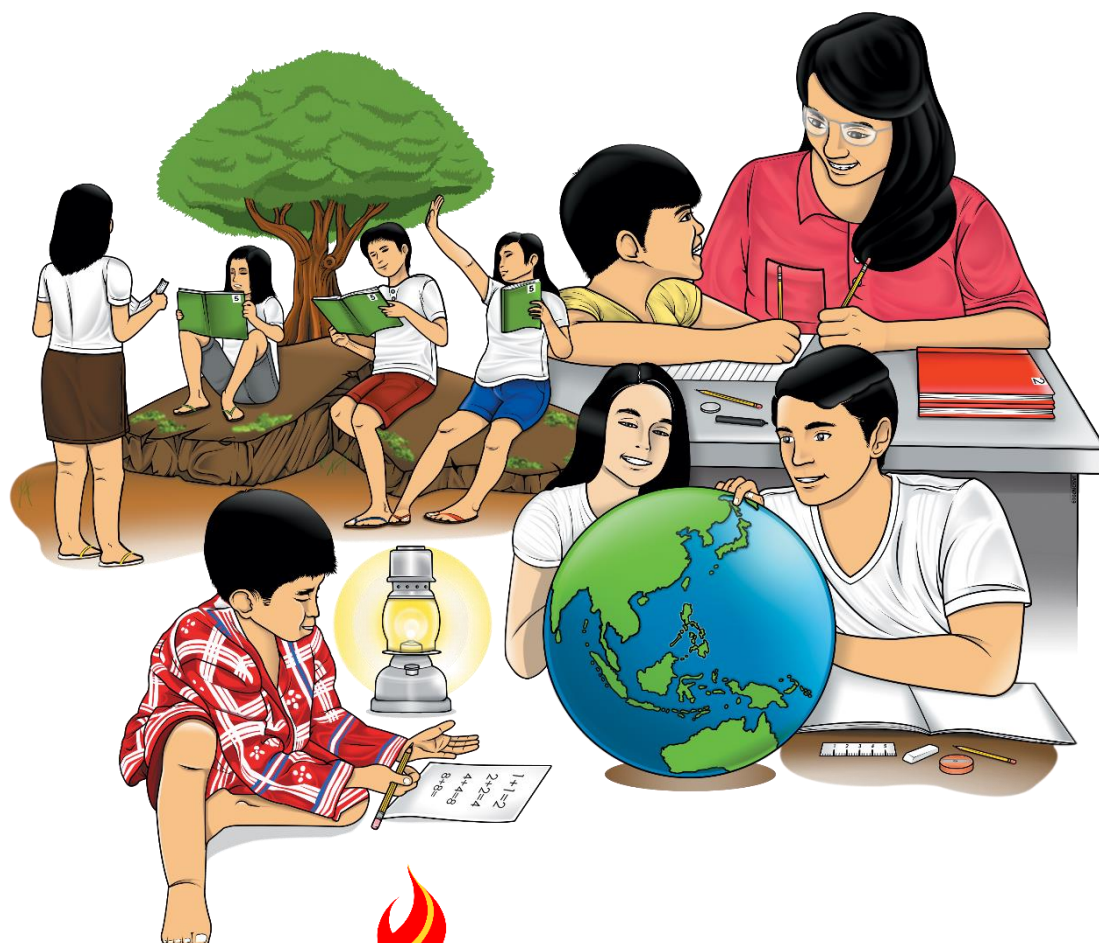


Disaster Readiness and Risk Reduction

Quarter 1 – Module 14: Interpret Earthquake Hazard Map



Disaster Readiness and Risk Reduction
Alternative Delivery Mode
Quarter 1 – Module 14: Interpret Earthquake Hazard Map
First Edition, 2020

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Disaster Readiness and Risk Reduction

Quarter 1 – Module 14: Interpret Earthquake Hazard Map

Introductory Message

For the facilitator:

Welcome to the Grade 11/12 Disaster Readiness and Risks Reduction (DRRR) Alternative Delivery Mode (ADM) Module on how to Interpret Earthquake Hazard Map!

