Math Bomb I

Contents

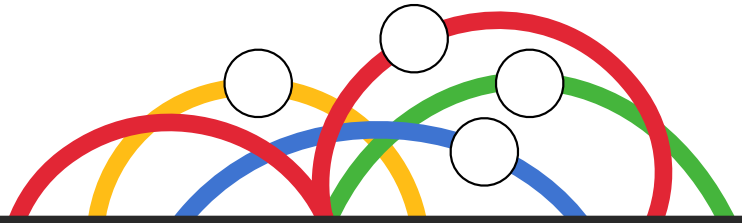
Welcome to MATH BOMB. This is a fun, interactive mathematics experience where students defuse a bomb. This package includes 4 components:

1. Bomb Video: The bomb video can be found at this link. The timer is set at 40 minutes. The activity can take shorter or longer depending on the group of students you are working with.
2. Answer Sheets: Has prompts to guide students through the bomb defuse.
3. Manual: Printable instructions to defuse the bomb.
4. Solutions: A filled in answer sheet for reference.

This bomb is intended for grade 6-9 students, but can also work for gifted grade 2-5 students or as a fun activity for grade 10 and above students. Below is a brief description of some mathematics concepts that are required to defuse this bomb:

- Counting # of divisors a number has.
- Logic and reasoning.
- Properties of quadrilaterals.
- Simple shape algebra (with some tricks).

Write the order of wires cut in the circles



Shade the cells with switches that are "ON"

Connect the right plugs

Shade the buttons pressed

Write the codes you enter

There are five coloured wires that hang off it's side. Cut the blue wire before you cut the yellow and green. Cut the yellow wire after the green. Cut the purple wire before the blue, but after the red!

There is a five by five grid on the bomb with twenty five green switches. When turned on, each switch will add a value of 1-5 depending on whether you are summing the row, or column.
The red polygons on the edges of the grid each have unique integer values. Each row/column must sum to the value of the corresponding polygon. If you're still unsure how to follow this schematic, I've included an example below:

	1	2	3	4	5	
1	On	Off	On	Off	On	9
2	Off	Off	On	Off	Off	3
3	Off	Off	Off	Off	Off	0
4	Off	Off	Off	Off	On	5
5	On	Off	Off	Off	Off	1
	6	0	3	0	5	

The red shape with all equal sides has the value 7. The red shape with 4 equal interior angles has the value 11. The red shape that is a quadrilateral has the value 8. The red shape with exactly one pair of parallel sides has the value 6. The red shape that is a rhombus with 4 equal interior angles has the value 12. The red shape with two pairs of equal adjacent sides that is not a rhombus has the value 5.

There are circular power inlets that lay next to the bombs sides. To overcharge the bomb you'll need to connect the sockets on the top of the bomb to the sockets on the bottom so that the numbers on the two sockets share the same number of divisors.

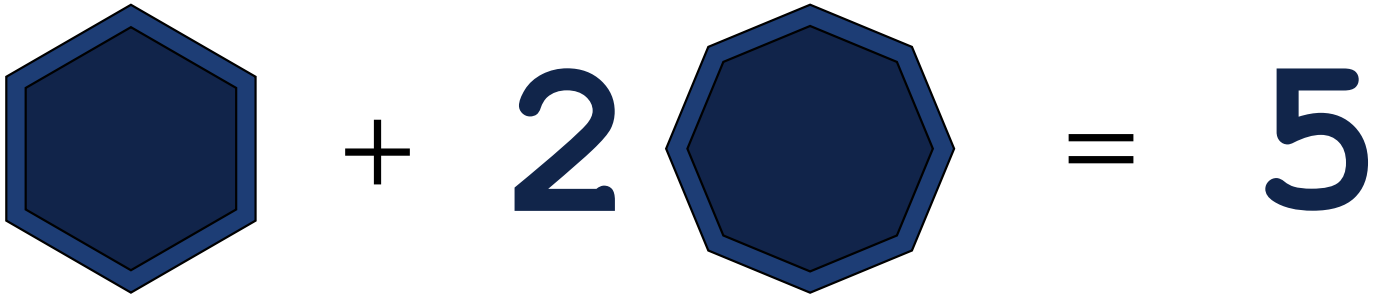
There are blue buttons that are shaped like regular polygons. Each button has a unique value. Press a set of buttons together so that their sum is 9. The order you press the buttons doesn't matter, just don't touch the wrong ones!

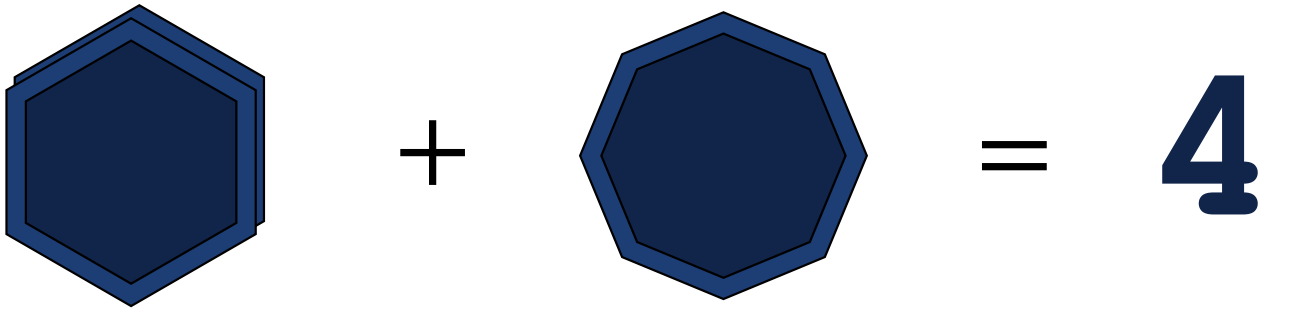
There is also a keypad on the bomb that requires you to enter three unique codes in succession. Follow the directions below:

The first code is *obvious*.

