

SPY ESCAPE

destination: Söldenia

TEACHER'S GUIDE

Grades 3 - 6



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STORYLINE

Two decades ago, American scientists began a Top Secret collaboration with Söldenia—a small, prosperous mountain country between Austria and Italy. At the time, it was believed that the team was on the verge of developing a serum with powerful regenerative properties. Although this serum would be a valuable medical breakthrough, it could also make any enemy force excessively powerful, and so the research was kept confidential. But soon strange rumors started to emerge—of failed experiments, mutant test subjects, and conflict among the scientists. When one of the American team was badly injured, the collaboration quickly fell apart, with each side accusing the other of sabotage. Ever since, the relationship between the two countries has been tense, and the collaboration is never spoken of.

Recently, new information has come to light, suggesting that the scientists were even closer to developing the serum than previously supposed, and the American government is eager to return to the research. Still, American officials are afraid to bring it up with the Söldenians, lest it inflame tensions between the two countries.

Your mission, should you choose to accept it, is to break into the old facility—deep in the Söldenian Alps—and discover what went wrong all those years ago.

LOCATION

Söldenia, a small, prosperous mountain country between Austria and Italy. The lab is located deep in the Söldenian Alps.

CHARACTERS

Morris Miller - Lab Manager for the American scientists
(initially an ally; also the secret source of the sabotage)

Dr. Anja Baumgartner - Lead scientist for the Söldenian delegation
(initially attempting to keep the team from accessing the lab, where she still secretly lives and works; later, she becomes the team's ally.)

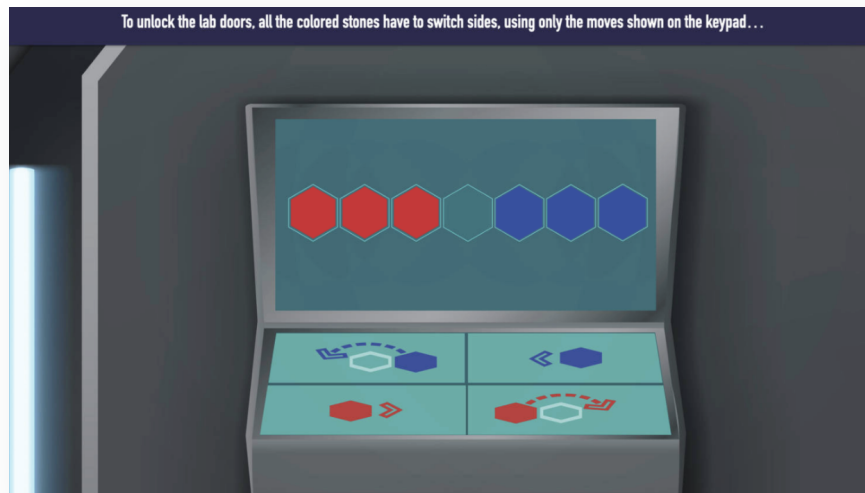
DAY 1

Break into the Top Secret lab
(while potentially being
interfered with by Dr. Baumgartner).



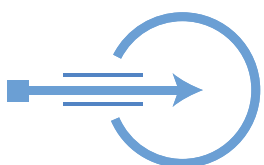
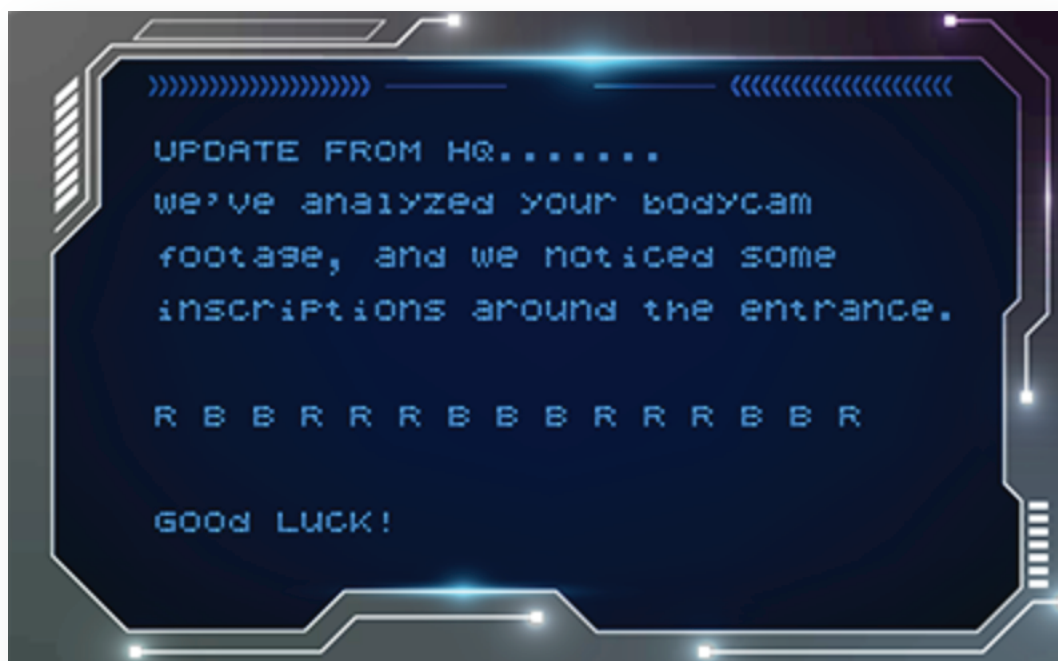
// Calculate the code to enter the mountain.

Slide 7

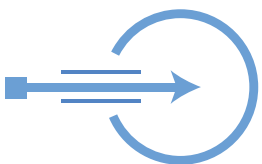
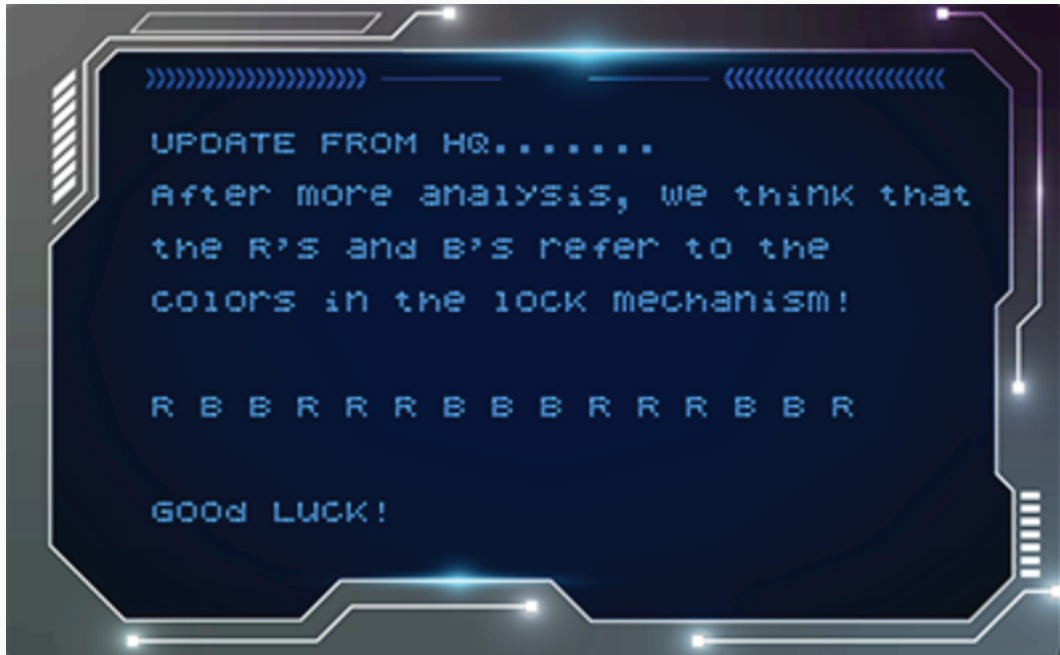


Puzzle Hints: The hint images below can be downloaded [here](#). These images can be dropped into a live session to provide support.

Hint 1:

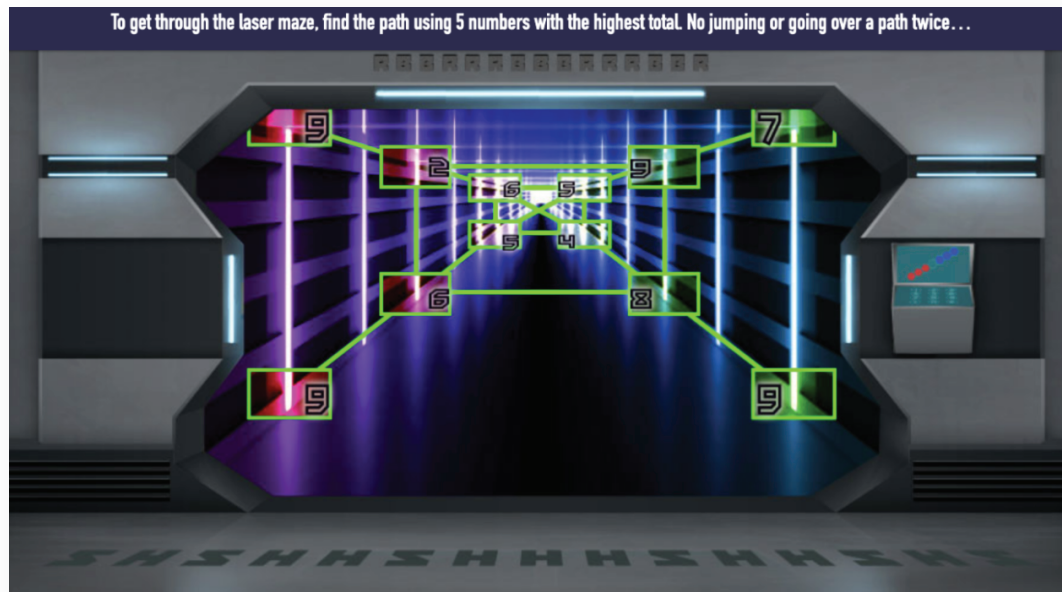


Hint 2:

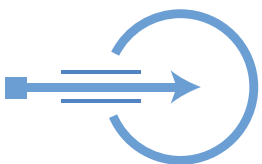
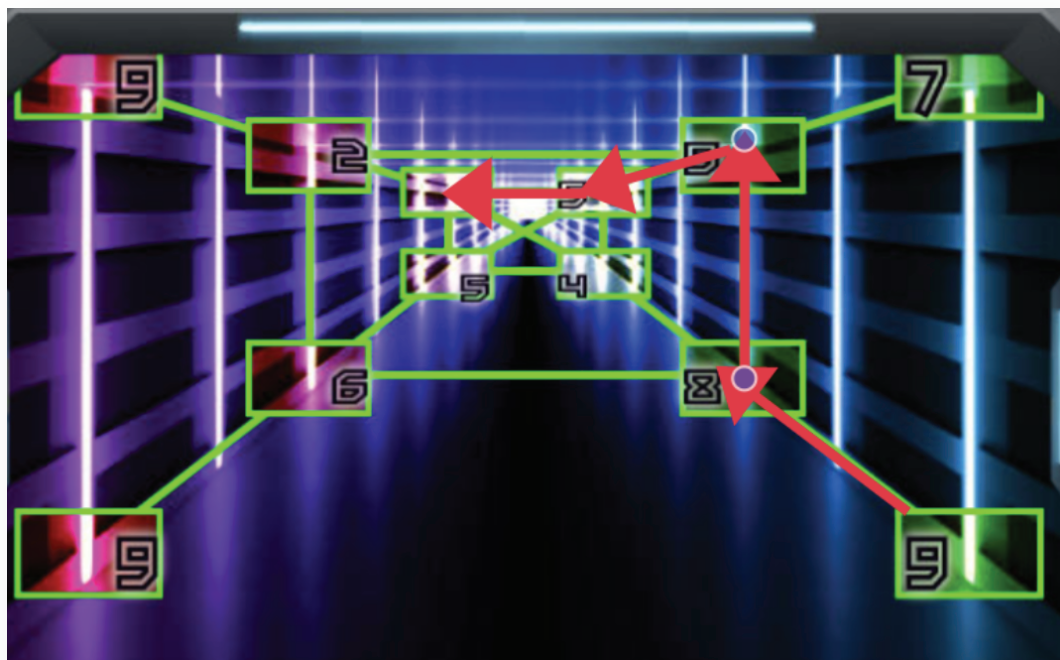


// Follow the right path to deactivate lasers and cross the room.