This module was collaboratively designed, developed and reviewed by educators both from public and private institutions to assist you, the teacher or facilitator in helping the learners meet the standards set by the K to 12 Curriculum while overcoming their personal, social, and economic constraints in schooling.

This learning resource hopes to engage the learners into guided and independent learning activities at their own pace and time. Furthermore, this also aims to help learners acquire the needed 21st century skills while taking into consideration their needs and circumstances.

In addition to the material in the main text, you will also see this box in the body of the module:



Notes to the Teacher

This contains helpful tips or strategies that will help you in guiding the learners.

As a facilitator you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Furthermore, you are expected to encourage and assist the learners as they do the tasks included in the module.

For the learner:

Welcome to the Grade 11/12 Disaster Readiness and Risks Reduction (DRRR) Alternative Delivery Mode (ADM) Module on how to Interpret Earthquake Hazard Map!

The hand is one of the most symbolized part of the human body. It is often used to depict skill, action and purpose. Through our hands we may learn, create and accomplish. Hence, the hand in this learning resource signifies that you as a learner is capable and empowered to successfully achieve the relevant competencies and skills at your own pace and time. Your academic success lies in your own hands!

This module was designed to provide you with fun and meaningful opportunities for guided and independent learning at your own pace and time. You will be enabled to process the contents of the learning resource while being an active learner.

This module has the following parts and corresponding icons:



What I Need to Know

This will give you an idea of the skills or competencies you are expected to learn in the module.



What I Know

This part includes an activity that aims to check what you already know about the lesson to take. If you get all the answers correct (100%), you may decide to skip this module.



What's In

This is a brief drill or review to help you link the current lesson with the previous one.



What's New

In this portion, the new lesson will be introduced to you in various ways such as a story, a song, a poem, a problem opener, an activity or a situation.



What is It

This section provides a brief discussion of the lesson. This aims to help you discover and understand new concepts and skills.



What's More

This comprises activities for independent practice to solidify your understanding and skills of the topic. You may check the answers to the exercises using the Answer Key at the end of the module.



What I Have Learned

This includes questions or blank sentence/paragraph to be filled in to process what you learned from the lesson.



What I Can Do

This section provides an activity which will help you transfer your new knowledge or skill into real life situations or concerns.



Assessment

This is a task which aims to evaluate your level of mastery in achieving the learning competency.



Additional Activities

In this portion, another activity will be given to you to enrich your knowledge or skill of the lesson learned. This also tends retention of learned concepts.



Answer Key

This contains answers to all activities in the module.

At the end of this module you will also find:

References

This is a list of all sources used in developing this module.

The following are some reminders in using this module:

1. Use the module with care. Do not put unnecessary mark/s on any part of the module. Use a separate sheet of paper in answering the exercises.
2. Don't forget to answer *What I Know* before moving on to the other activities included in the module.
3. Read the instruction carefully before doing each task.
4. Observe honesty and integrity in doing the tasks and checking your answers.
5. Finish the task at hand before proceeding to the next.
6. Return this module to your teacher/facilitator once you are through with it.

If you encounter any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator. Always bear in mind that you are not alone.

We hope that through this material, you will experience meaningful learning and gain deep understanding of the relevant competencies. You can do it!



What I Need to Know

In this module, the learner will be able to identify different earthquake hazards at home. This will further teach the learner how to sketch an earthquake map and be able to interpret it according to its degree of damage in order to make the whole family safe and free from harm during earthquake. To lessen if not to avoid danger during disasters, the learner is expected to become a keen observant by knowing how to identify different earthquake hazards present at home. Aside from having a skill in identifying earthquake hazards at home, this module will also help the learner and other family members to propose appropriate actions for disaster readiness.

