

**Senior High School**

Department of Education  
National Capital Region

**SCHOOLS DIVISION OFFICE  
MARIKINA CITY**

# **Disaster Readiness and Risk Reduction**

First Quarter-Module 6  
**Vulnerabilities of Different  
Sectors and Elements**

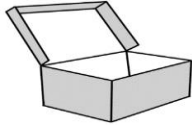


**Maybele L. Roa**



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## What I Need to Know

This module was designed and written with you in mind. It is here to help you master the vulnerabilities of different sectors and elements. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course.

The module has one lesson which is vulnerabilities of different sectors and elements.

After going through this module, you are expected to:

1. **explain why certain sectors of society are more vulnerable to disaster than others (DRR11/12-Ic-9); and**
2. **recognize vulnerabilities of different elements exposed to specific hazards. (DRR11/12-Id-12)**



## What I Know

Read each statement carefully. Then, encircle the letter of the correct answer.

1. Which group of people benefits the most from this ramp structure?  
A. Homeless people  
B. Indigenous groups  
C. People with diabetes  
D. Person with disabilities
2. Which of the following road statements **DOES NOT** help in decreasing children's vulnerabilities while inside or within the premises of their school?  
A. Slow down  
B. U-turn slot  
C. No blowing of horn  
D. Use pedestrian lane
3. Which natural hazard **DOES NOT** usually occur simultaneously with an earthquake?  
A. Landslide  
B. Typhoon  
C. Tsunami  
D. Volcanic eruption



4. What kind of vulnerability do poor families living in the middle of a moderately urbanized place experience?
    - A. Economic and environmental vulnerabilities
    - B. Economic and physical vulnerabilities
    - C. Physical and social vulnerabilities
    - D. Social and economic vulnerabilities
  
  5. What vulnerabilities are being addressed by this braille cross walk sign for blind people?
    - A. Economic and environmental vulnerabilities
    - B. Economic and physical vulnerabilities
    - C. Physical and social vulnerabilities
    - D. Social and economic vulnerabilities
- 
6. What kind of vulnerability is children prone to if their human rights are not respected?
 

A. Economic vulnerability	C. Physical vulnerability
B. Environmental vulnerability	D. Social vulnerability
  
  7. Which vulnerability is being addressed if you keep your house safe from chemicals by storing them properly?
 

A. Economic vulnerability	C. Physical vulnerability
B. Environmental vulnerability	D. Social vulnerability
  
  8. Selena's house and all their family's properties were destroyed by a flood. They tried rebuilding their house but it is still not safe to move back in. Selena's family was exposed to all vulnerabilities **EXCEPT** for what?
 

A. Economic vulnerability	C. Physical vulnerability
B. Environmental vulnerability	D. Social vulnerability
  
  9. Justin has been in a hospital for quite a long time, affecting his work eventually. People around him should know that he is vulnerable to some things. What are Justin's vulnerabilities?
    - A. Economic and environmental vulnerabilities
    - B. Economic and physical vulnerabilities
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    - D. Social and economic vulnerabilities
  
  10. Every Christmas season, some indigenous people are going into the city to ask for some alms or money even though some of them are really not that poor. What vulnerability is being shown here?
 