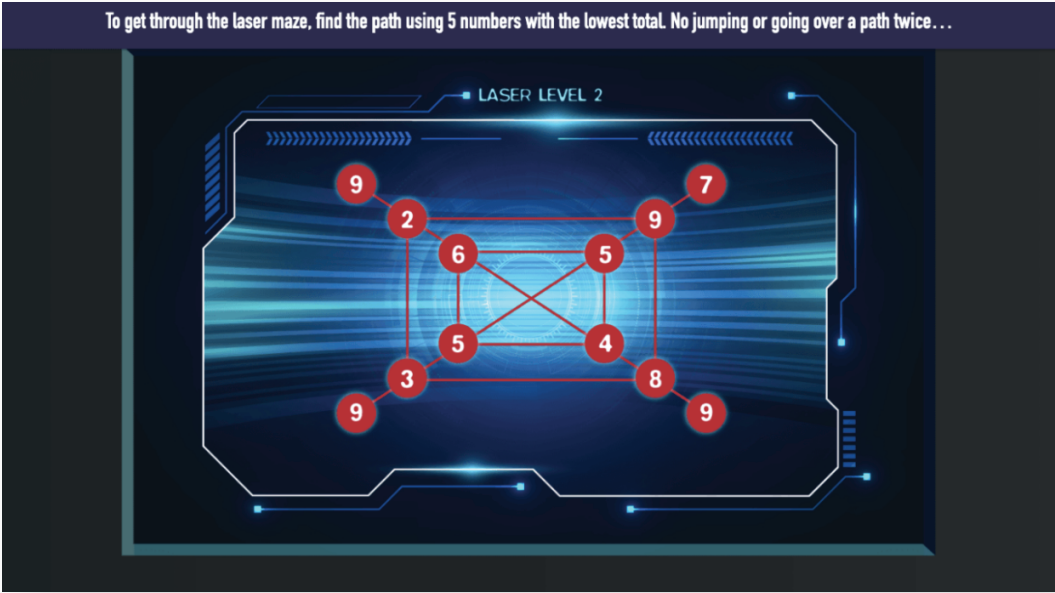
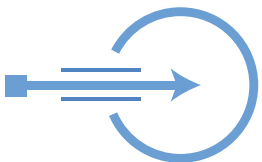
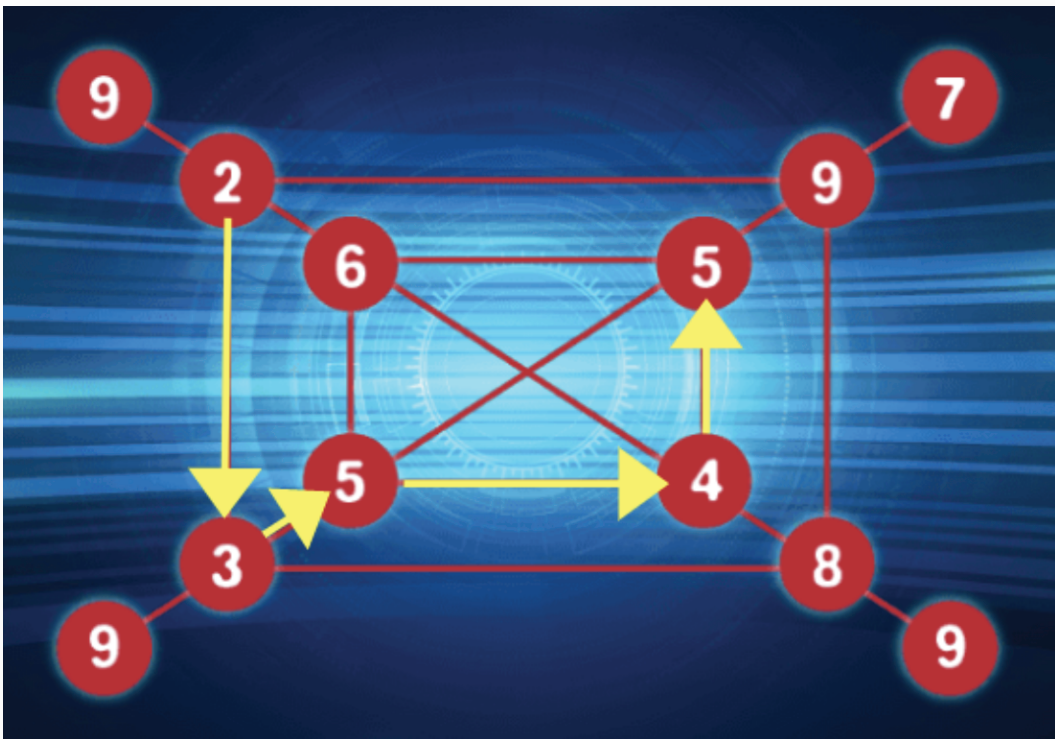
Slide 9



Solution:



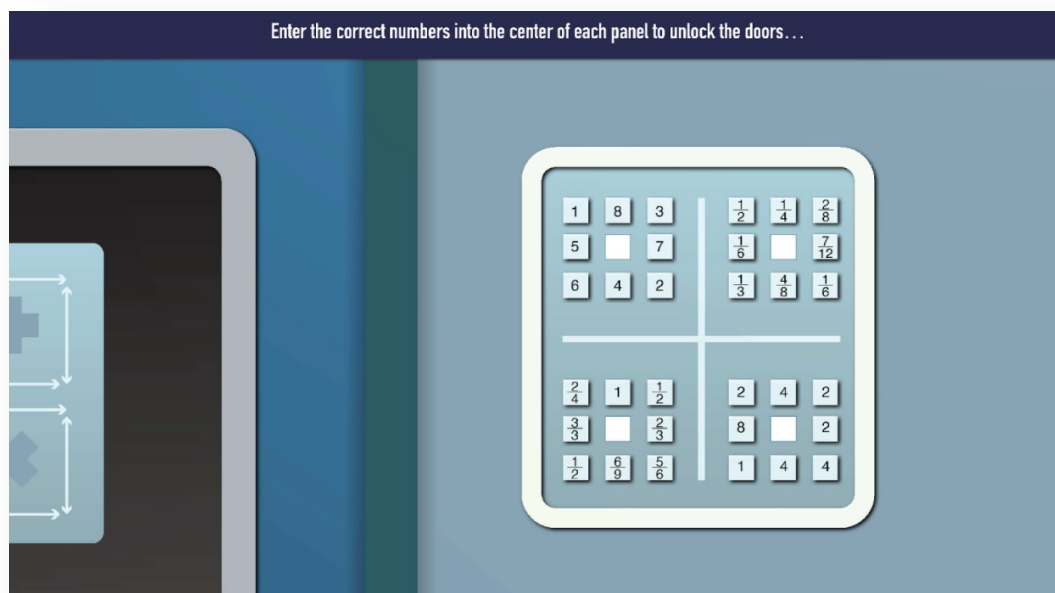
Slide 11

**Solution:**

// Solve the puzzle to open the lab

Slide 16

Instructions: Here are four keypads. Students have to decipher the correct middle squares to unlock the vault! (**Hint:** Think about how the sides work together using the different operations, addition and multiplication.)



Hint: First 3 puzzles are addition and the last puzzle (bottom right) is multiplication.

Solutions:

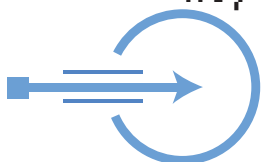
From Left to Right:

Key #1 (adding)= all the sides add up to 11 so the middle # is 12

Key #2 (adding)= all the sides add to 1 so the middle # is 1

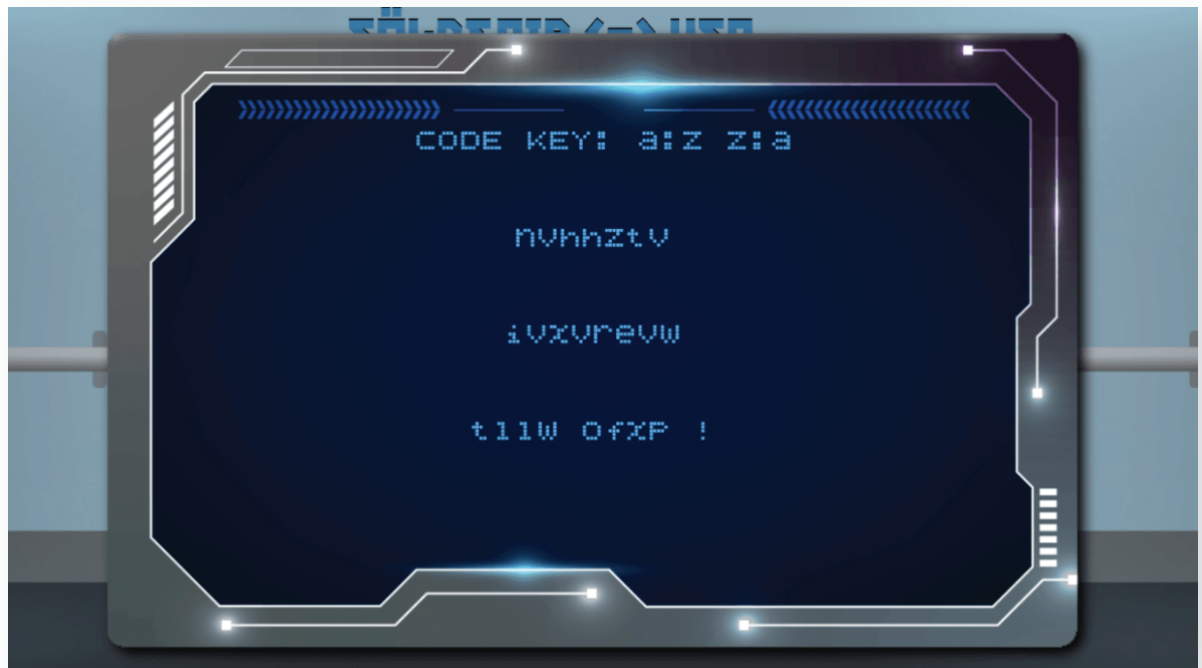
Key #3 (adding)= all the sides add to 2 so the middle # is 2

Key #4 (multiply)= all sides multiply to 16 so middle # is 16

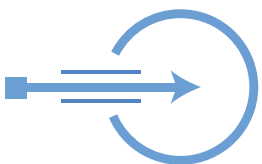


Slide 18

“Z becomes A and A becomes Z” —
The kids will start writing A=Z B=Y etc

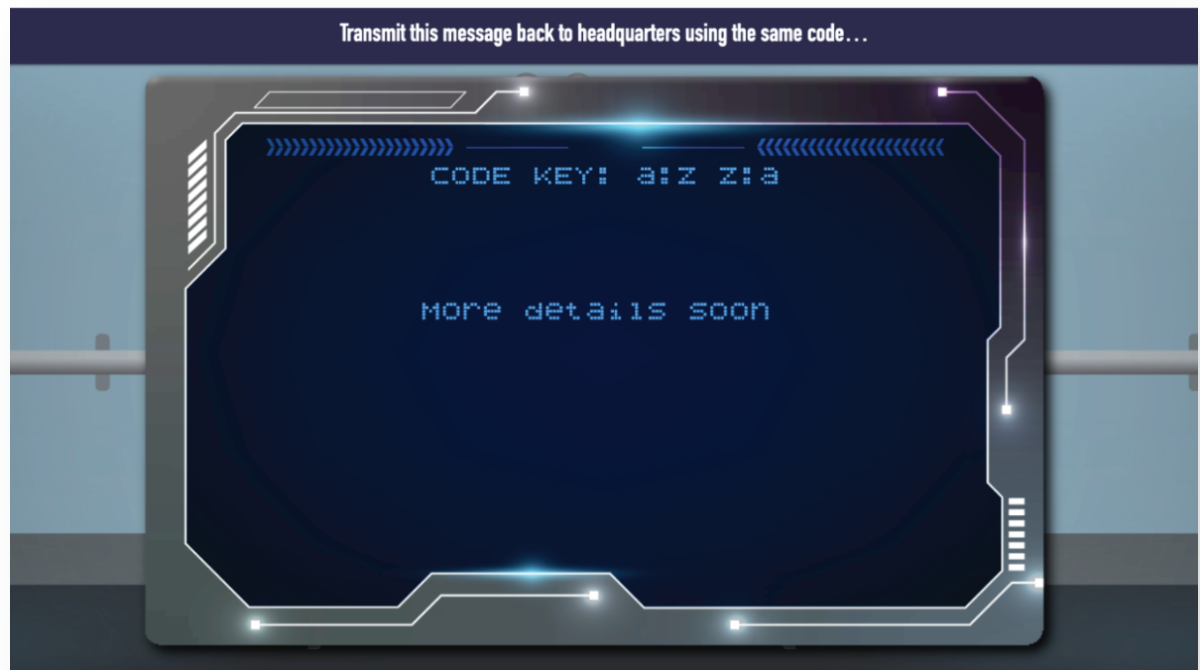


Solution: “Message Received Good Luck”

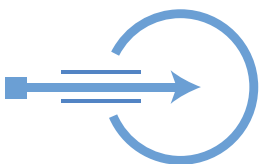


Slide 19

Now students will encode the message using the reverse of the technique in the previous problem.