The second code is $1 \downarrow \rightarrow \rightarrow \uparrow \leftarrow$

The third code is s + $\{2, 4, 6, 8, 10, 12, 14\}$, teen teen teen teen, 


+
2
=
5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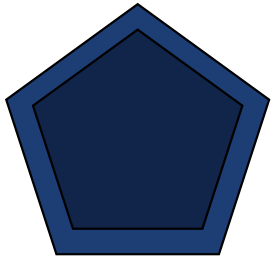
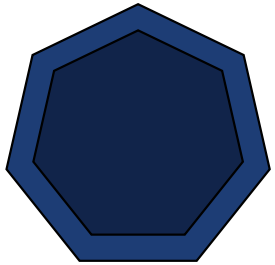
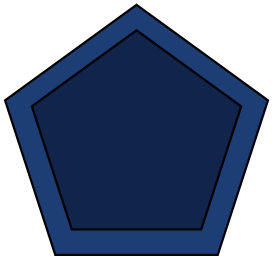
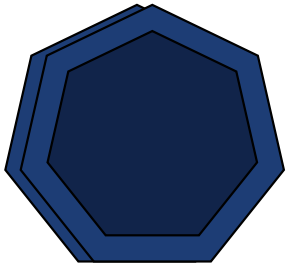
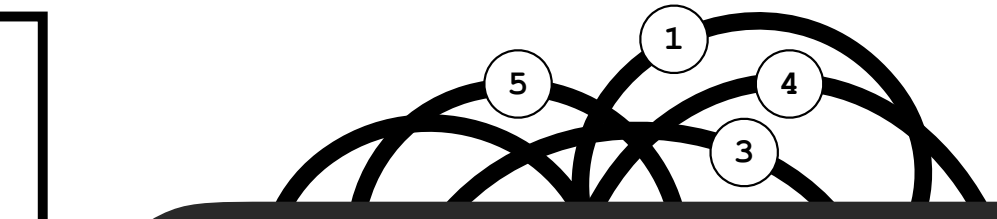
4

3  +  = 13

 +  = 11

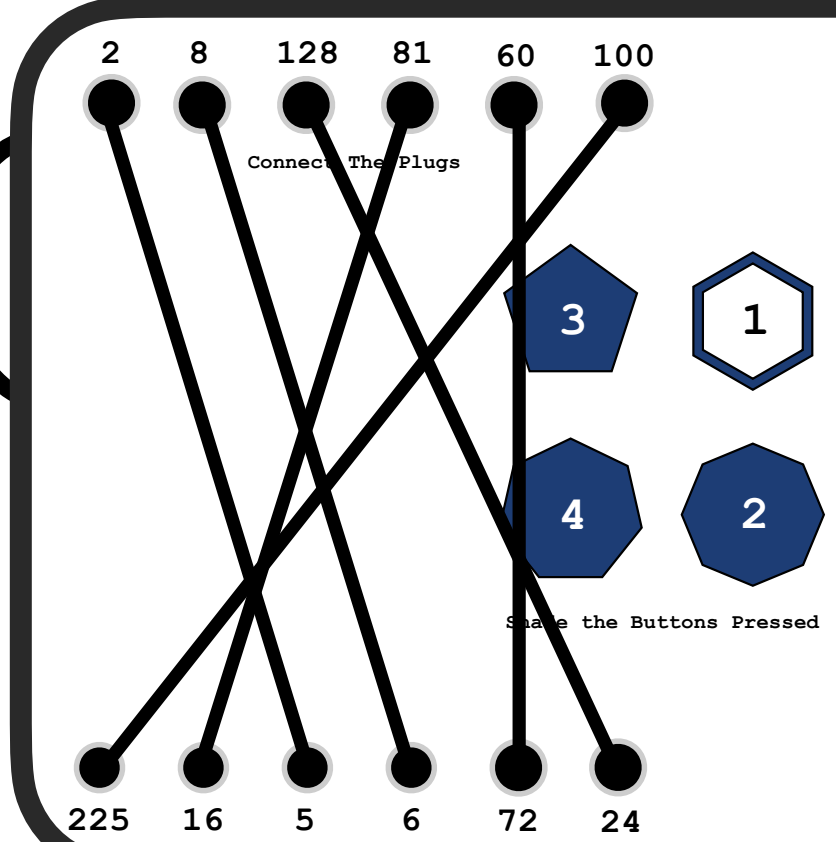
1. Red
2. Purple
3. Blue
4. Green
5. Yellow

Write the order of wires cut in the circles



Write the codes you enter

1. 5183587
2. 145632
3. 7141



Shade the cells with switches that are "ON"