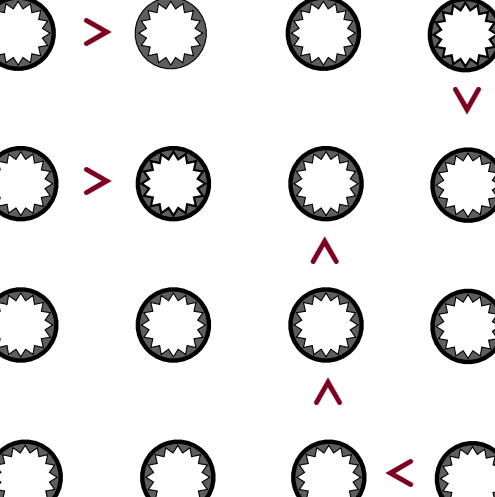# Math Bomb III

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.
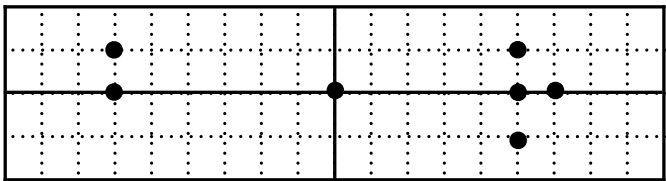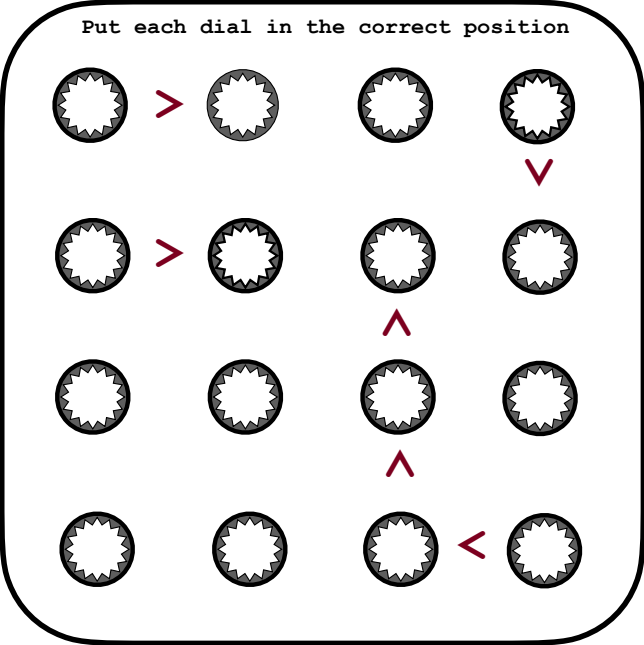
4. Solutions: A filled in answer sheet for reference.

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:

- Shape algebra (count the points!).

- Angles of rotation.

- Inequalities.

- Counting # of divisors a number has.
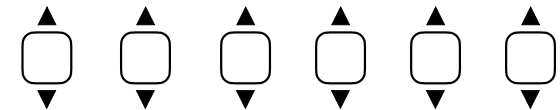
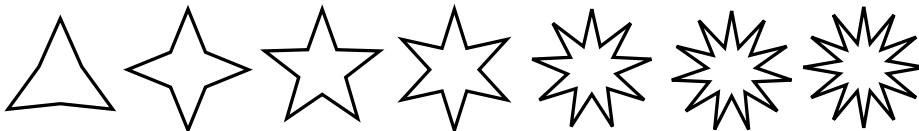- Logic and reasoning.

Put each dial in the correct position

Plot the Points that you enter

Write the codes that you plug into the keypad

Write the digits for each number submitted

Shade the buttons that are pressed

On the bomb there are six digits that must be entered using digit entry system. Each digit corresponds to the number of positive divisors that the number on top of it has.

There are 7 green star shaped buttons on the bomb that each have a unique value. You must shade all the buttons that are *deactivators*.
A button is a *deactivator* if the following holds true: When the button's value is removed from the set of all values, the mean of the remaining six values is an integer.

On the bomb there is a computer screen showing a green cartesian plane. You must enter ten coordinates using the entry system below the screen. The following describes the key for each coordinate.
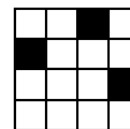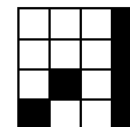
1. (2,1)

2. (-2,0)

3. (-4,1)

4. (1,0)

5. (0,-1)
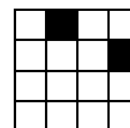
6. (0,0), then

7. (-3,0), then

8. (0,0), then

9. (-2,2), then
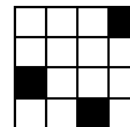
10.(3,0), then

There is a 4×4 grid of dials on the bomb. The dials may only point North, East, South, and West, and each position corresponds with a unique value.
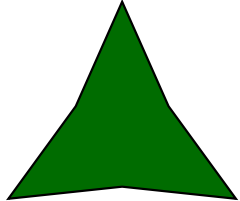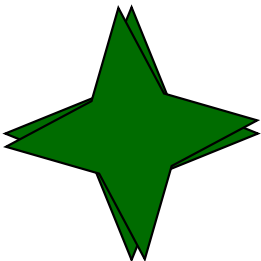
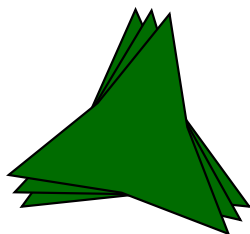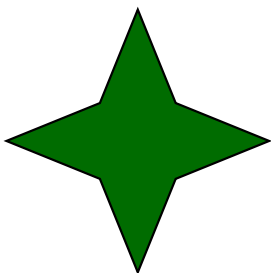Dials that point North are worth 1.

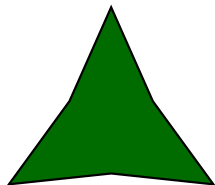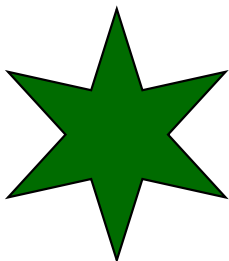Dials that point East are worth 2.

Dials that point South are worth 3.

Dials that point West are worth 4.

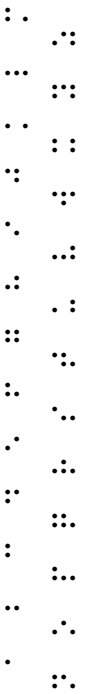Each row/column of the grid must have exactly one dial pointing in each direction. Make sure that the inequalities hold!

▲ + ✦ = 22

▲ + ✦ = 26

▲ + ✶ = 18

Put each dial in the correct position

(2) > (1)   (4)   (3)

(4) > (3)   (1)   (2)

(3)   (4)   (2)   (1)

(1)   (2)   (3) < (4)

Plot the Points that you enter

FASTER

Write the codes that you plug into the keypad

▲ ▲ ▲ ▲ ▲ ▲
2   6   6   9   12   24
▼ ▼ ▼ ▼ ▼ ▼

Write the digits for each number submitted

6   8   10   12   18   22   24

Shade the buttons that are pressed