



FIRST® at Home Activity

Code Your Escape!

PROBLEM STATEMENT

You and your team decided to enter an Escape Room to develop your *FIRST*® Core Values. Your team is placed in pairs and only one pair is allowed in at a time. Your partner must put on a blindfold before you both can enter the room! Once you enter the door to the room, you are given this note:

1. You can't walk any further into the room.
2. You must provide give verbal instructions so that your partner can walk across the room to the other door.
3. Be sure to tell your partner every step or movement to take to avoid touching or running into anything.
4. Your partner can't talk or remove the blindfold!

“Your team is counting on you! Using your expertise to help your partner safely avoid all the obstacles in the room so that you both escape! Details of your mission are below.”

CRITERIA & CONSTRAINTS

- Your solution must be presented as pseudocode.
- Each step within your pseudocode should only include one action; just like in programming a robot.
- Once your volunteer is acting out your pseudocode, the verbal instructions must be followed exactly.

ENGINEERING DESIGN PROCESS & *FIRST* CORE VALUES

[FIRST Engineering Design Process](#) | [Explore FIRST Core Values](#)

BUILDING THE BACKGROUND

Reflect, research, and answer the questions below.

What is pseudocode?

Why is it beneficial to write pseudocode before programming?

ACTIVITY STEPS

1. Choose a room in your home (preferably one with two doors). Place different objects around the room that could serve as obstacles. Obstacles could include chairs, boxes, tables, pillows, etc. (Be sure your volunteer won't get hurt on the obstacle!)
2. Write out the pseudocode (space provided below) to help the person escape the room you are in. Your instructions should get your volunteer from one door to another or one side of the room to the other side.
3. Find a volunteer to act as your partner in your home. This could be an older sibling, parent, or guardian.
4. Explain the *Problem Statement* and *Escape Room Note* to your volunteer.
5. Read aloud each step of your pseudocode aloud to your volunteer and your volunteer should do EXACTLY what you've written. It is completely OPTIONAL for your volunteer to be blindfolded!
6. Your volunteer should stop once an obstacle is encountered and your steps can no longer be executed.
7. Adjust your pseudocode until your volunteer can safely reach escape the room without touching or running into anything!

PSEUDOCODE

Write out the steps your volunteer should make to safely escape the room.

REFLECTION QUESTIONS

1. What happened when you told your volunteer to walk forward?
2. How does your volunteer know how far to go or when to stop?
3. How specific did your instructions have to be?
4. How does this activity relate to programming a robot to perform actions?
5. What skills did you use or learn in this activity?
6. What Core Values were used in this activity?

GO FURTHER!

Option 1: Take the pseudocode you created for your volunteer and recreate in the coding platform you use with robot or use an online coding platform like Scratch. Even if you don't have a robot at home, you can build your code and share with your team.

Option 2: Trade places! Ask your volunteer to rearrange things in the room then write the pseudocode for you to act out.

CORE VALUES SELF-REFLECTION

	Amazing Skill	Great Job	Making Progress	Could Be Better
Discover	I approached the tasks looking for all possible answers independently and used perseverance to discover the answer on my own.	I approached the tasks and asked questions from one other person but persevered to discover the answer on my own.	I approached tasks but needed assistance multiple times to reach a point of discovery.	I depended on others to make the discovery for me.
Innovation	I used creativity and perseverance to solve problems on my own, coming up with unique solutions for the tasks I was given.	I used creativity and perseverance to solve problems on my own coming up with different solutions for the tasks I was given.	I used creativity but struggled with perseverance to solve problems on my own.	I struggled with being creative and only used the information given and needed a lot of encouragement from others to complete the task.
Impact	I approached the tasks applying understanding of the information with the impact it can have on me and my future as well as how I could help others.	I approached the tasks knowing and applying the information with impact it can have on me and my future.	I understand the tasks but struggle to apply how it will help me in my future or to influence others.	I understand the tasks but did not approach it with understanding the impact it can have on my future or others.
Inclusion	I approached all tasks with inclusion of others' ideas, I showed tremendous kindness by including others' views in my projects and work. I approached my solution thinking how all people would interact with the solution.	I approached most with inclusion of others' ideas, I tried to understand others' views and include them in my projects and work. My solution mostly incorporates needs of others.	I approached some tasks with inclusion of others' ideas, I tried to understand others' views and include them in my projects and work. My solution meets only a few needs of others.	I did not approach tasks with inclusion of others' ideas, I tried to understand others' views and include them in my projects and work. My solution is not inclusive of different types of people.
Teamwork	I used collaboration, communication and project management to get all tasks accomplished for myself as well as the others.	I used collaboration, communication and project management to get most tasks accomplished for myself as well as the others.	I used collaboration, communication and project management to get some tasks accomplished for myself as well as the others.	I only sometimes used collaboration, communication and project management and accomplished a few tasks for myself as well as the others.
Fun	I kept a positive attitude throughout and found opportunities to have fun even through struggle. I looked for additional opportunities to have fun in my tasks.	I kept a positive attitude throughout and found opportunities to have fun even through struggle.	I saw the enjoyment and fun after the activity but struggled to see it during.	I only saw struggle in completing my tasks and did not look for times to have fun.