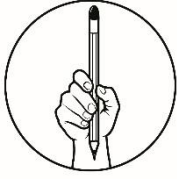
In this module, the learner will be able to determine what is earthquake hazard map and its crucial role upon pertaining to the assessment of risk that a particular place could take. This will further teach the learner on how to manage or raise peoples' anticipation and readiness regarding the hazard and risk that the place may take. To lessen the counts of possible casualties, the learner is expected to become knowledgeable of interpreting earthquake hazard maps and resilient by giving insights and ideas where to go and find a safe and secured facilities and shelters in doing the evacuation procedures to reduce the dangers of hazards that supposedly present at home and in the community. This module will also help the learner to identify, create earthquake hazard map and become well-familiarize of preventive measures such as evacuation procedures and decision making in terms of location where to evacuate in case of hazard and risk occurrence.

The module is consist one lesson only.

- Interpret Different Earthquake Hazard Maps.

After going through this module, you are expected to:

1. identify different earthquake hazards at home;
2. appreciate a hazard map by creating one within the vicinity of the house; and
3. interpret an earthquake hazard map at home according to the degree of damage.



What I Know

Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. Which of the following can you get in making an earthquake hazard map?
 - a. evacuation
 - b. information
 - c. mitigation
 - d. transformation

2. In a hazard map color, what does brown mean?
 - a. very small probability of damage
 - b. could experience very strong shaking
 - c. capable of producing the most intense shaking
 - d. could experience shaking of moderate intensity

3. Where will you keep your family hazard map?
 - a. inside the cabinet
 - b. inside a plastic bottle
 - c. a place where children cannot reach it
 - d. a place that is accessible to every member of the family

4. Which of the following characteristics can be considered in preparing a hazard map?
 - a. The map can only be understood by the parents.
 - b. The map can only be understood by the barangay officials.
 - c. The map must be easy to use and understand by the members of the family.
 - d. all of the above

5. In an earthquake map, moderate intensity is represented by what color?
 - a. Brown
 - b. Gray
 - c. Red
 - d. Yellow

6. Which of the following is not a material or tool which provides you the necessary information and guide in procurement of peoples understanding, awareness and mitigation of the risks from natural hazards?
- a. hearsay
 - b. map
 - c. news paper
 - d. television
7. In an earthquake map, which of the following color describe the stronest shaking ?
- a. Brown
 - b. Gray
 - c. Red
 - d. White
8. Building design and construction professionals use SDC's specified in building codes to determine the level of seismic resistance required for new buildings. What is SDC stance for?
- a. Seismic Design Categories
 - b. Seismic Denoted Categories
 - c. Seismic Designated Categories
 - d. None of the above
9. Which of the following is not considered in a hazard mapping?
- a. potential hazard
 - b. safety route
 - c. valuable materials
 - d. all of the above
10. Why is hazard map important?
- a. it will lead you to a safety route
 - b. it will lead you to the evacuation center
 - c. it will help the whole family to evacuate easily
 - d. all of the above
11. Which part of the map shows the proportion to real life?
- a. color
 - b. grid reference
 - c. scale
 - d. symbol
12. Which of the following parts of the map will give you direction?

- a. colour
- b. compass rose
- c. grid reference
- d. scale

13. Which of the following are intersecting lines to help locate specific place of the map?

- a. compass rose
- b. grid reference
- c. scale
- d. title

14. Which part of the map highlights different information to help interpret maps?

- a. colour
- b. compass rose
- c. scale
- d. symbol

15. These are pictures used in the map.

- a. colour
- b. grid reference
- c. scale
- d. symbol

Lesson 1

Interpret Earthquake Hazard Map

This lesson explains the importance of having a knowledge of interpreting an earthquake hazard map which is very essential not only in the family but also in the community. It will also help the learner on how to create a family hazard map which will they use during evacuation.



What's In

Activity 1. Compare and contrast the two images and answer the given questions below.