A. Economic vulnerability	C. Physical vulnerability
B. Environmental vulnerability	D. Social vulnerability

11. Fire exit should be present even at home. What vulnerability is being addressed here?
- A. Economic vulnerability
  - B. Environmental vulnerability
  - C. Physical vulnerability
  - D. Social vulnerability
12. Erin found out that their community's water source has been contaminated by chemical wastes coming from a manufacturing plant, the ABCD Company. What vulnerability were Erin and her neighbors have been exposed to?
- A. Economic vulnerability
  - B. Environmental vulnerability
  - C. Physical vulnerability
  - D. Social vulnerability
13. When Marge got sick due to contaminated water, she was not able to go to work and provide for her family. What vulnerabilities has Marge been exposed to?
- A. Economic and environmental vulnerabilities
  - B. Economic and physical vulnerabilities
  - C. Physical and social vulnerabilities
  - D. Social and economic vulnerabilities
14. ABCD Company made Erin's neighbors sick because of their improper disposal of chemical wastes to the community's water source. What kind of vulnerability did ABCD Company ignore?
- A. Economic vulnerability
  - B. Environmental vulnerability
  - C. Physical vulnerability
  - D. Social vulnerability
15. Some of Erin's neighbors did not get sick from contaminated water source but suffered unemployment when ABCD Company was ordered closure by the court. What could be the vulnerability these people have been exposed to after?
- A. Economic vulnerability
  - B. Environmental vulnerability
  - C. Physical vulnerability
  - D. Social vulnerability



## Lesson

# Vulnerability of Different Sectors and Elements



## What's In

When discussing about vulnerability, everything about hazards, harm or danger are also mentioned. In general, vulnerability refers to the possibility of harm due to hazards or exposure to danger. Vulnerability of certain people and places differ from one another because of level or degree of exposure. Determining the kind of vulnerability a person or place is exposed to help us address the vulnerability and decrease the damage that might take place. So, the questions are who are most vulnerable during the time of disaster? What parts of the society are more vulnerable to the impact of hazards than others? What makes a certain element vulnerable to harm? How can vulnerability and risk awareness help us prepare for different kinds of disasters?



## What's New

More than anything else, people like us are most vulnerable to all types of hazards. The damages are even greater if we are not aware of the danger we have to face, bearing in mind of how exposed we are. Considering some people with conditions, how do you think will they be able to cope with various hazards and disasters?

### Activity 1. Role Playing

You will be doing the following simple tasks. After each “role”, rate how vulnerable you felt under normal situations such as staying at home with ten (10) being the most vulnerable, and one (1) as least vulnerable.

1. Cover your eyes with a big handkerchief. See to it that you will not see anything at all. How does it feel to be “blind”?
2. Pretend that you are deaf. Try to cover your ears with headphones, earplugs, or simply cover your ears. Be careful not to hurt your ears.
3. Using a big handkerchief or a bandage, try to put a bandage in one of your feet. This time, you are “injured”. Can you still move comfortably?



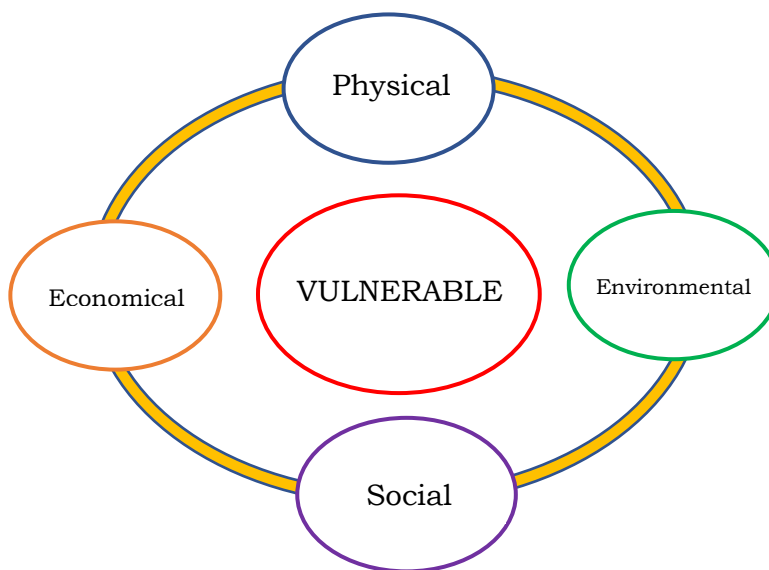
Answer the following questions.

- A. How does it feel to be “disabled”?
- B. What are the things that you were not able to do?
- C. What are the things that you were still able to do?



