



Facilitator Guide

Objective

The Missing Inventions Time Travel Escape Room is an activity intended to educate young people (ages 10-12) about Science, Technology, Engineering and Math (**STEM**).

This activity will take approximately 45-60 minutes for the players to complete. The activity moves young people through a series of challenges designed to introduce skills that lead to careers in **STEM** fields/ areas:

1. Critical Thinking
2. Problem-Solving
3. Attentional to Detail
4. Teamwork and Communication
5. Introduction to **STEM**

Facilitator Role:

As the facilitator of the escape room activity, your role is to assist with access to the game so the players can learn about Inventors and their contributions to **STEM**, leveraging an interactive and engaging virtual game experience. Once the game starts you can do a brief introduction, print out Escape Room Notes document, and assist players during the experience should they encounter an issue and require help (answers for the puzzles.). Don't worry you have a cheat sheet to help you.

Printing the Notes:

Open the PDF file Missing Inventions Escape Room Notes.pdf and print on standard paper double sided. You will need to print one copy of the notes for each player or team.

Facilitator Resources:

RESOURCES

Link to Site:	http://poweru.club/
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Facilitator Preparation:

- Review the PowerU site and other supporting materials to learn important background information about PowerU, and in particular the PowerU Tech Escape (Escape Room) experience.
- Ensure you have printed one copy of the notes for each player.
- Provide pen/ pencil, notes document and digital device to each player/team.

Explaining and Starting the Activity:

1. Explain to the players the Escape Room is comprised of 4 Missions. Each mission consists of 3-4 puzzles:

Crossword Puzzles	True/ False Questions	Riddles	Basic Math	Cipher
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2. Mission: Recover the four missing inventions and restore the exhibit

Gas Mask	GPS	Microprocessor	Home Security System
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3. Explain to the players they will be solving puzzles in an “Escape Room” game. (You may need to give them some context or explain how the escape rooms work.).
4. Describe how to play the game:
 - Each player will complete several missions using clues and solving puzzles.
 - When the players have completed all of the missions, the final mission “Restore the Exhibit” will help reinforce the game’s key **STEM** learnings, and give a sense of what the players learned. ‘
5. Next Steps: Now that the players have been introduced to **STEM**, help them to learn more about **STEM** by directing them back to PowerU and select Tech Missions.

Facilitator Answer Key:

The Missing Inventions Time Travel Escape Room is an activity intended to educate young people (ages 10 -12) about **STEM**.

Mission 1



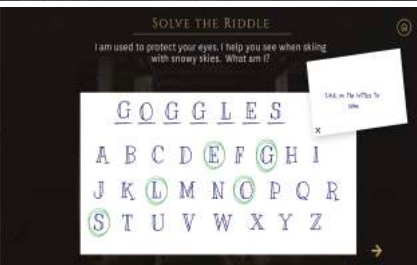
Puzzle 1: What's the year that Garrett Morgan received a patent for the gas mask?

Or

Solve this math problem:

$$(30*100)+(900/2)+(50+90-20)-(20*100)+(20*20)-56$$

Answer: 1914



Puzzle 2: I am used to protect your eyes, they help you see when skiing with snowy skies. What am I?

Answer: Goggles



Puzzle 3: I am full of holes but I am great at holding water. What am I?

Click on the lower cabinet to reveal the image of sponges (see red circle for where to click)

Answer: Sponge



Puzzle 4: Word Search Puzzle

Answers:

1. Traffic Light

2. Laboratory

3. Device

4. Sewing Machine



Final Puzzle

Answer: Cleveland

Mission 1 Key Code: 19 - 3 -9 -5 -14 -3 -5



Tip: Remind player(s) to write down the Key Code

Mission 2



Puzzle 1: Use the longitude and latitude to identify the year that GPS was launched.

Correct Location: Dahlgreen, VA

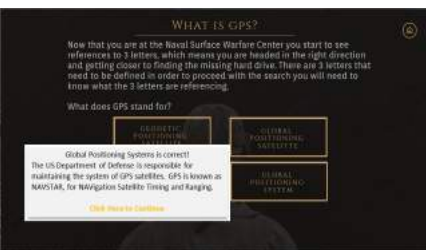
Latitude: 32.9961331

Longitude: 96.7815246

Clue: Using the numbers from both the Latitude and Longitude for the year that GPS was first launched

Clue	Answer	Clue	Answer
First #: Use Latitude position 6	1	Third #: Use Longitude position 3	7
Second #: Use Latitude position 3	9	Fourth #: Use Longitude position 4	8

Answer: 1978



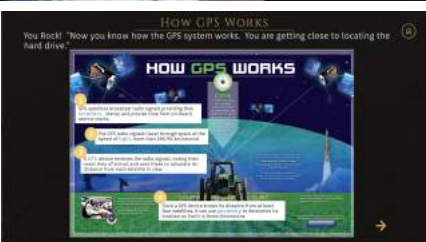
Puzzle 2: What does GPS stand for?

Answer: Global Positioning System



Puzzle 3: Select careers that Gladys West held

Answers: Mathematician, Computer Programmer, Inventor, Educator



Puzzle 4: How GPS Works

Answers:

1: **Locations**

2: **Light**

3: **GPS**

4: **Geometry**



Puzzle 5: Have players click on the image to find the answer. The satellite with the answer is in the lower left portion of the image (see red circle for where to click).

Answer: 24



Final Puzzle: Enter secret code, the number of satellites launched as part of the original GPS system to return back to the present. (Hint: Answer from last puzzle)

Answer: 24

Mission 2 Key Code: 20 - 5 - 3 - 8 - 14 - 15 - 12 - 15 - 7 - 25



Tip: Remind player(s) to write down the Key Code

Mission 3



Puzzle 1: Click the numbers/operations for the correct position to reveal the year the 1 GHZ microprocessor was created.