Solution: NLIV (more) WV6ZROH (details) HLLM (soon)



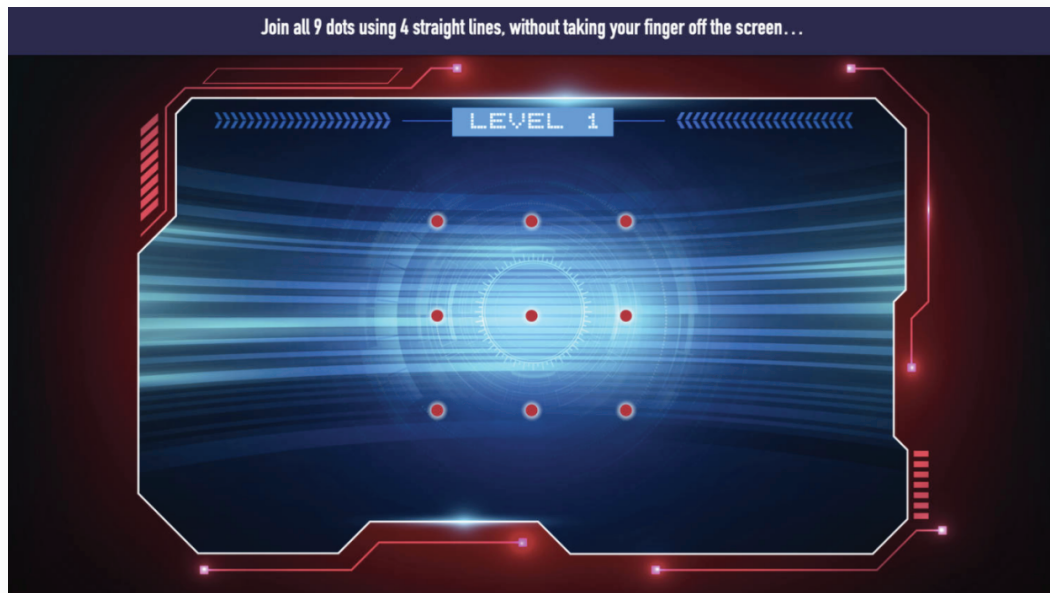
DAY 2

Explore the lab & meet
Dr. Baumgartner.
Discover the hidden door.

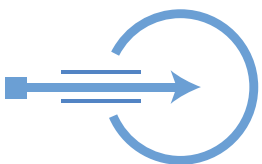
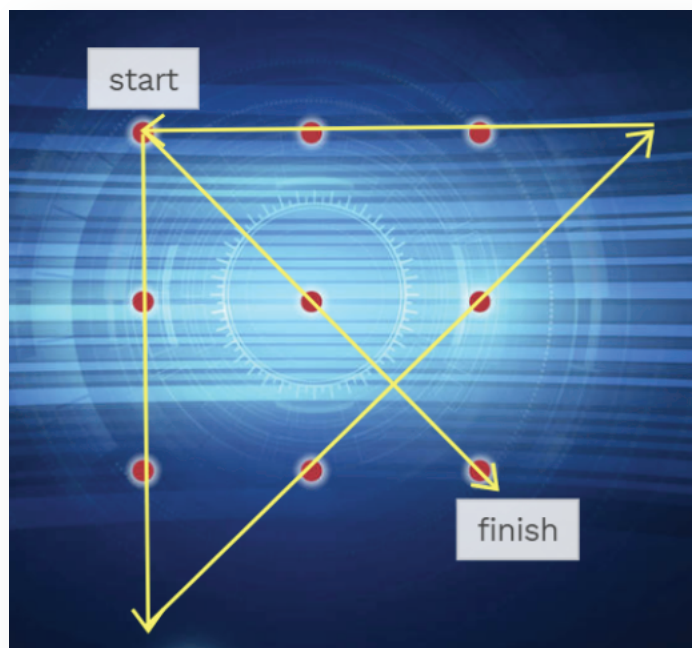


// Solve the puzzle to reveal the presence of Dr. Baumgartner.

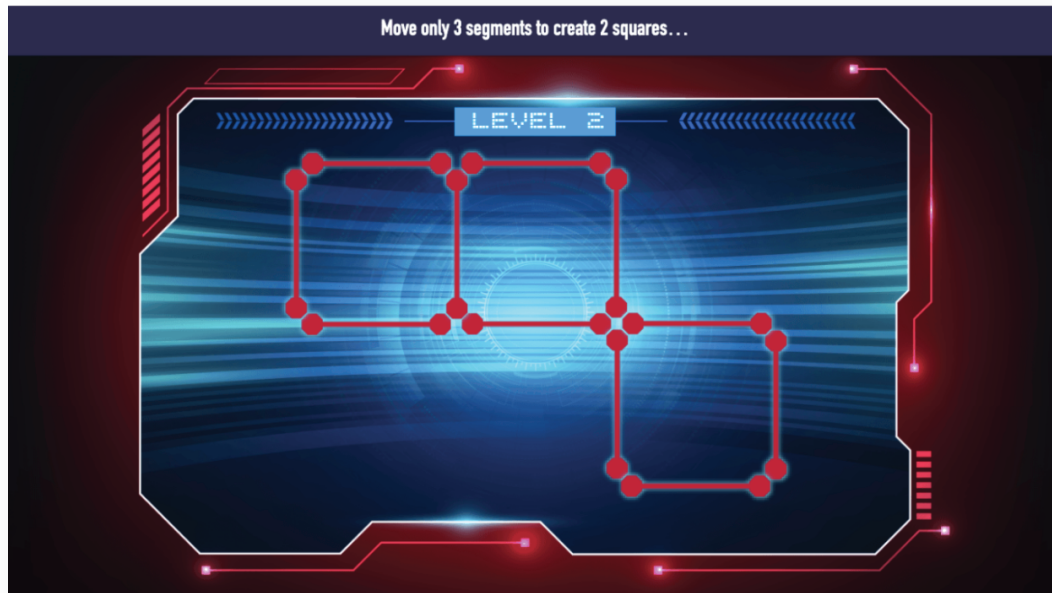
Slide 23



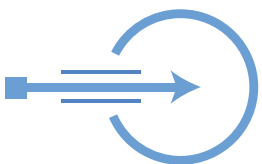
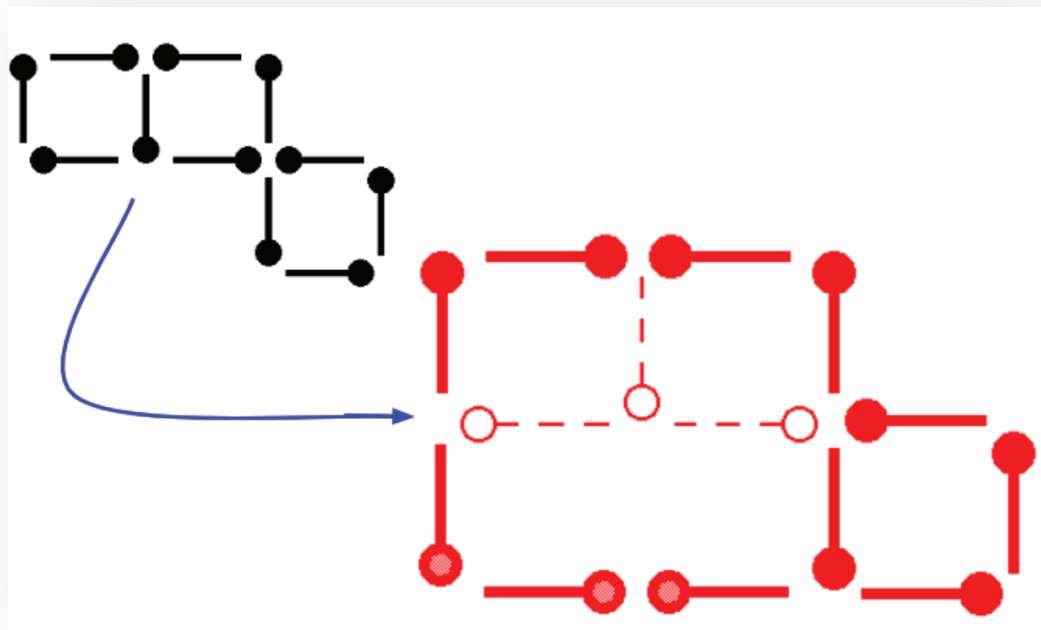
Solution:



Slide 24



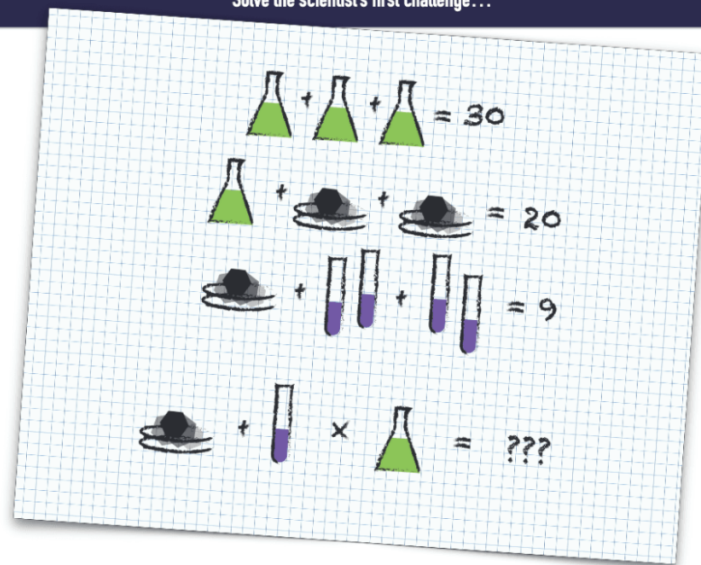
Solution:



// Solve the puzzle to prove you're scientists & not spies.

Slide 29

Solve the scientist's first challenge...



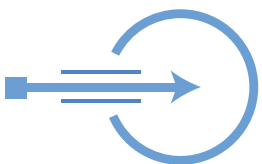
Solution:

Green = 10

Black = 5

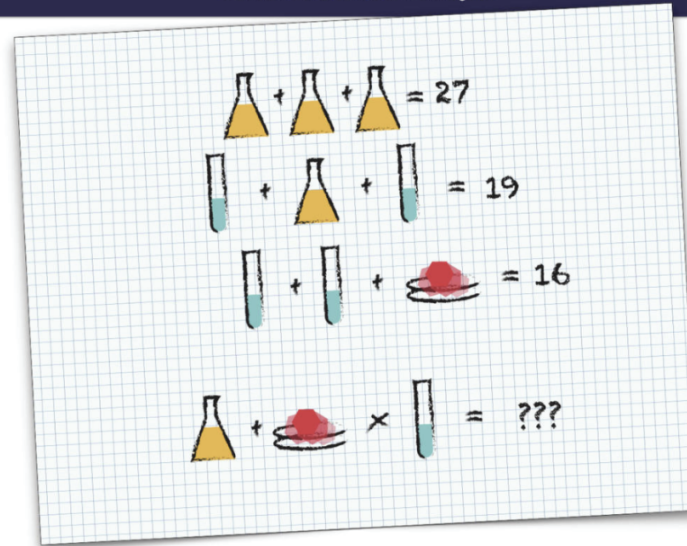
Purple = 1

Therefore, using order of operations... black + purple x green =
= 5 + 1 x 10
= 5 + 10
= 15



Slide 31

Solve the scientist's second challenge...