## What Is It

Previously, you have learned about the different types or factors of vulnerability: physical, social, economic, and environmental. We can say that these vulnerabilities determine the possibility and extent of damage due to the given hazard. Moreover, these factors are dependent to one another. Both physical and environmental vulnerabilities pertain to the physical aspects and resources around us such as tangible materials, and nature reserves. The said vulnerabilities have impacts on the social and environmental vulnerabilities because the latter show people’s capability and ability in handling hazards.



*Figure 1. Dimensions of Exposure and Factors of Vulnerability*

All countries, whether first world or developing, experience hazards and disasters. However, some groups of people are more vulnerable compared to others. We can say that countries, communities, and people in developing countries are more susceptible to the impact of these hazards.

Below is the list of most vulnerable group of people.

1. People with disabilities (physical, mental, social, and emotional cases)
2. Children (including school children, orphans, malnourished)
3. Senior citizens

4. Individual with medical needs, and/or attention
5. Single parents
6. Pregnant women
7. Unemployed
8. Ethnic minorities or indigenous people
9. Homeless or people living on streets
10. Low-income individuals
11. Imprisoned individuals
12. Some marginalized groups or those experiencing discrimination

Going back to Activity 1 where you pretended to be a person with disability, you are vulnerable in many ways because of your “condition”. Being blind, deaf or a person with foot injury, you are physically vulnerable because you cannot immediately evacuate if there will be earthquake, fire, and even flood. Moreover, with your disabilities, you are also economically vulnerable because aside from maintaining your basic need for food, you have your health to attend to, putting a strain to your budget. Being socially vulnerable is also your concern because at some point, you may want to be regarded as a productive individual instead of a person that is always in need of help.

## Activity 2. Vulnerabilities of Some Groups

Below are some of the vulnerable groups that were mentioned. Can you tell how they will deal with different hazards? Place your answers on the space provided for each item.

Vulnerable group	Different Hazards
1. Children	Earthquake:
	Fire:
	Flood:



<b>Vulnerable group</b>	<b>Different Hazards</b>
2. Senior citizens	Earthquake:
	Fire:
	Flood:
3. Homeless people	Earthquake:
	Fire:
	Flood:

Generally, people are not the only ones who are affected by hazards. Elements also at risk during a disaster are the properties, economic activities, services, and any other components which are unable to cope or recover from harmful impacts. In our own homes, safety should be our concern and prioritizing it should be done immediately.

### **Activity 3. How vulnerable is it?**

Look at the next picture. Examine the over-all vulnerability of the house and its occupants through the conditions given. Fill out the table on how the exposed elements (house itself, contents of the house, and the people living inside the house) will be affected by several hazards.

#### *Condition of the House:*

- A typical house in Pampanga after it was affected by lahar
- Frame and foundation of the house is made from hollow blocks and concrete
- Roof consists of coco-lumber with some galvanized iron
- Partitions or division inside the house (separating rooms from dining, kitchen, etc.) are made of wood
- House was designed and constructed by a carpenter with no formal architectural and engineering background or training
- Furniture (chair, table, cabinet) inside the house are made of either wood or plastic; there is a cabinet with glass cover, and hanging mirrors in the bedroom and bathroom

#### *Occupants or those living inside the house:*

- Owner: male, 34 years old
- Owner's wife: 32 years old, pregnant
- Three children, ages 5 , 3- years, and a 6-month old infant





- Owner's mother, 75 years old
- Owner's only brother, 40 years old, wheel-chair bound

