in half in both directions, creasing the folds both ways. Unfold, and fold each of the four edge strips in, creasing the folds both ways then opening out again.
- 3. Cut out the grey square from the middle.
- 4. Turn the square over, and apply glue to the middle two squares on the left and right. Bring the top down to fold the sheet in half (with the numbers on the outside), sticking those pairs of squares back-to-back. (You should now have a four-by-two grid of numbers, with two tabs sticking out of the front.)
- 5. Repeat step 4 with the middle two squares on the top and bottom. You should have a two-by-two grid of numbered squares, with four flaps sticking up that can be folded either way, with numbers on each side.

3	1	5	8
0			2
4	† 		6
	9	4	5

5	7	6	2
3			1
0	T 		4
2	9	8	3