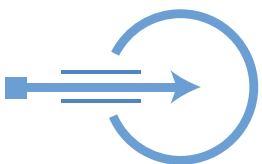
Solution:

Yellow = 9

Blue = 5

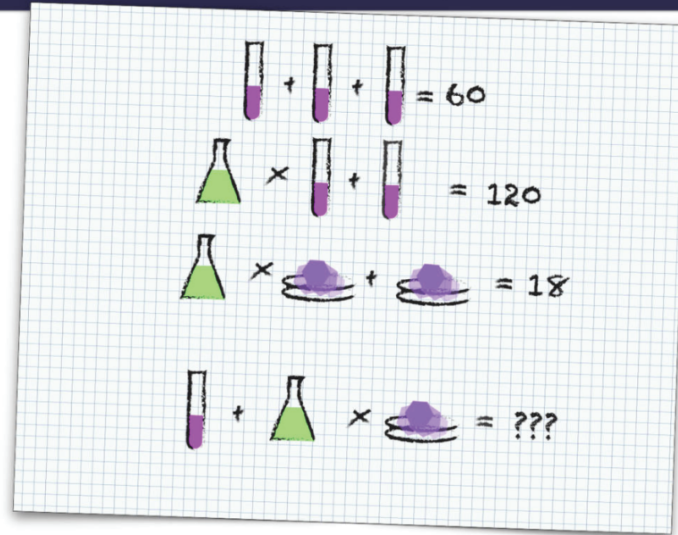
Red = 6

Using order of operations, yellow + red x blue = $9 + 6 \times 5$
 $= 9 + (6 \times 5)$
 $= 9 + 30$
 $= 39$



Slide 33

Solve the scientist's third challenge...



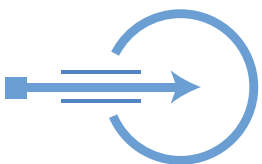
Solution:

Hot pink = 20

Green = 5

Purple = 3

Using order of operations Hot pink + green x purple = $20 + 5 \times 3$
= $20 + (5 \times 3)$
= $20 + 15$
= 35



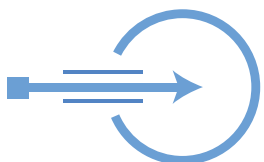
// **Solve the puzzle to reveal the hidden safe in the American Lab Manager's office.**

Slide 41

In this puzzle, students move around the number tiles in order to get the sum of each side of the triangle to be 10. A digit can only be used once. Hint: Not all of the number tiles will be used.

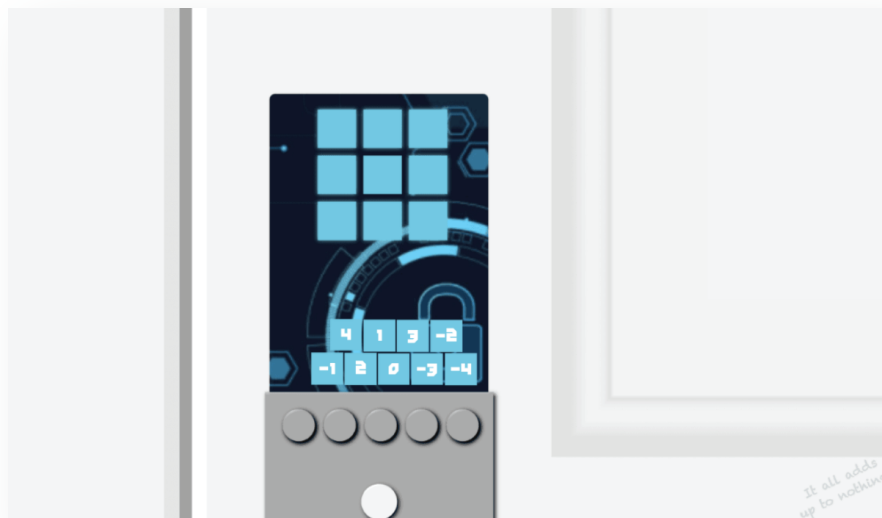


Solution: A solution for this problem is shown below.



Slide 42

It ALL ADDS UP TO NOTHING! The goal of this puzzle is to find a combination of numbers where the sums of each row, column and diagonal are all the same--0.



Solutions:

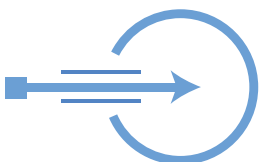
-3	2	1
4	0	-4
-1	-2	3

-1	-2	3
4	0	-4
-3	2	1

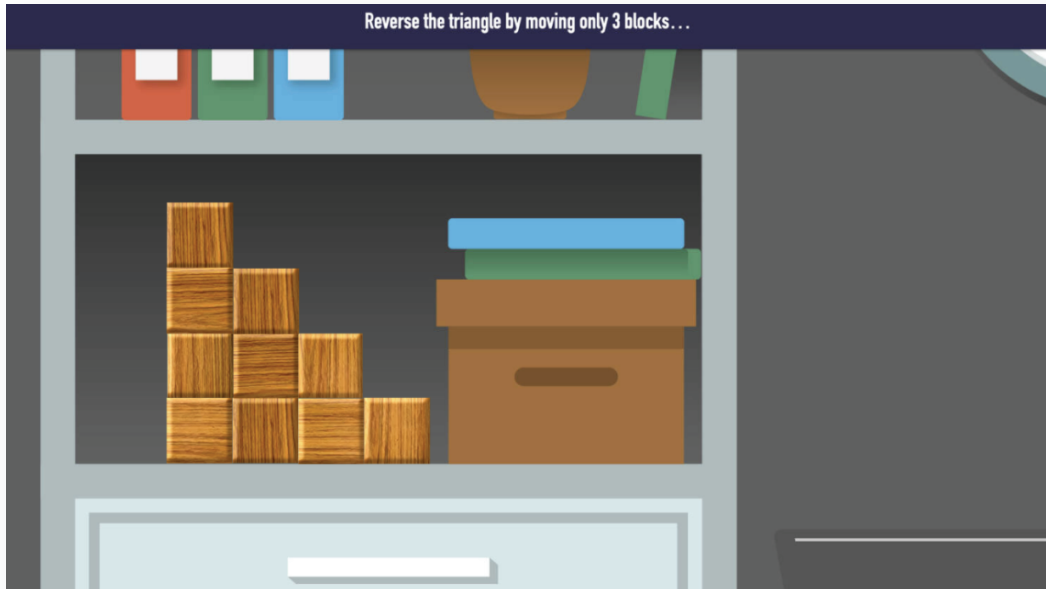
1	-4	3
2	0	-2
-3	4	-1

or

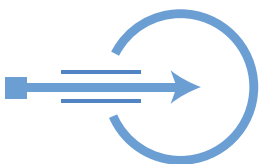
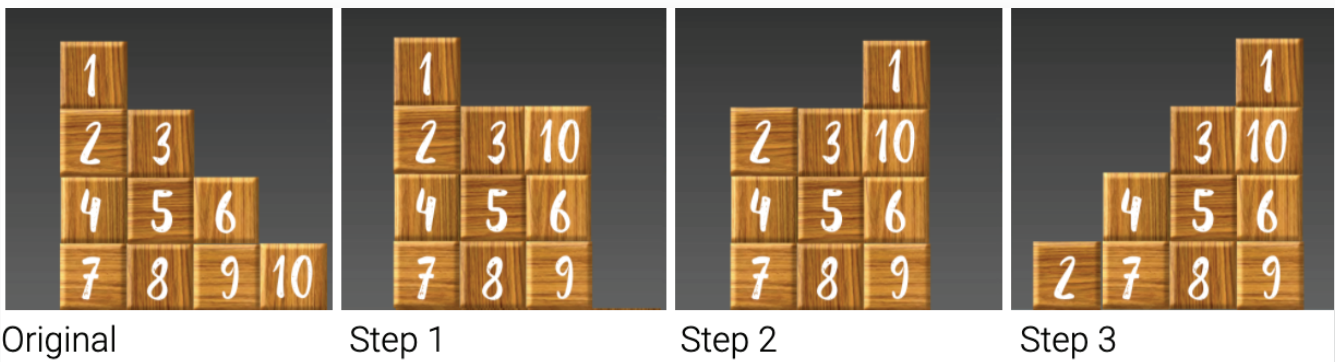
3	-4	1
-2	0	2
-1	4	-3



Slide 46

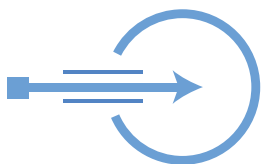


Solution:



DAY 3

Investigate the Lab Manager's
hidden safe to reveal the conspiracy.



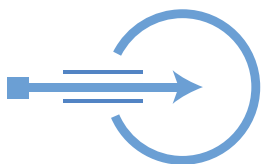
Slide 49

Students should decode the message given the code key $b=a+1$.



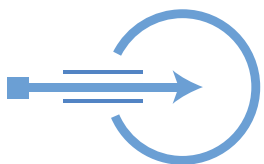
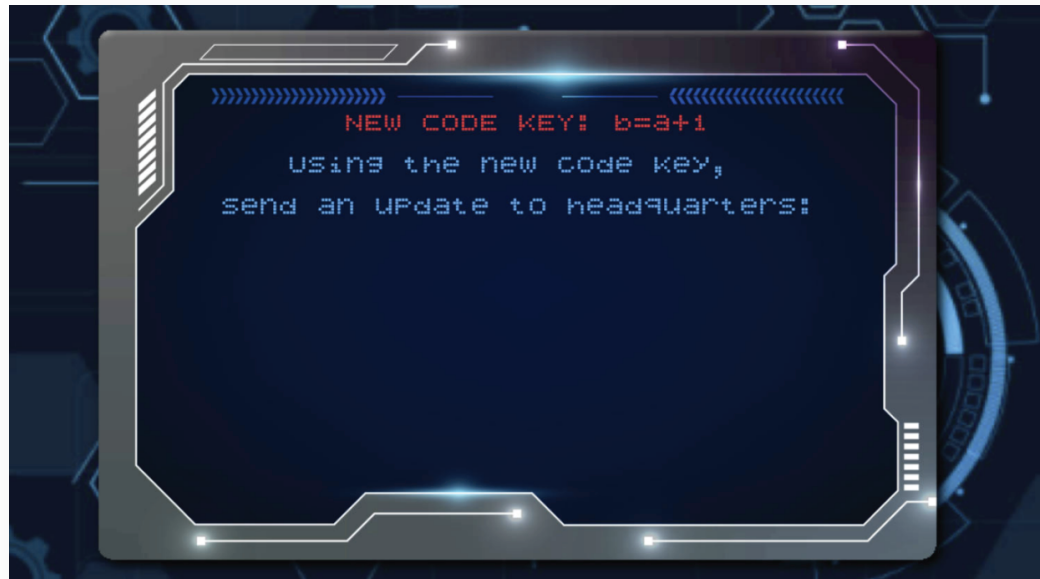
Solution:

“DANGER! PROCEED CAUTIOUSLY”



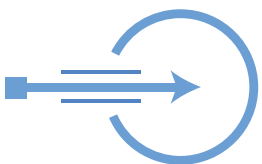
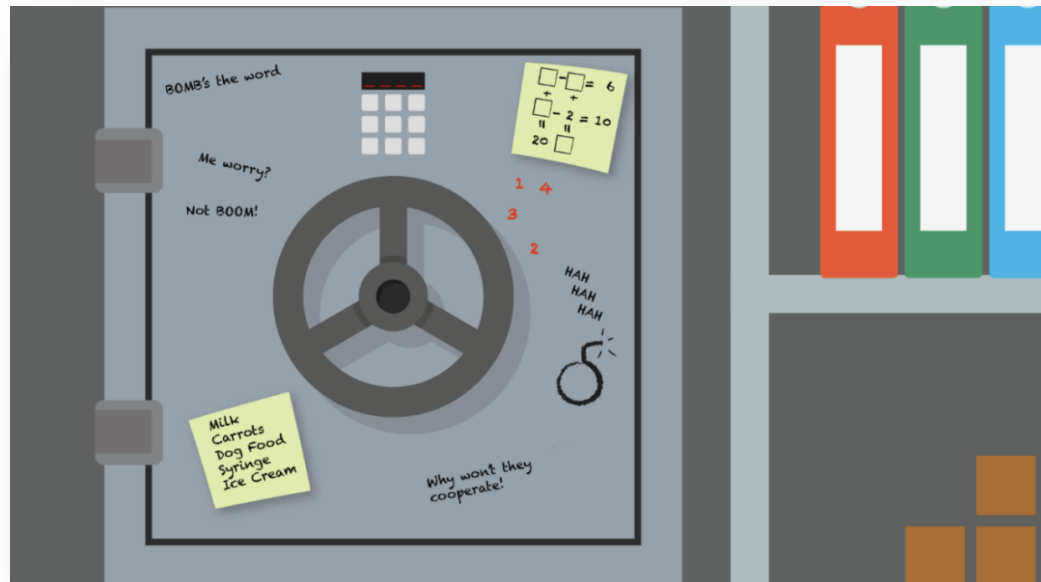
Slide 51

Have students experiment with the new code key to create a message of their own.



