



#NCSCONnects Virtual Activity

Activity: Math Escape Room

Category: STEAM

Suggested Grade Level: Grades 1-12



Description: Challenge your family members by solving math problems! An escape room is an adventure game in which players are “locked in a room” (imagined) and must use elements of the room to solve a series of puzzles and escape within a set time limit. You can make it as simple or as difficult as you like.

Supplies:

- Paper
- Pen or pencil
- Tape
- Props (for decorating the room)



Instructions:

1. Draw a sketch of the room where you will set up. Have a rough draft of where you will place each puzzle. Set a captivating storyline if you'd like!
2. Plan math problems, riddles, or other puzzles for your family to solve. Go through your story plan and jot down a puzzle format that feels natural. You can find many fun puzzle ideas online, or use these examples*:
 - *Example A:* How can you get the answer 24 by only using the numbers 8, 8, 3, 3? You can use add, subtract, multiply, divide, and parentheses. Also allowed are logarithms, factorials, and roots.
 - *Example B:* What is unique about the number 8549176320?
 - *Example C:* When asked about his birthday, a man said: “The day before yesterday I was only 25 and next year, I will turn 28.” This is true only one day in a year – what day was he born?



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- *Example D:* A simple Sudoku game (you can find one online).
- *Example E:* Ludwig Bump runs the bank in Mathsville and he's forgotten the combination number to the safe. Fortunately, he does remember some things about the number. Using these hints, can you determine the number that will open the safe?
 - The number has four digits (e.g., 1234 or 9876).
 - All the digits are different.
 - It begins and ends with an odd number and has two even numbers in the middle.
 - $\cdot 19$ and 519 divide into it exactly.

- *Example F:* Write down the next line in the following pattern:

1
11
21
1211
111221
312211
13112221
1113213211
31131211131221
.....?

3. Use your imagination to decorate the room. Set a time limit for each puzzle or a timeframe when *all* puzzles should be solved (i.e., one hour to get out of the room). Create a roadmap for the individual to solve what puzzle first. Post your puzzles on walls, doors, cabinets, and as many places as you can. Once you have located all the clues, each answer should get you closer to breaking out of the room.
4. Theme it up with design hacks and dress the part if you'd like! Here are some ideas:
 - Sherlock – Grab an overcoat and scarf.
 - Escape from Cell Block 52 – Break out your pajamas.
 - Wizarding School – Don your finest dress robes.
 - Zombies – Um... tomato sauce and face makeup?
 - Party like Gatsby – Grab a fancy shirt and some cut-out moustaches.
5. Make sure there is a prize for those who solve the problem, participate in the game, or break out.



*To obtain the answers to the example puzzles above, please email NCSconnects@fairfaxcounty.gov.



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