

Zombie Apocalypse

Common Core State Standards - Mathematics

1. Use functions to model relationships between quantities (M.8.F.4)
2. Analyze and solve a system of linear equations (M.8.EE.8)
3. Make sense of problems and persevere in solving them (MP.1)

Materials

- o Breakout Box (www.breakoutedu.com) with locks, boxes, zippered bag, black light, hint cards and reflection cards
- o Cardstock: white (5), green (5), blue (3), and pink (5)
- o Coordinate grid paper (5)
- o Dry-erase sleeves (23)
- o Dry erase markers and cloths
- o Calculators and formula charts (half of the # of students)
- o Powerade or colored water in a vial
- o Timer (or project countdown timer on screen)
- o Sets of mathematics problems
- o Whiteboard
- o Video that introduces students to the challenge of finding the antidote before the Zombies attack
- o Paper that states, "Hit Play"

Preparation

- Set locks to codes that match the tasks.
- Each set of problems is copied on a different color of cardstock and laminated to delineate groupings.

Lock #1 is 3-digit Lock: Set to 460

Green card stock

1. y-intercept – (4)
2. equation – (6)
3. slope – (0)

Lock #2 is directional lock: Set to $\leftarrow \rightarrow \uparrow \downarrow \leftarrow$ (left-right-up-down-left)

Green card stock;

Questions set on the wall **in order** sequence

1. Slope and y-intercept – Left
2. Slope and y-intercept – Right
3. Slope of 0 (zero) – Up
4. Slope of 0.75 – Down
5. Largest slope – Left

Note: Solve where lock is positioned to show arrows horizontally; line-up arrow is to the right of the code

Lock #3 is word lock: Set to ALIVE

Pink card stock

Multiple choice with letter options to spell a word scrambled

(*Adaptation*: Number questions instead of requiring scrambled letters to be solved)

Cure for the Zombie Plague: Making Math Social

1. Which of the following shows the slope and y-intercept... – A
2. A discount music store... – L
3. Sophie earns... – I
4. What is the rate of change... – V
5. What are the slope and y-intercept... – E

Red Herring (Does not Match to a Lock)

White card stock

Coordinate Grids

Grid covered in pocket sleeve, taped on top

5 sets of coordinates, each set traces to draw the letter H, U, R, R, Y

Large Box contains calculators and formula charts

Small Box contains a vial of the antidote (Powerade or colored water)

Key to Large Box hidden under AppleTV box

“When someone thinks of a teacher gift, they think of this fruit; but what if they thought of the electronic fruit instead?!” written on the whiteboard on one wall

Optional: Locked zipper bag with black light inside (key held by teacher)

Notes for Teachers

- ❖ Include a SPED or ELL teacher to assist and facilitate but not let them have answers ahead of time so participate as a learner also but not solve for students
- ❖ Helping teachers let go and allow students to try to solve
- ❖ Can change up how the locks are coded.
Example: A teacher used solving inequalities with directional arrows, like $x < 5$, shade left of 5 on number line, so arrow would be left
- ❖ Black light – press down on marker, use lighter card stock (such as yellow, lime green)
- ❖ Card stock – each color goes with a different lock
- ❖ Laminated to be able to use over again (or sleeves taped at the top)
- ❖ Reflection cards – quick write prompts
- ❖ Be intentional about how locks are positioned
- ❖ Word lock & directional locks – videos on how to change the locks can be found on web site www.breakoutedu.com
Password: showyourwork
Word usually goes with the theme
- ❖ Other Ideas for Engage:
 - “I’m a Walking Dead **Fan!**” written on board; Teacher: “Things that are helpful are on this wall, this wall, and this wall,” and keeps repeating until someone sees the phrase, recognizes word **fan** is in red and then they go look behind fans (key hidden behind a fan)
 - Black light highlights BEANS – for 5 letter lock
 - Alien time ticking under clock is a rectangle with sides of length 10 and 12, calculate area is 120, unlocks box (task does not necessitate a calculator)

Cure for the Zombie Plague: Making Math Social

Engage

Key is hidden in the room; must find to unlock the large box that contains the calculators & formula charts

- Start by not letting students in the room, instructions given in the hall by a co-teacher while room is being set up
- Students enter and read this hint on the board: “When someone thinks of a teacher gift, they think of this fruit; but what if they thought of the electronic fruit instead?!”
- When they find the hidden key, they can unlock the large box

Explore

- Video is ready, paper says “hit play”
- After video, students walk around and solve as they choose
- Countdown timer is set (35 minutes for students, 10 minutes for teachers)
- Provide enough calculators and dry erase markers for **only half** of class of students, encourages partners
- Students can ask if correct, teacher answers how many are or not, but cannot ask which ones
- Warn students that one of the sets does not actually open a lock

Evaluate

Time recorded for each class and compete with other classes, class with best time wins a prize
Teacher facilitates questions and prompts students to keep engaged by asking, “Which one would you like to choose to do?”

Explain

Hint Card: If used, provide lock combination or key to open the small zipper box that contains the black light; given to quietest kid and whole class must agree to ask for the hint Triangles numbered in order with the black light marker

- Riddle one, easier riddle provided
- May use one or two, or not at all – if not used it forces teacher to walk around and prompt their thinking

Take note of which problem(s) the students are struggling to answer

- Plan enough time to discuss the problems
- Debrief each task as needed

Evaluate

Conclude with a quick write using a reflection card

Appendix of Tasks:

Located in this folder https://drive.google.com/open?id=1Ib2QNRgMLXzE70j8x6cGThSS_ij4duPR