Slide 52

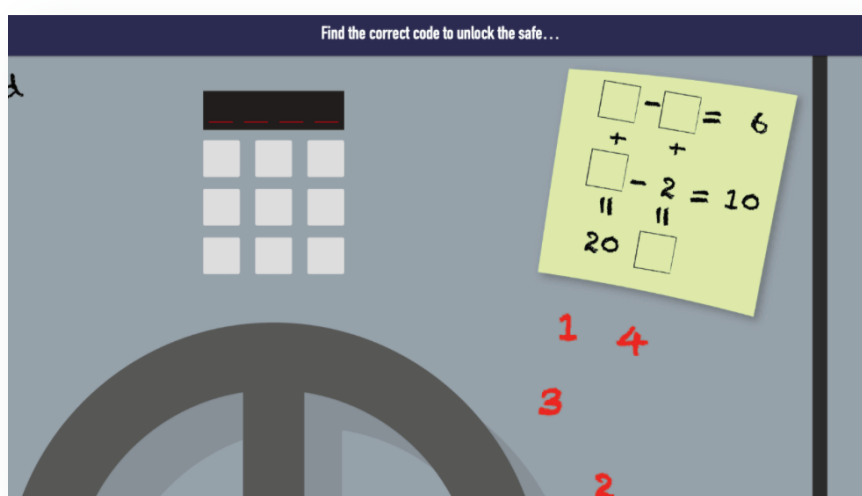
Students should look for clues on the safe and proceed to the next slide.



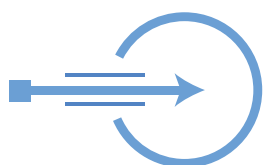
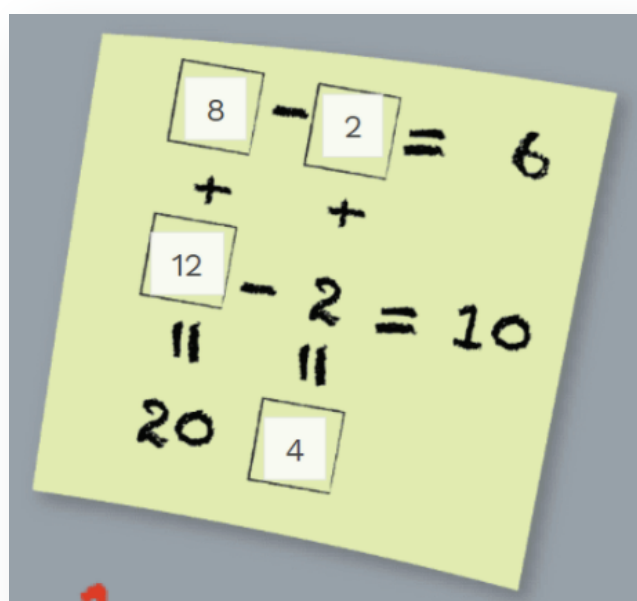
// Open the safe.

Slide 53

Students work through this problem below to find the answer to the safe. The answer will be all of the boxes added together.

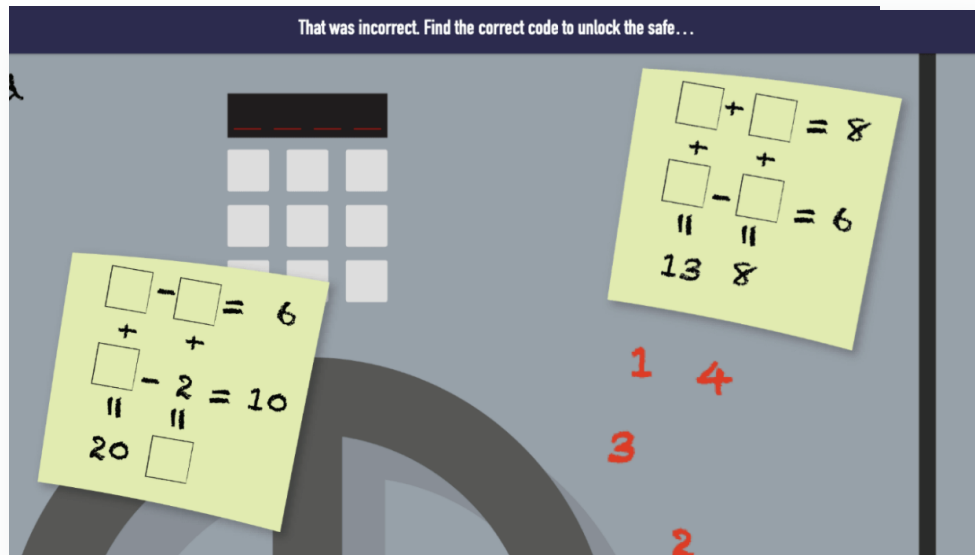


Solution:



Slide 54

Students should move the top sticky note to reveal another puzzle.



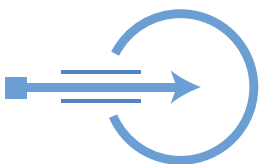
Solution:

Hint 1: You can use fractions.

Hint 2: Two of these equations are the same.

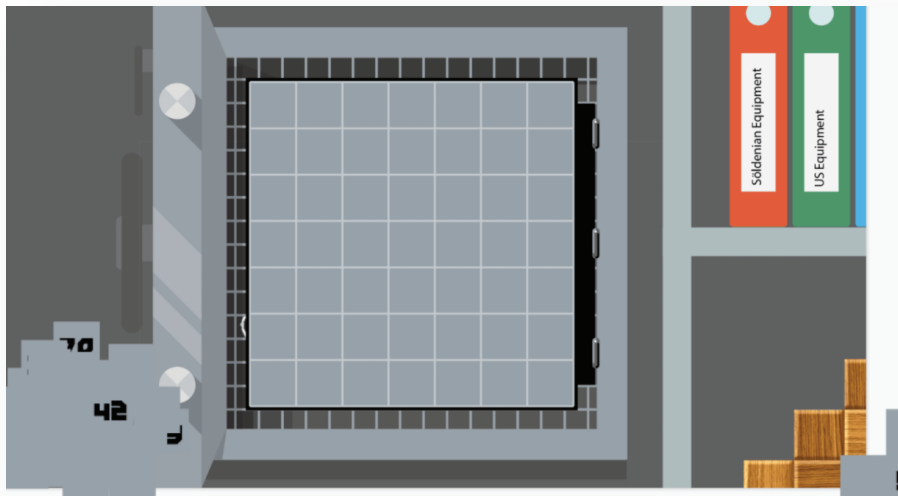
Answer: $3.5 + 4.5 = 8$

$9.5 - 3.5 = 6$

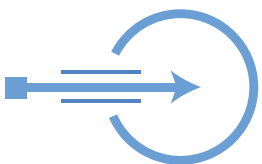
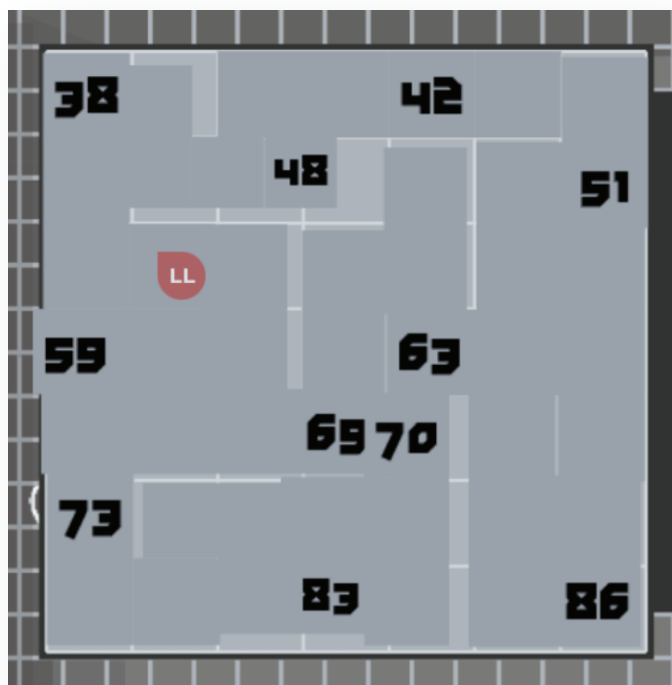


Slide 56

Students will move pieces around to fit into the grid.
Hint: The numbers go in ascending order from the top left corner to the bottom right corner.

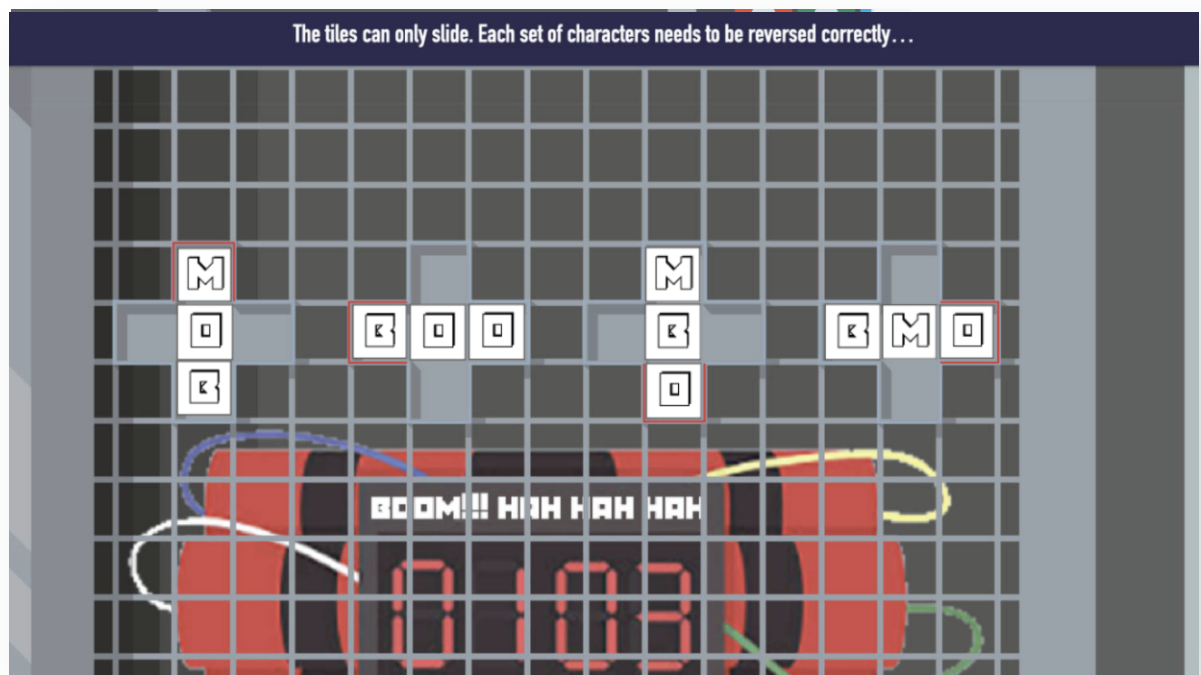


Solution:

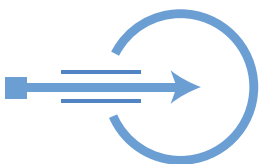


Slide 58

The students slide the letters around to get them in reverse order. Then the word is spelled out using the letters that end up in the red outlined boxes.