Pic. 1



pic. 2

2020. Pinimg.Com. 2020.

<https://i.pinimg.com/originals/dd/d3/3d/ddd33d32c01f5f828d368acf0054a2ed.jpg>

1. What picture is best represented by a family earthquake hazard map?

_____.

2. Why did you consider that picture as a hazard map?

_____.

3. Describe the things that you can see in that hazard map.

_____.

4. Why are those arrows important ? What does the color of the arrows indicate? _____



What's New

1. Do you have a family hazard map at home?

2. Why is family hazard map important?

_____.

3. Do you know how to interpret a hazard map? How do you interpret your family hazard map?

_____.

4. What are the things you need to consider in interpreting your family hazard map in order to become more effective?



What is It

Map interpretation is the process looking at the map in order for us to be guided to a direction or place where we wanted to go using the different symbols or elements of the map.

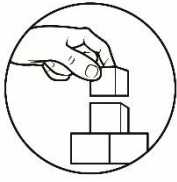
There are seven important components of a map. These components will help you interpret a map.

1. Compass rose. This will give you the proper direction. This is also called it “orientation.”
2. Title. It tells what the map is about.
3. Symbols. These are pictures instead of symbols.
4. Legend or Key. It explains the meaning of symbols and colour.
5. Colour. It highlights the important information to help interpret maps.
6. Scale. It shows the proportion of map to real life.
7. Grid Reference. These are intersecting lines to help locate specific places on the map. In some maps, it is also called “border.”

<https://image.slidesharecdn.com/componentsofamap-170829044143/95/components-of-a-map-1-638.jpg?cb=1503981718>

A Seismic Design Categories will help us in interpreting an earthquake map.

SDC	Map Color	Earthquake Hazard	Potential effects of Shaking
A	White	Very small probability of experiencing damaging earthquake effects	
B	Gray	Could experience shaking of moderate intensity	Moderate shaking-Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight
C	Yellow	Could experience strong shaking	Strong shaking-Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built structures.
DO	Light Brown	Could experience very strong shaking (the darker the color,the stronger the shaking)	Very strong shaking-Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures.
D1	Darker Brown		
D2	Darkest Brown		
E	Red	Near major active faults capable of producing the most intense shaking	Strongest shaking-Damage considerable in specially designed structures; frame structures thrown out of plumb. Damage great in substantial buildings,with partial collapse. Buildings shifted off foundations. Shaking intense enough to completely destroy buildings.



What's More

Activity 1. Name Me!

Direction: Give 10 establishments where you can see a hazard map. Write your answers in your DRRR notebook.

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
- _____ 10. _____

Activity 2: Give Me A Map!

In your DRRR notebook, sketch your family evacuation map going to the evacuation area. Indicate in your map the exact location of potential hazards at home and on your way to evacuation site. The map should be easy to follow. Color the different potential hazard based from the Seismic Design Categories.

Rubrics

Work will be graded based on the rubrics.

Category	4	3	2	1
Comprehensiveness of the map	The map shows 8-10 potential hazards correctly and potential disasters were described	The map shows 5-7 potential hazards correctly and potential disasters were described	The map shows 1-4 potential hazards only	The map doesn't show 8-10 potential hazards
	The map shows all safe spaces and the path going out of the house	The map shows most safe spaces	The map shows 1-2 safe spaces	Does not show safe space

Activity 3: Interpret the Risk in the map!

Using your family hazard map that you sketched, interpret the potential hazards according to risk level. (High risk, moderately risk, low risk)

Type of hazard	Interpretation

Activity 4. Guide Me!

Using your family evacuation map, answer the following:

1. What is the approximate distance in meters from your house to the evacuation area?

_____.

2. If you start to travel from your house to the evacuation site, how many minutes will you consume before reaching the evacuation site?

_____.

3. Using a compass or GPS, what direction do you follow in going to the evacuation site?



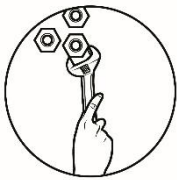
What I Have Learned

1. I learned that having a knowledge of interpreting a family hazard map is _____ because _____

_____.

2. I further learned that interpreting a family hazard map can help me and my family in

_____.



What I Can Do

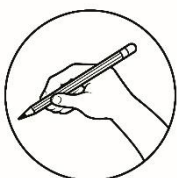
You look at again the family hazard map that you sketched. Then answer the following questions.