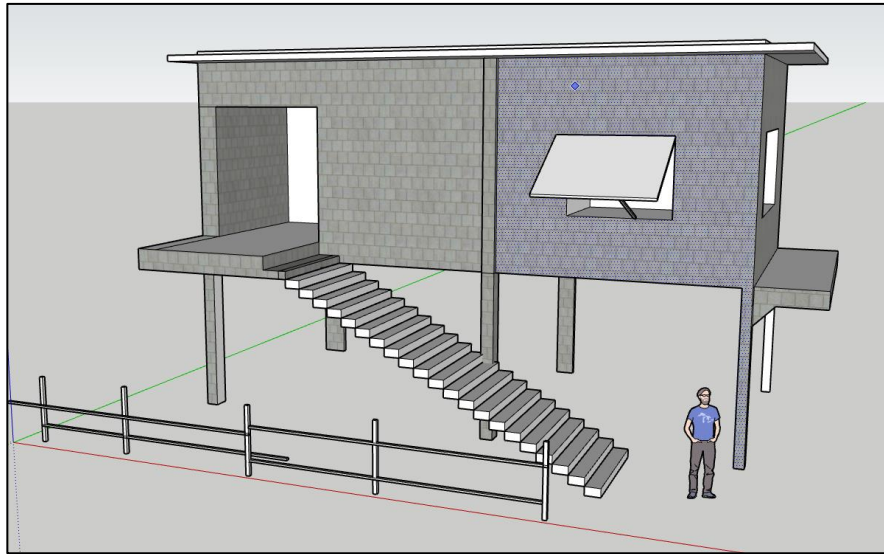
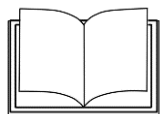


Figure 2. An example of house with several vulnerabilities

HAZARDS	EXPOSED ELEMENTS		
	House Structure	Inside the House	Occupants
1. Earthquake	- The house is not stable with that kind of structure	- Cabinets may fall, mirrors may fall and break	- Some members of the family will not be able to evacuate immediately due to their conditions
2. Fire (from kitchen stove)			
3. Flood (due to continuous heavy rains)			
4. Typhoon (due to storm signal no. 3)			



## What's More

Since you have already identified the vulnerabilities of the previous scenario based on the exposed elements, you are now going to give ways on how to reduce the vulnerabilities of the house, its contents, and the occupants. Apply what you have learned by completing the table below. One example is given for your reference.

### Activity 4. How to reduce vulnerability?

HAZARDS	House Structure	Inside the House	Occupants
1. Earthquake	- Strengthen the foundation or the beams of the house		
2. Fire			
3. Flood			
4. Typhoon			



## What I Have Learned

### Activity 5. Letter Game

Using the letters from the word vulnerability, write down what you have learned in this module. You may use keywords or sentences for your answers. Place your answers on the space provided.

V \_\_\_\_\_

U \_\_\_\_\_

L \_\_\_\_\_

N \_\_\_\_\_

E \_\_\_\_\_

R \_\_\_\_\_

A \_\_\_\_\_

B \_\_\_\_\_

I \_\_\_\_\_

L \_\_\_\_\_

I \_\_\_\_\_

T \_\_\_\_\_

Y \_\_\_\_\_



## What I Can Do

### Activity 6. This is My House

Based on the given example above, as a guide you will assess the vulnerability of your own home. Use the following guide in describing your house, contents inside, and the occupants (you and your family).