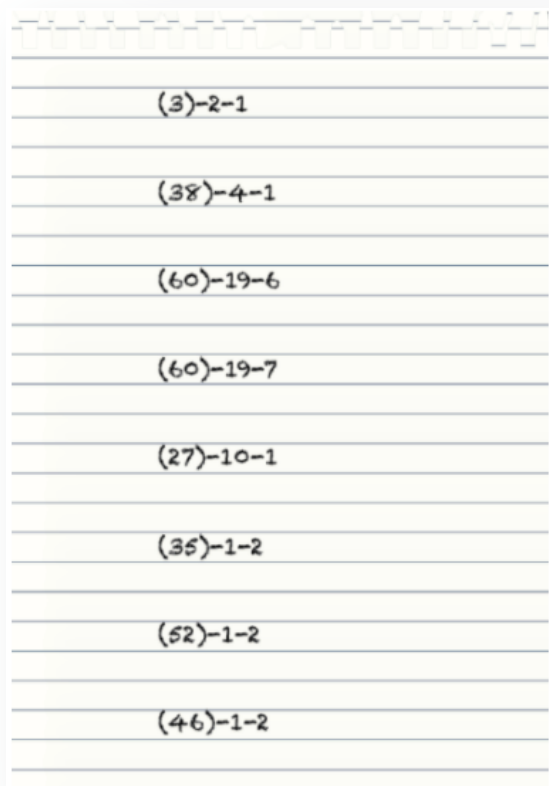
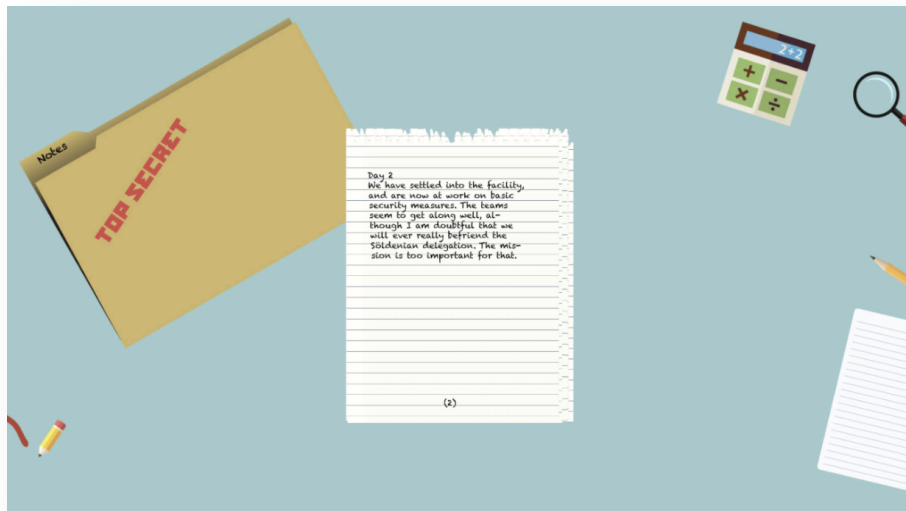


Solution: This should spell BOMB at the end.



Slide 61

Students read through the file and find the clues.



Last page

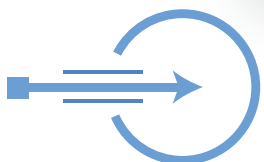
Solution:

The last page has a code, and it is
“(Page Number) - Line Number -
Word Number”

Example: The first code listed is
(3)-2-1, which is Page 3, line 2,
word 1 - “Security”

Message:

“Security Precautions shut down
lasers 35 52 46”



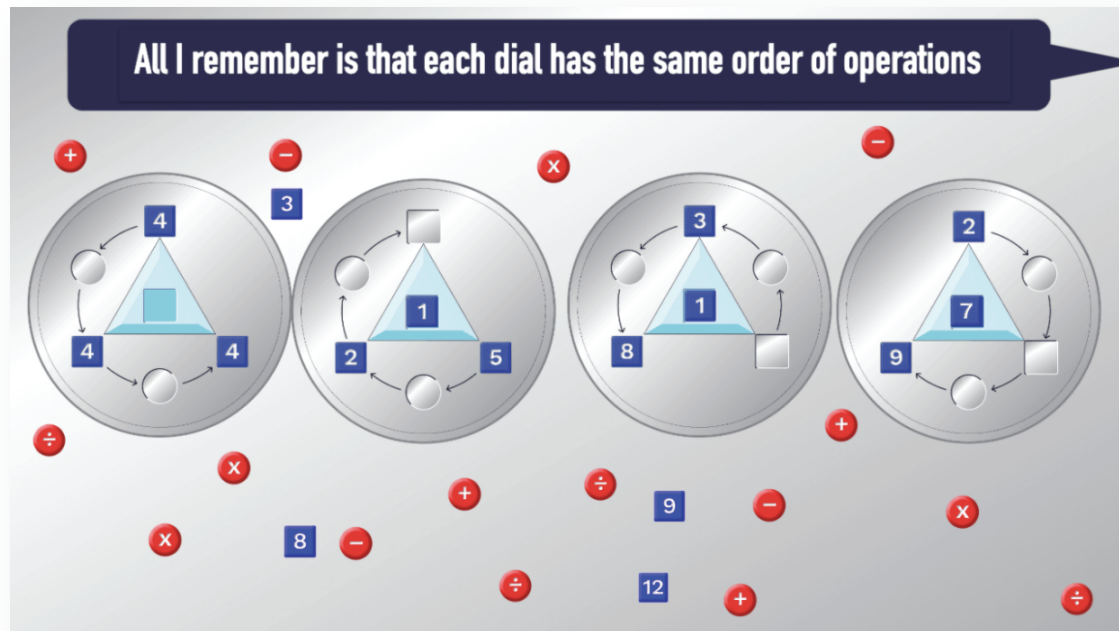
DAY 4

Escape the lab before Miller
destroys it (and you!)

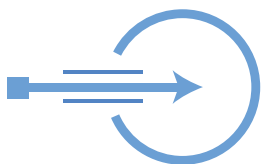
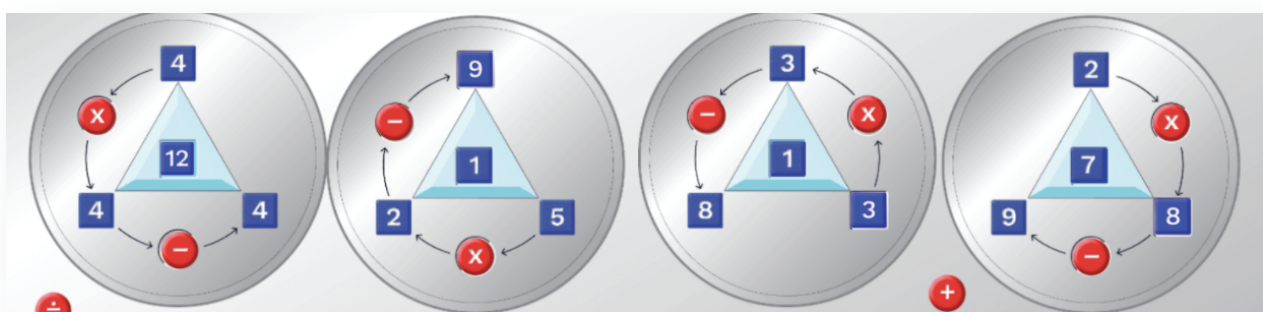


// Repair the drone code (he has destroyed the drone).

Slide 68

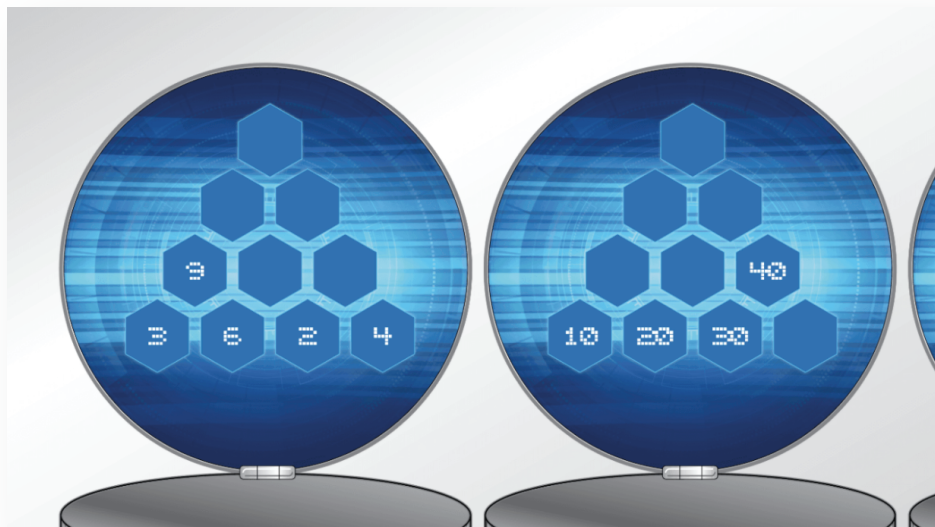


Solution:

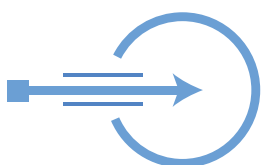
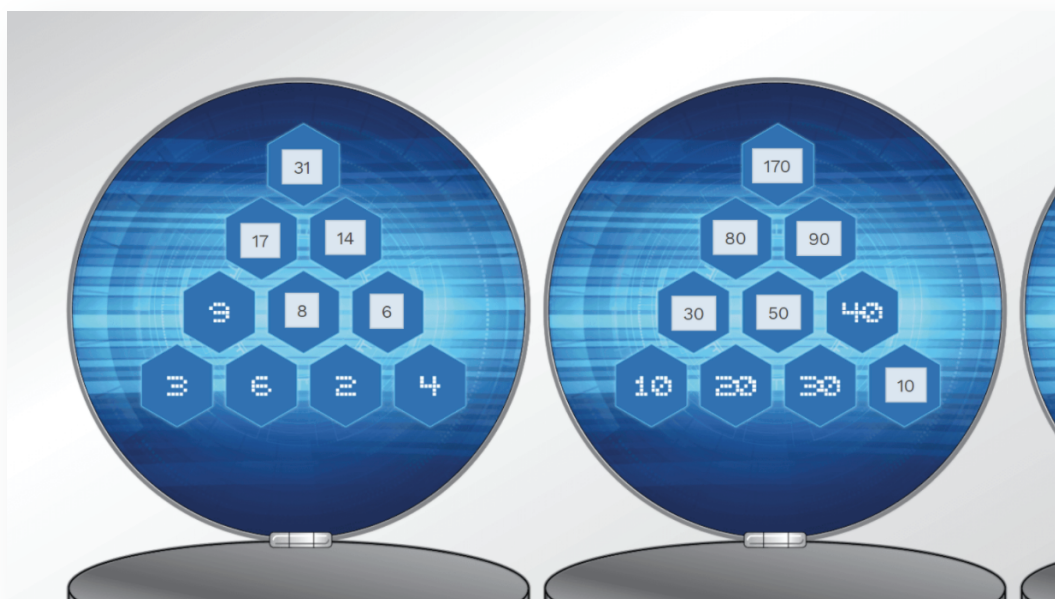


Slide 70

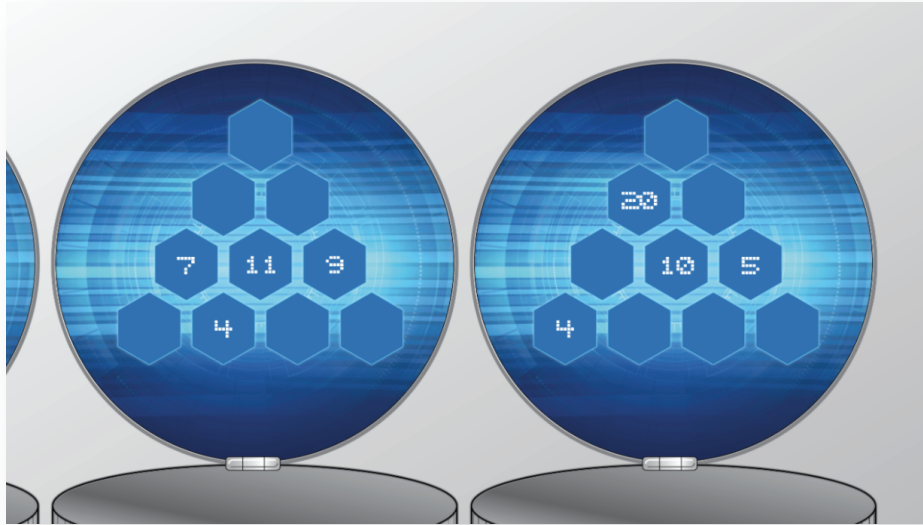
The number in each hexagon is the sum of the two numbers below it. Fill in the missing hexagons.