1. If a strong earthquake will strike your place, how do you and your family use your family evacuation map?

_____.

2. What can you and your family do to evacuate immediately using your family evacuation map?

_____.



Assessment

Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. In a hazard map color, what does brown mean?
 - a. very small probability of damage
 - b. could experience very strong shaking
 - c. capable of producing the most intense shaking
 - d. could experience shaking of moderate intensity

2. In an earthquake map, moderate intensity is represented by what color?
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- a. hearsay
- b. map
- c. news paper
- d. television

7. Which of the following is not considered in a hazard mapping?

- a. potential hazard
- b. safety route
- c. valuable materials
- d. all of the above

8. In an earthquake map, which of the following color describe the strongest shaking ?

- a. Brown
- b. Gray
- c. Red
- d. White

9. Building design and construction professionals use SDC's specified in building codes to determine the level of seismic resistance required for new buildings. What is SDC stance for?

- a. Seismic Design Categories
- b. Seismic Denoted Categories
- c. Seismic Designated Categories
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- a. color
- b. grid reference
- c. scale
- d. Symbol

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- a. colour

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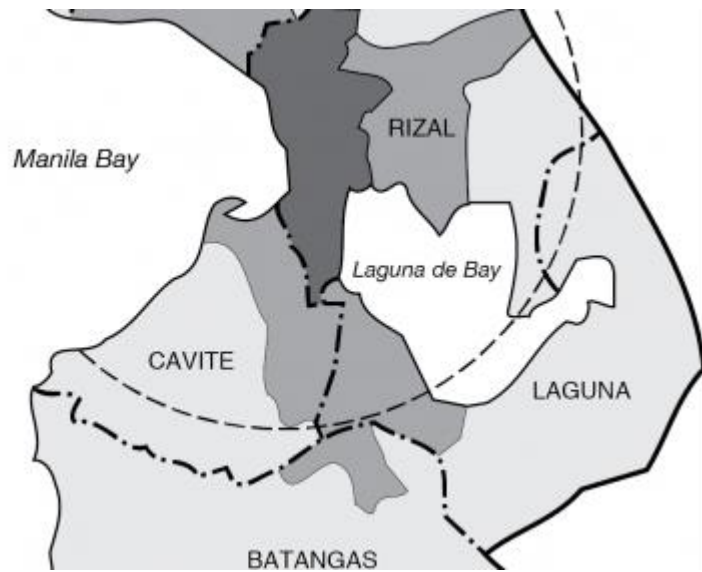
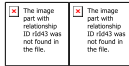
15. Why is hazard map important?

- a. it will lead you to a safety route
- b. It will lead you to the evacuation center
- c. It will help the whole family to evacuate easily
- d. all of the above



Additional Activities

Below is a CALABARZON map. Apply color in each province using the Seismic Design Categories (SDC) or the degree of shaking. Interpret each color you applied in each province.



file:///C:/Users/Armand/Desktop/black%20and%20white%20map%20of%20CALABARZON%20-%20Google%20Search_files/00-275_Manilla_graphic.png

Interpret the color you applied in each province

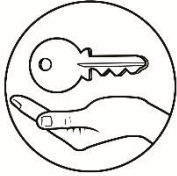
1. Cavite

2. Laguna

3. Rizal

4. Batangas:

5. Laguna de Bay



Answer Key

Assessment		What I know!
1. A		1. B
2. B		2. A
3. D		3. D
4. B		4. C
5. C		5. B
6. A		6. A
7. C		7. B
8. C		8. B
9. A		9. C
10. C		10. D
11. D		11. C
12. B		12. B
13. B		13. B
14. A		14. A
15. D		15. D

References:

“Philippine Earthquake Hazard Map - Google Search.” n.d. Www.Google.Com.
Accessed July 10, 2020.

https://www.google.com/search?q=Philippine+earthquake+hazard+map&xsrf=ALeKk0078X7PN9EcEqH688AQMdYXbEKiOA:1591069483296&tbm=isch&source=iu&ictx=1&fir=_ECeDzIky0iRYM%253A%2

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