

## TEACHER'S GUIDE



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Two decades ago, American scientists began a Top Secret collaboration with Säldenia-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. Flthough 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 Soldenians, 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 Soldenian Alps.

## CHARACT=RG

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 Sobldenian 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,)

Malculate the code to enter the mountain.

## Slide 19



Puzale Hints: The hint images below can be downoaded here. These imanes 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 21


## Solution:



## Slide 23

To get through the laser maze, find the path using 5 numbers with the lowest total No jumping or going over a path twice. .


## Solution:



## //Solve the puzzle to open the lab

## Slide 28

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 midde \# is 16

## Slide 30

" 2 becomes A and A becomes $Z^{*}-$
The kids will start writing $\bar{A}=2 \mathrm{~B}=\mathrm{Y}$ etc


Solution: "Message Received Good Luck"

## Slide 31

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


Solution: $\operatorname{ALV}$ (more) WVGROH (details) HLLM (soon)


## $/ /$ Solve the puzzle to reveal the presence of Dr. Baumgartmer.

## Slide 35



## Solution:



## Slide 36



Solution:


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

## Slide 41



## Solution:

Green $=10$
Black = 5
Purple $=1$

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

## Slide 43

Solve the scientist's second challenge...

$$
\begin{aligned}
& \Delta \cdot \Delta \cdot \Delta=27 \\
& \nabla \cdot \Delta \cdot \nabla=19 \\
& \nabla \cdot \nabla \cdot==16 \\
& \Delta \cdot \times \nabla=? ?
\end{aligned}
$$

## 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 45



## Solution:

Hot pink = 20
Green = 5
Purple $=3$
Using order of operations Hot pink + green $x$ purple $=20+5 \mathrm{x} 3$

$$
\begin{aligned}
& =20+(5 \times 3) \\
& =20+15 \\
& =35
\end{aligned}
$$

## // Solve the puzzle to reweal the hidden safe in the American Lab Manager's office.

## Slide 53

In this puazle, 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 54

It fll hols up to kothing! The goal of this puzze 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 |


| 3 | -4 | 1 |
| :---: | :---: | :---: |
| -2 | 0 | 2 |
| -1 | 4 | -3 |

## Slide 58



## Solution:



Original


Step 1


Step 2


Step 3



## Slide 61

Students should decode the message given the code key $\mathrm{b}=\mathrm{a}+1$.


## Solution:

"DAHGER! PROCEED CRUTIOUSLY"

## Slide 63

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


## Slide 64

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


## // Open the safe.

## Slide 65

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


## Solution:



## Slide 66

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: $\mathbf{3 . 5}+4.5=8$
$9.5-3.5=6$

## Slide 68

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 70

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 Bowk at the end.

## Slide 73

Students read throught the file and find the clues.

$(3)-2-1$
(38)-4-1
(60)-19-6
(60)-19-7
(27)-10-1
(35)-1-2
(52)-1-2
$(46)-1-2$

Last page

## Solution:

The last page has a code, and it is "(Fage 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 $355246^{\prime \prime}$



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

## Slide 80



## Solution:



## Slide 82

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


## Solution:



## Slide 83



## Solution:



## Slide 87

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


## Slide 93



Solution: Here is one possible solution.

// Slides 95-100 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 95



Solution: Pink Trapezoid $=4$

## Slide 96



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

## Slide 97



Solution: Blue moon = 4
Green teardrop $=8$

## Slide 98



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 99



Solution: Blue square $=4$

## Slide 100



Solution: Blue square = 10
Fink trapezoid = 8
Purple heart $=5$

## // Find drone path.

## Slide 104

[lepending on the students' knowledge, this dan on 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: benimпing point $\rightarrow(-x, y) \rightarrow(-x,-y, y) \rightarrow(-x,-y) \rightarrow$ final point Student 2: begimпing point $\rightarrow(x, y) \rightarrow(x,-y) \rightarrow(x,-y) \rightarrow$ final point Student 3: begínпing 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: beginпing point $\rightarrow(x, y) \rightarrow(x,-y) \rightarrow(-x,-y) \rightarrow$ final point Student 6: beginпing point $\rightarrow(-x, y) \rightarrow(-x, y) \rightarrow(x, y) \rightarrow$ final point Student 7 : beginпiпn point $\rightarrow(-x,-y) \rightarrow(-x, y) \rightarrow(-x,-y,) \rightarrow$ final point

Wote; If this is too difficult for students or you are out of time, just say "Flot the fastest and safest route."


## Slide 107

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.