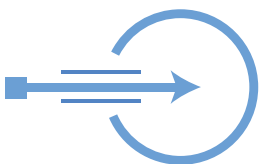
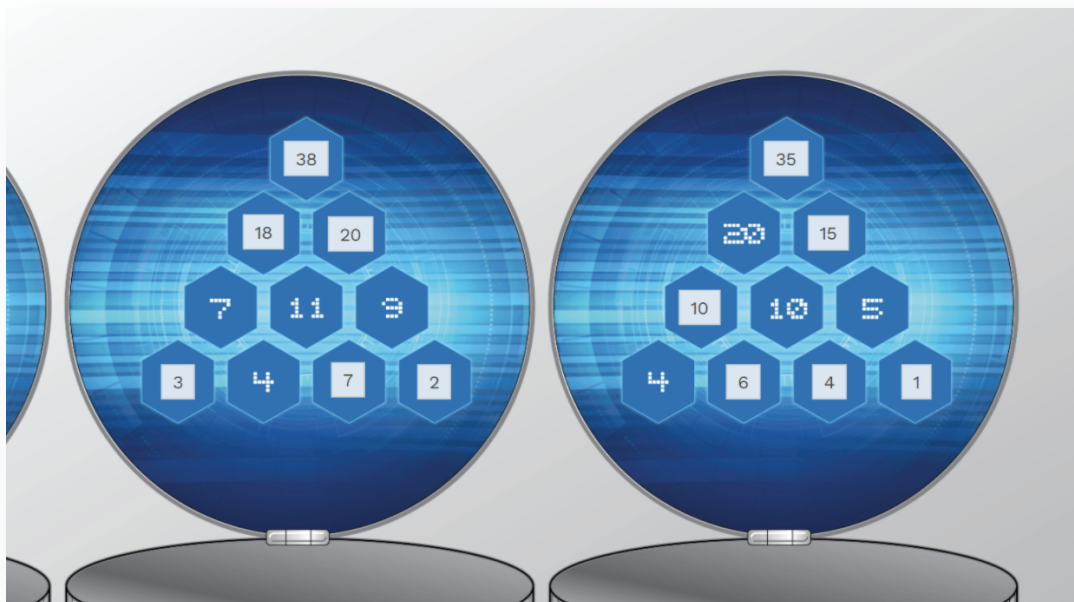
Solution:



Slide 71

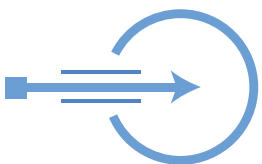


Solution:

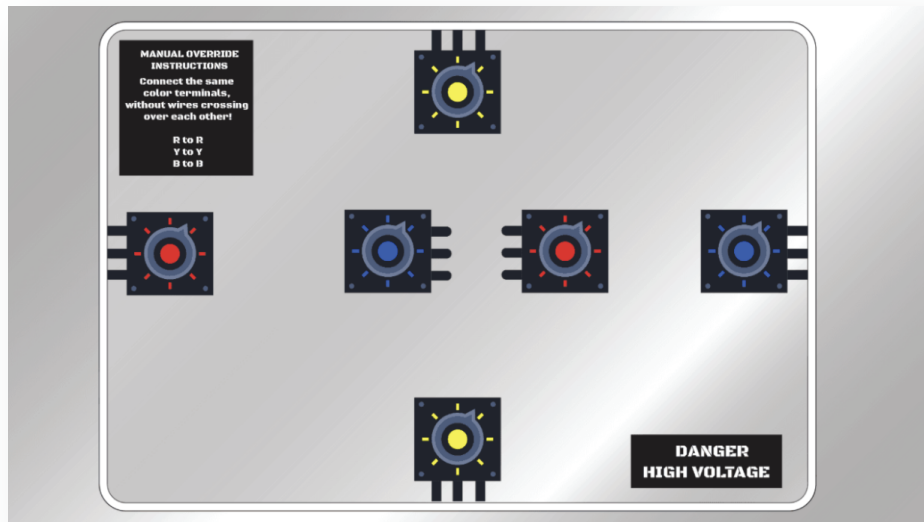


Slide 75

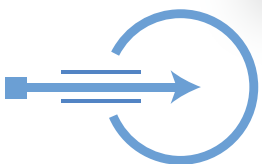
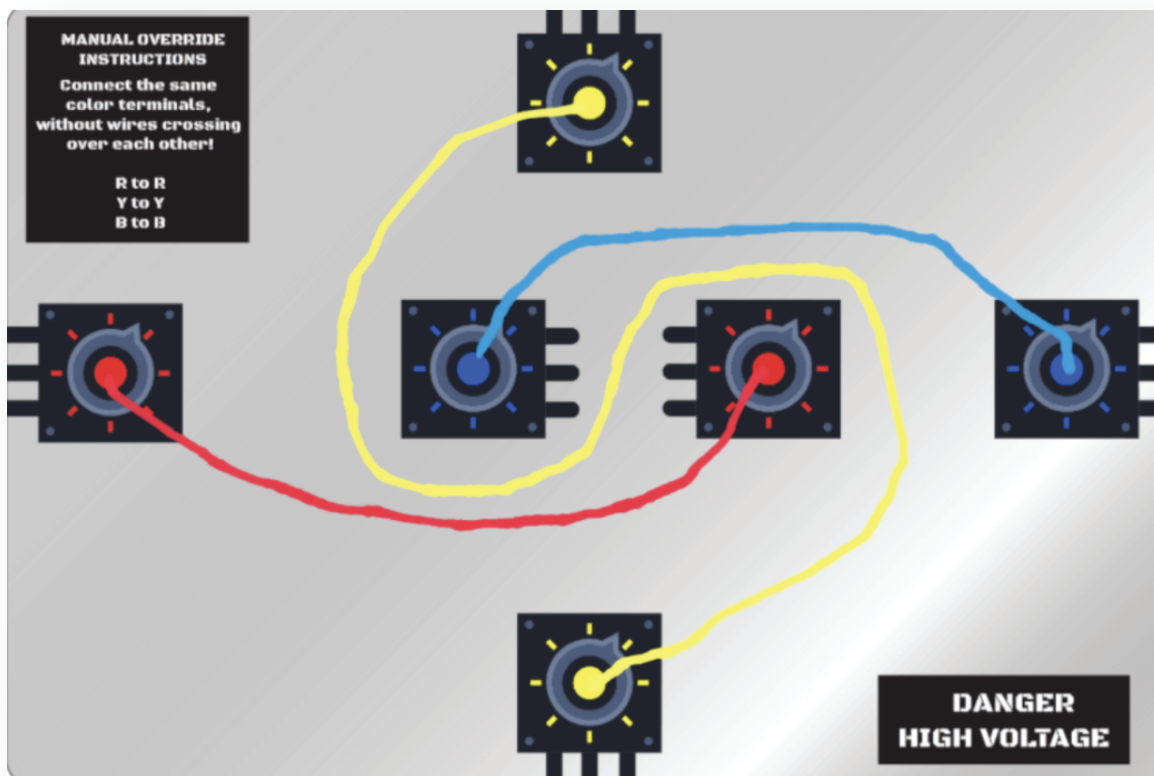
Pretend to enter code from the previous slide and proceed to the next slide.



Slide 81

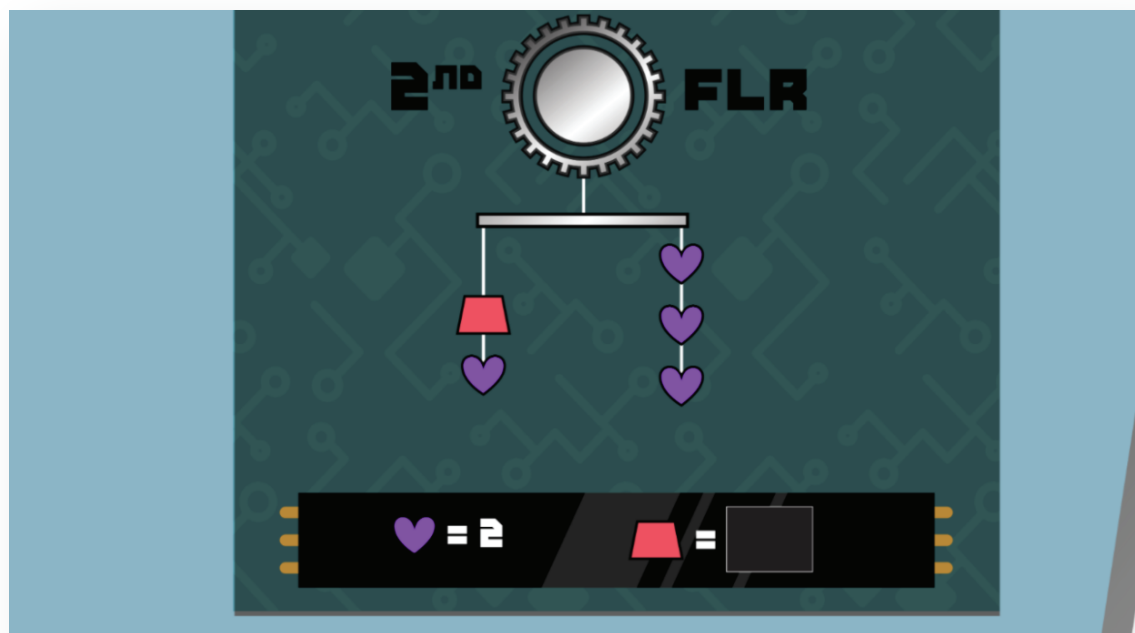


Solution: Here is one possible solution.

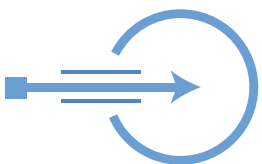


// Slides 83-88 May be omitted if running low on time. Each puzzle is of increasing difficulty. Teachers can choose which path to take through the “floors” the easier or more difficult route.