Selections

-	9	40	x
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Answer:1999



Puzzle 2: Click around the room to find the next clue.

Answer: Laptop with white screen on the storage rack. Note: Player has to click the laptop to have the arrow appear to advance.



Puzzle 3: Jigsaw Puzzle w/ 4 Questions. Each Multiple Choice

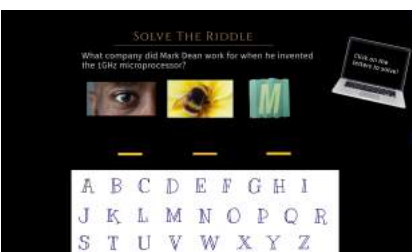
Answers:

Q1	Q2	Q3	Q4	Code
1,000,000,000 Hz	27 Tons	China	XBOX	0110



Puzzle 4: Code from previous puzzle

Answer:0110



Puzzle 5: What company did Mark Dean work for when he invented the 1 GHZ microprocessor?

Answer: IBM



Final Puzzle: Text the name of the company Mark Dean worked for. (Hint: Answer from last puzzle)

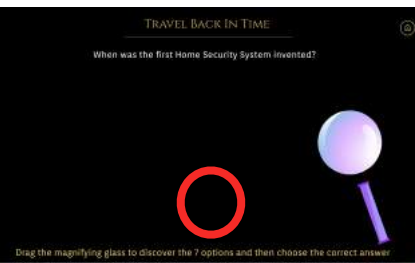
Answer: IBM

Mission 3 Key Code: 5 - 14 - 7 9 - 14 - 5 - 5 -18 - 9 - 14 - 7



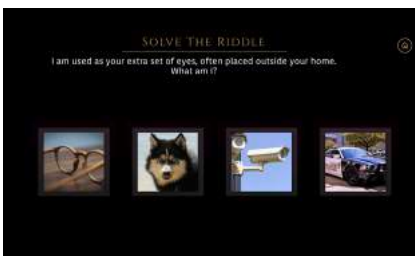
Tip: Remind player(s) to write down the Key Code

Mission 4



Puzzle 1: When was the first Home Security System invented? Search for the correct year using the magnifying glass.

Answer: 1966



Puzzle 2: I am used as your extra set of eyes, often placed outside your home. What am I?

Answer: Camera



Puzzle 3: Which of the following was not included in the home security system invented by Marie Van Brittan Brown?

Answer: Cell Phone



Puzzle 4: The three commonly used methods in the home security system is called POTS (plain old telephone service), cellular, and/or internet.

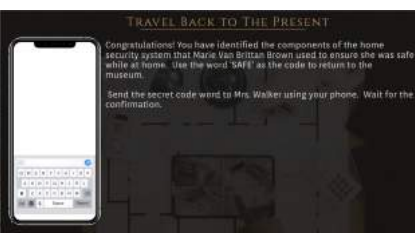
Answer: True



Final Puzzle: How the Home Security System Works

Answers:

1. Peepholes	2. Camera	3. Monitor	4. Microphones
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Secret Code Word: Safe

Mission 4 Key Code: 13 - 1- 20 -8



Tip: Remind player(s) to write down the Key Code

Restore the Mission



Puzzle 1: Unlock Restore Exhibit! Enter first digit(s) of each Mission Key Code in order.

Answer: 19-20-5-13 (Hint: Enter without spaces or dashes)



Puzzle 2 - Gas Mask 1914: Have the play use the **Mission 1** Key Code to find the corresponding letters on the cipher wheel to spell a word. Have the player click the red arrow to bring up the screen. Enter code translated from Mission 1 key. (Hint: All CAPS)

Answer: SCIENCE

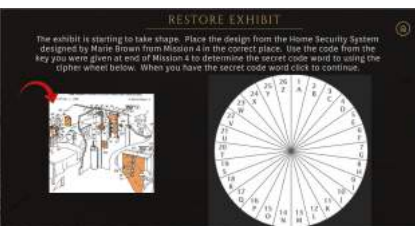
Mission 1 Key Code: 19 - 3 -9 -5 -14 -3 -5



Puzzle 3 GPS 1978: Have the play use the **Mission 2** Key Code to find the corresponding letters on the cipher wheel to spell a word. Have the player click the red arrow to bring up the screen. Enter code translated from Mission 2 key. (Hint: All CAPS)

Answer: TECHNOLOGY

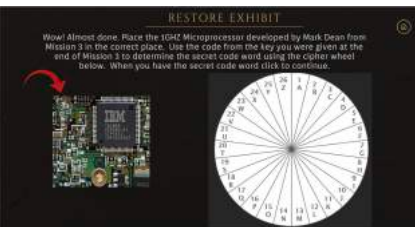
Mission 2 Key Code: 20 - 5 - 3 - 8 - 14 - 15 - 12 - 15 - 7 - 25



Puzzle 4 Home Security 1966 Have the play use the **Mission 3** Key Code to find the corresponding letters on the cipher wheel to spell a word. Have the player click the red arrow to bring up the screen. Enter code translated from Mission 3 key. (Hint: All CAPS)

Answer: ENGINEERING

Mission 3 Key Code: 5 - 14 - 7 9 - 14 - 5 - 5 -18 - 9 - 14 - 7



Puzzle 5 1GHZ Microprocessor: Have the play use the **Mission 4** Key Code to find the corresponding letters on the cipher wheel to spell a word. Have the player click the red arrow to bring up the screen. Enter code translated from Mission 4 key. (Hint: All CAPS)

Answer: MATH

Mission 4 Key Code: 13 - 1- 20 -8



Timeline Complete