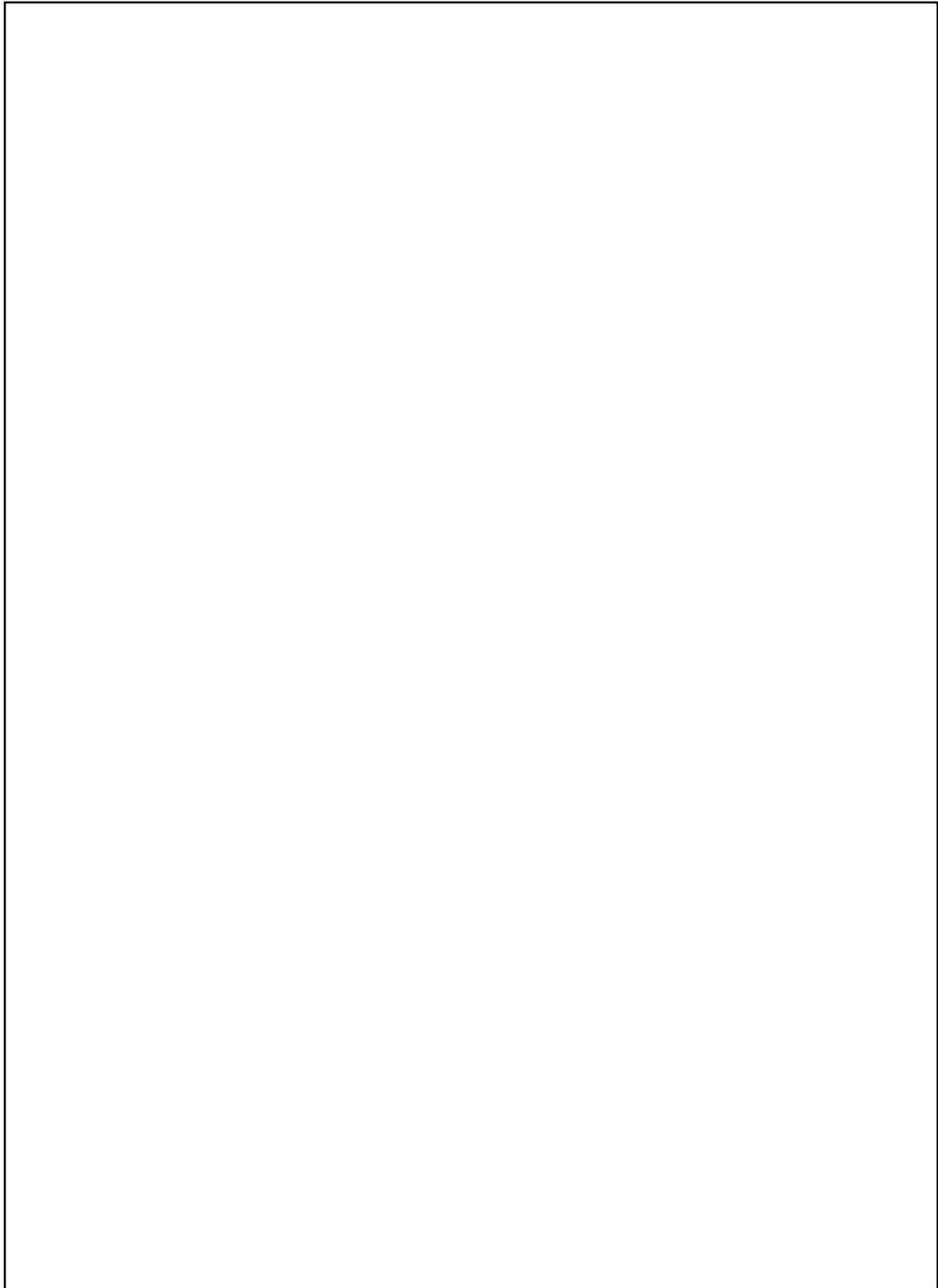
After identifying the vulnerability of your house to various hazards, list down some ways of decreasing the vulnerability of the exposed elements. You may interview (through zoom, Google meet or video call) an architect or an engineer for safety measures.

#### *Condition of the house:*

- Location of your house (ex: near a busy street, near the river, etc.)
- Over-all frame and foundation of the house (ex: concrete, wood, steel)
- Materials used as roof
- Partitions inside the house (separating rooms from dining, kitchen, etc.) are made of what materials (ex: concrete, wood, steel, glass)
- Electrical wiring conditions
- Lighting conditions
- Over-all safety (free from slips, fall, poisoning from smoke and chemicals)
- House designed and constructed by a carpenter with or without formal architectural and engineering background or training
- Furniture (chair, table, cabinet) inside the house are made of what materials (ex: concrete, wood, steel, glass, plastic, others)

#### *Occupants or those living inside the house:*

- Enumerate all the people living inside your house, including their age and conditions (ex: senior citizen, needs medical attention, children, PWD, pregnant female member, etc.)