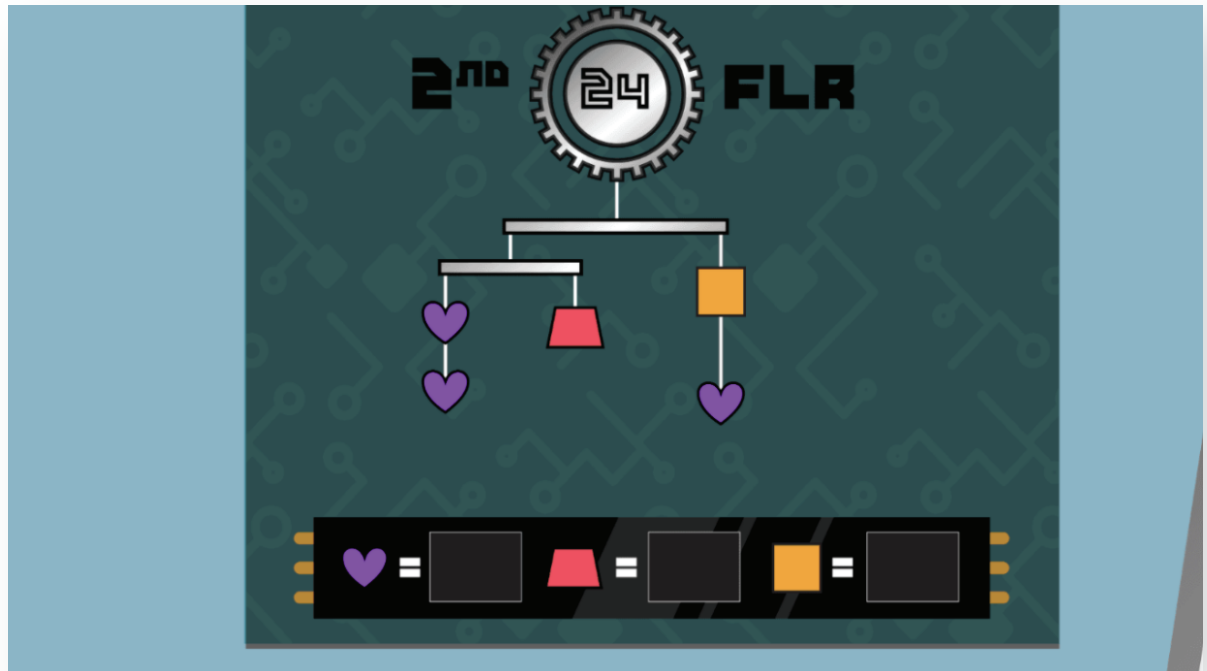
Slide 83



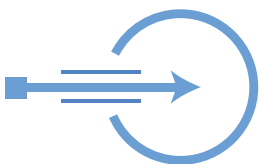
Solution: Pink Trapezoid = 4



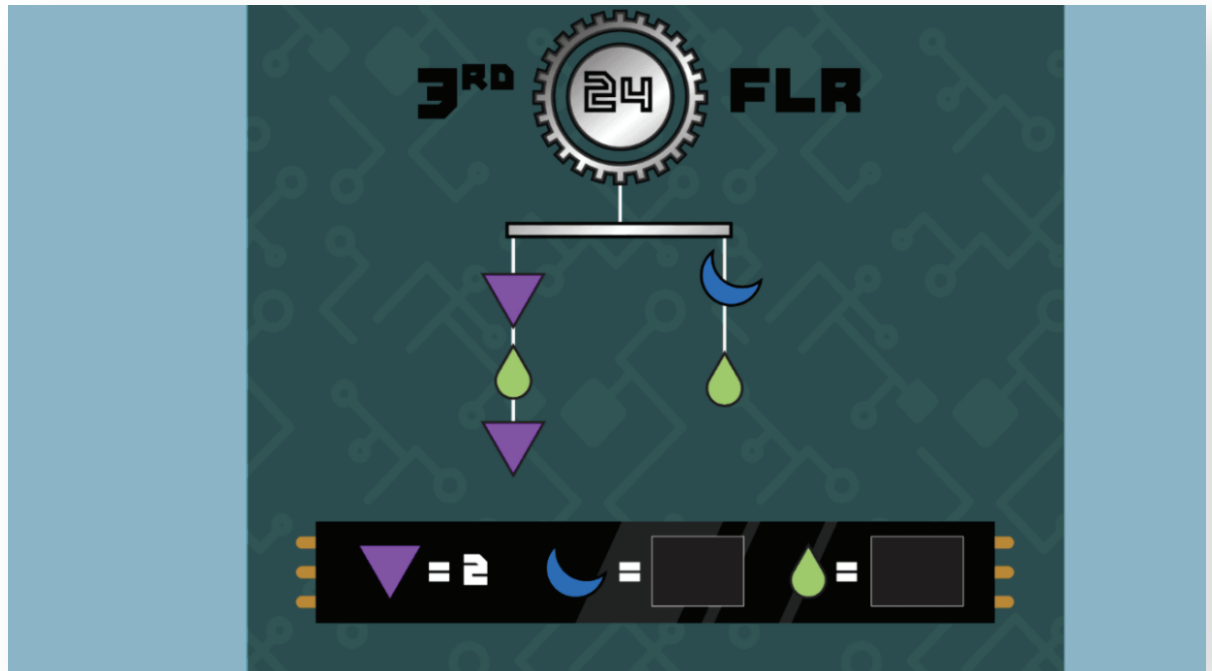
Slide 84



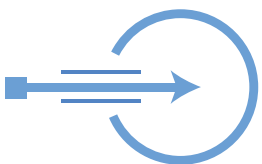
Solution: Purple heart = 3
Pink trapezoid = 6
Orange square = 9



Slide 85



Solution: Blue moon = 4
Green teardrop = 8



Slide 86



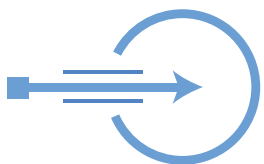
Solutions: Purple triangle = 18
 Blue moons = 3
 Green drop = 9

Purple triangle = 18
 Blue moons = 1
 Green drop = 15

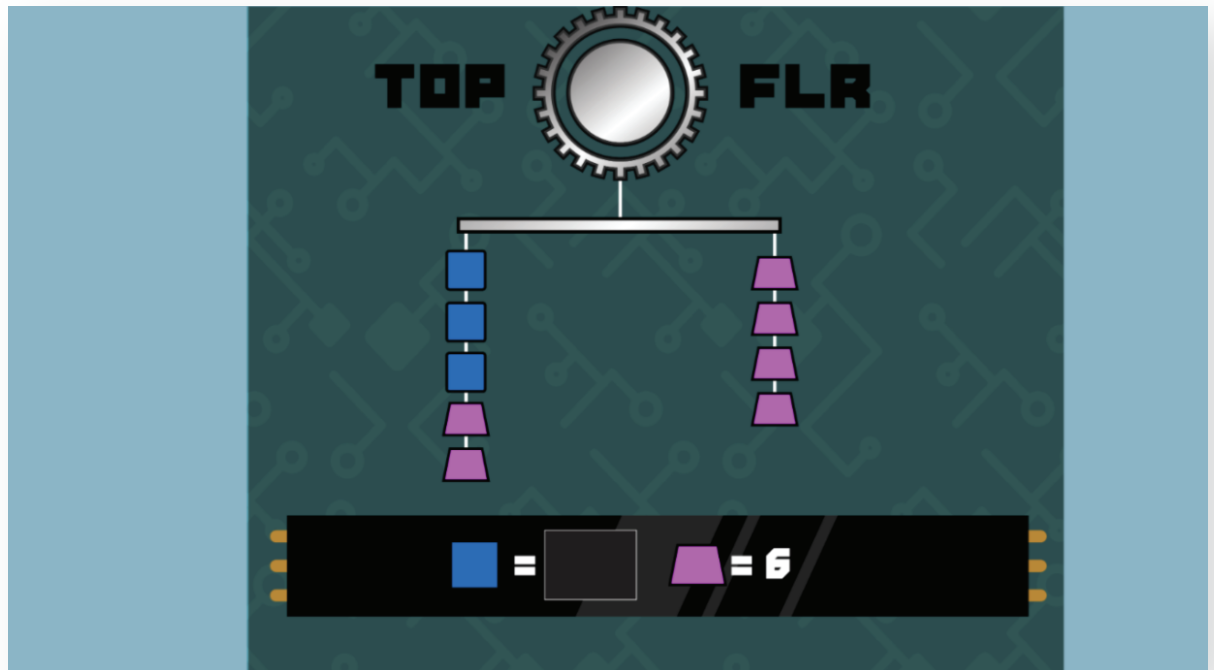
Purple triangle = 18
 Blue moons = 2
 Green drop = 12

Purple triangle = 18
 Blue moons = 4
 Green drop = 6

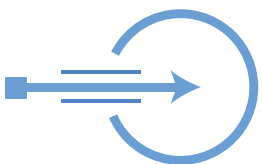
Purple triangle = 18
 Blue moons = 5
 Green drop = 3



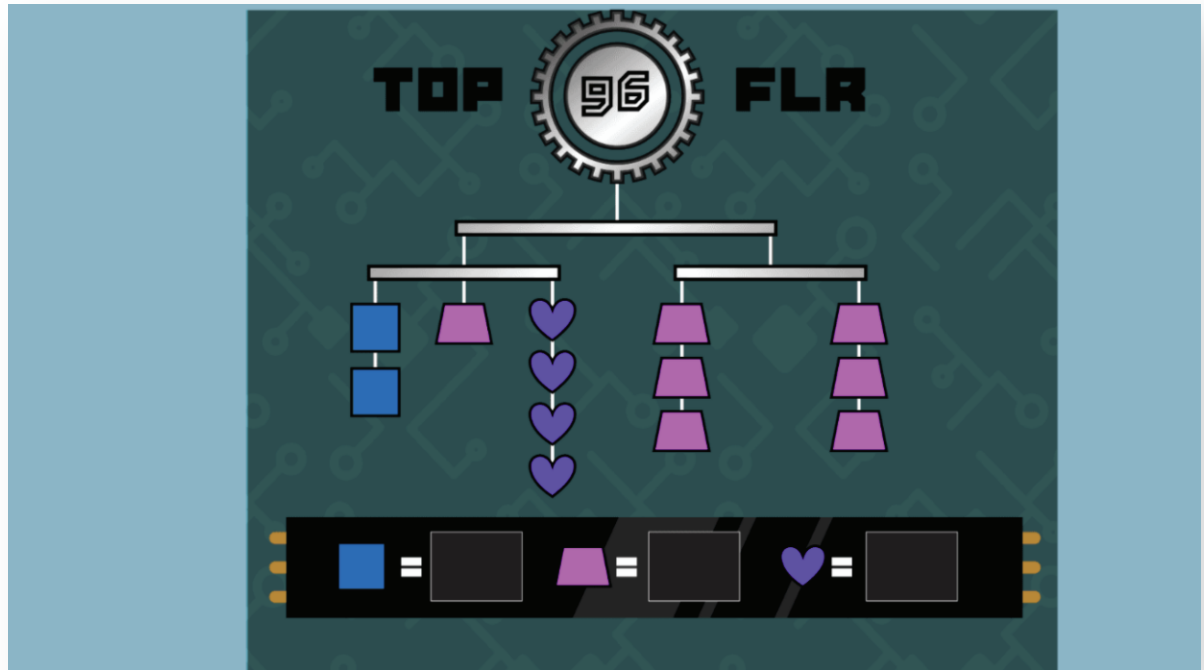
Slide 87



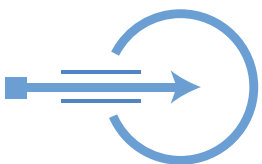
Solution: Blue square = 4



Slide 88



Solution: Blue square = 10
Pink trapezoid = 8
Purple heart = 5



// Find drone path.

Slide 92

Depending on the students' knowledge, this can go many different ways!

Example instructions: Have students plot a path that avoids obstacles. The goal is to begin at $(-18,15)$ and get to the extraction point, $(-9,-14)$. Students can be challenged to proceed based on the instructions below that navigate through various quadrants of the coordinate system.

Student 1: beginning point $\rightarrow (-x,y) \rightarrow (-x,-y) \rightarrow (-x,-y) \rightarrow$ final point

Student 2: beginning point $\rightarrow (x,y) \rightarrow (x,-y) \rightarrow (x,-y) \rightarrow$ final point

Student 3: beginning point $\rightarrow (-x,y) \rightarrow (x,y) \rightarrow (x,-y) \rightarrow$ final point

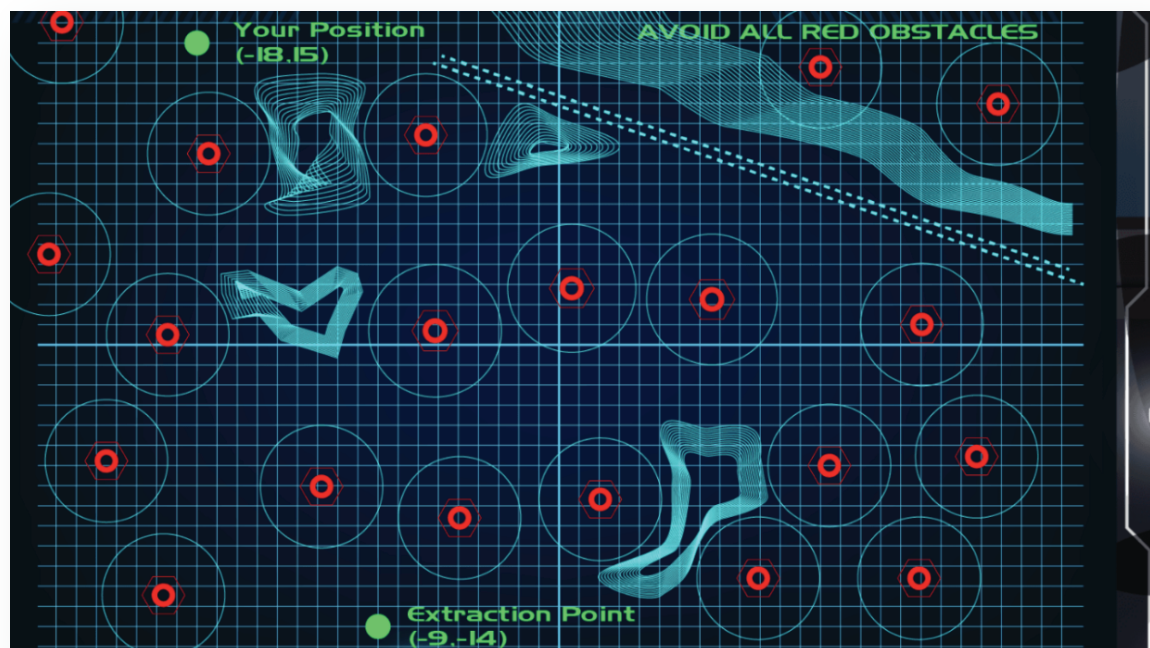
Student 4: beginning point $\rightarrow (-x,y) \rightarrow (-x,y) \rightarrow (-x,-y) \rightarrow$ final point

Student 5: beginning point $\rightarrow (x,y) \rightarrow (x,-y) \rightarrow (-x,-y) \rightarrow$ final point

Student 6: beginning point $\rightarrow (-x,y) \rightarrow (-x,y) \rightarrow (x,y) \rightarrow$ final point

Student 7: beginning point $\rightarrow (-x,-y) \rightarrow (-x,y) \rightarrow (-x,-y) \rightarrow$ final point

Note: If this is too difficult for students or you are out of time, just say "Plot the fastest and safest route."



Slide 95

This slide provides an opportunity for students to indicate their feelings about how the escape room went and their confidence level. Feel free to omit if it's not pertinent to your class.



MISSION UPDATE

YES/NO MAKING PROGRESS

YES/NO FEELING CONFIDENT

YES/NO SUCCESSFUL TO DATE

YES/NO ENGAGING