Drawing of your house



Criteria for Grading:

<b>CRITERION</b>	<b>4 (EXCEEDS EXPECTATIONS)</b>	<b>3 (MEETS EXPECTATIONS)</b>	<b>2 (NEEDS IMPROVEMENT)</b>	<b>1 (NOT EVIDENT)</b>
Recognition of cases of vulnerability of different elements exposed to specific hazards.	Recognized more than 10 cases of vulnerability of different elements exposed to specific hazards.	Recognized 6-10 cases of vulnerability of different elements exposed to specific hazards.	Recognized 3-5 cases of vulnerability of different elements exposed to specific hazards.	Did not recognize cases of vulnerability of different elements exposed to specific hazards.
Presented practical strategies in reducing collective vulnerability of elements exposed to multiple hazards.	Presented 9 and above practical strategies in reducing collective vulnerability of elements exposed to multiple hazards.	Presented 6-8 practical strategies in reducing collective vulnerability of elements exposed to multiple hazards.	Presented 3-5 practical strategies in reducing collective vulnerability of elements exposed to multiple hazards.	Did not present practical strategies in reducing collective vulnerability of elements exposed to multiple hazards.

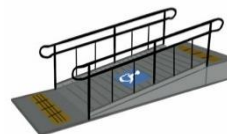


## Assessment

Read each statement carefully. Then, encircle the letter of the correct answer.

1. Which group of people benefits the most from this ramp structure?

- A. Homeless people
- B. Indigenous groups
- C. People with diabetes
- D. Person with Disabilities



2. Which of the following road statements **DOES NOT** help in decreasing children's vulnerabilities while inside or within the premises of their school?

- A. Slow down
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3. What vulnerabilities are being addressed by this braille cross walk sign for blind people?

A. Economic and environmental vulnerabilities  
B. Economic and physical vulnerabilities  
C. Physical and social vulnerabilities  
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4. Which natural hazard **DOES NOT** usually occur simultaneously with earthquake?

A. Landslide  
B. Typhoon  
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5. What kind of vulnerability do poor families living in the middle of a moderately urbanized place experience?

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6. Erin found out that their community's water source has been contaminated by chemical wastes coming from a manufacturing plant, the ABCD Company. What vulnerability were Erin and her neighbors have been exposed to?

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9. Some of Erin's neighbors did not get sick from contaminated water source, but suffered unemployment when ABCD Company was ordered closure by the court. What could be the vulnerability these people have been exposed to after?
- |                                |                           |
|--------------------------------|---------------------------|
| A. Economic vulnerability      | C. Physical vulnerability |
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10. What kind of vulnerability are children subjected into if their human rights are not respected?
- |                                |                           |
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15. Fire exit should be present even at home. What vulnerability is being addressed here?
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## Additional Activities

Have you ever thought about your dream house? More than being big and beautiful, your house should be safe and secured.

Make a simple layout or drawing of your dream house on a separate sheet of paper. Start from the over-all structure, how many rooms, down to what kind of furniture you would like to have. You may virtually consult an architect or engineer for some ideas for your ideal home (through video call, Google meet, or Zoom). See to it that your house is hazard free or not vulnerable to various hazards like earthquake, flood and others. You may color your ideal house or put some additional amenities like garden, garage, fire exit, and others.

Make your output complete, clean, organized, and submitted on given time. Good luck!

### MY IDEAL HOUSE



### CRITERIA FOR GRADING:

<b>CRITERION</b>	<b>20 (EXCEEDS EXPECTATIONS)</b>	<b>15 (MEETS EXPECTATIONS)</b>	<b>10 (NEEDS IMPROVEMENT)</b>	<b>5 (NOT EVIDENT)</b>
Presented practical and realistic strategies in reducing collective vulnerability to multiple hazards of the ideal house.	Presented 9 and above practical and realistic strategies in reducing collective vulnerability to multiple hazards of the ideal house.	Presented 6-8 practical and realistic strategies in reducing collective vulnerability to multiple hazards of the ideal house.	Presented 3-5 practical and realistic strategies in reducing collective vulnerability to multiple hazards of the ideal house.	Did not present practical and realistic strategies in reducing collective vulnerability to multiple hazards of the ideal house.



## References

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