	School:		**Grade Level:**	**7**
	Teacher:		**Learning Area:**	**Science**
	Teaching Dates and Time:		**Quarter:**	**Fourth**
			Week:	**Week 4-Day 4**

I. CONTENT, STANDARDS AND LEARNING COMPETENCIES		***ANNOTATIONS***
A. CONTENT STANDARDS	The learners learn that the damage or effects on communities depend on the magnitude of and distance from an earthquake.	
B. PERFORMANCE STANDARDS	By the end of the Quarter, learners will appreciate the value of using systems to analyze and explain natural phenomena and demonstrate their understanding of the dynamics of faults and earthquakes. They are confident in identifying and assessing the earthquake risk for their local communities using authentic and reliable secondary data. They use the country's disaster awareness and risk reduction management plans to identify and explain to others what to do in the event of an earthquake. Learners explain the cause and effects of secondary impacts that some coastal communities may experience should a tsunami be produced by either local or distant earthquake activity. Learners use reliable scientific information to identify and explain how solar energy influences the atmosphere and weather systems of the Earth and use such information to appreciate and explain the dominant processes that influence the climate of the Philippines.	

C. LEARNING COMPETENCIES	**Learning Competencies:** Refer to the local disaster readiness plans to demonstrate what to do during and after an earthquake **Learning Competencies:** Describe procedures that the authorities have in place to alert communities of pending tsunamis and what procedures can be implemented should a tsunami impact a community;	
D. LEARNING OBJECTIVES	**Learning Objectives:** 1. Identify the key components of the local disaster readiness plan related to earthquakes; 2. Demonstrate the correct technique for "Drop, Cover, and Hold On" during simulated earthquake drills.; and 3. Increased confidence in their ability to respond effectively during and after an earthquake by following the local disaster readiness plan. **Learning Objectives:** 1. Describe the communication channels through which authorities disseminate tsunami warnings; 2. Demonstrate the ability to follow evacuation procedures in response to a tsunami warning; and 3. Appreciate the importance of preparedness for tsunamis.	
I. CONTENT		
Earthquake and Tsunami Preparedness		
II. LEARNING RESOURCES		
A. REFERENCES	● The San Andreas Fault - VIII. “Magnitude” and “Intensity.” (n.d.). https://pubs.usgs.gov/gip/earthq3/magnitude.html ● Oxford Languages Dictionary ● simulate. (2024). https://dictionary.cambridge.org/dictionary/english/simulate ● The Modified Mercalli Intensity Scale | U.S. Geological Survey. (n.d.). https://www.usgs.gov/programs/earthquake-hazards/modified-	

	mercalli-intensity-scale
B. OTHER LEARNING RESOURCES	

III. TEACHING AND LEARNING PROCEDURE

BEFORE/PRE-LESSON PROPER

ACTIVATING PRIOR KNOWLEDGE	**Short Review** Intensity scales are used to measure and describe the effects of earthquakes on people, buildings, and the Earth's surface. Unlike magnitude scales, which measure the energy released during an earthquake, intensity scales focus on the observable impact of the seismic event. 1. **Modified Mercalli Intensity (MMI) Scale**: This scale ranges from I (not felt) to XII (total destruction). It measures the intensity of shaking and its effects on people, buildings, and the environment. The scale is subjective, relying on human observation and damage reports. 2. **Richter Scale**: Developed in 1935, this scale measures the magnitude (or size) of an earthquake based on the amplitude of seismic waves recorded by seismographs. The scale is logarithmic, meaning each whole number increase represents a tenfold increase in amplitude and about 32 times more energy released. 3. **Moment Magnitude Scale (Mw)**: This scale measures the energy released by an earthquake by assessing the	

	size of the fault that slipped, the amount of slip, and the properties of the rocks involved. Unlike the Richter scale, which is most accurate for small earthquakes, the Moment Magnitude Scale provides a more accurate reading for large, distant, or deep earthquakes. 4. **Other Intensity Scales**: There are several other scales, such as the Body-Wave Magnitude Scale, but the MMI and Moment Magnitude Scales are the most widely used for assessing earthquake effects and magnitudes. In summary, while magnitude scales like the Richter and Moment Magnitude Scales quantify the size of an earthquake, intensity scales like the MMI focus on its effects on people and structures, providing a more localized understanding of an earthquake's impact.	
LESSON PURPOSE/INTENTION	**Lesson Purpose** The purpose of a lesson on preparedness is to educate individuals and communities on the importance of planning and taking proactive steps to reduce the risks associated with natural disasters, emergencies, and unexpected events. Preparedness aims to equip people with the knowledge, skills, and resources they need to respond effectively in a crisis, ensuring their safety and minimizing potential damage. Key objectives of a preparedness lesson might include:	

	1. **Understanding Risk**: Teaching individuals to recognize the hazards specific to their region (e.g., earthquakes, floods, fires) and understanding the potential impact of these events. 2. **Emergency Planning**: Encouraging the development of personal, family, and community emergency plans, including evacuation routes, communication strategies, and designating safe areas. 3. **Basic Emergency Skills**: Providing practical knowledge on first aid, CPR, fire safety, and how to use emergency tools and supplies effectively. 4. **Creating Emergency Kits**: Emphasizing the importance of preparing and maintaining an emergency supply kit with essentials such as water, food, first aid supplies, flashlights, and medications. 5. **Community Engagement**: Highlighting the importance of working together as a community to build resilience and support each other during disasters. This includes understanding how to access local resources and assistance. 6. **Reducing Vulnerability**: Teaching strategies for strengthening homes, infrastructure, and other assets to reduce the impact of disasters. Ultimately, the purpose of preparedness is to ensure that	

<table>
<tr>
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<td>individuals are not only capable of surviving emergencies but can also recover quickly and safely from them. Through planning and awareness, preparedness can save lives, reduce injuries, and minimize the long-term impact of disasters on both individuals and communities.</td>
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<td>LESSON LANGUAGE PRACTICE</td>
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Unlocking Content Vocabulary

Instructions: Match the term on the left with its correct definition on the right.
<table>
<tr><th>Terms:</th><th>Definitions:</th></tr>
<tr><td>1. Emergency Kit</td><td>A) A set of supplies and tools needed to survive for at least 72 hours after an emergency, including food, water, and medical supplies.</td></tr>
<tr><td>2. Evacuation Plan</td><td>B) The process of returning to normal life after a disaster, including rebuilding, restoring, and providing support to affected individuals.</td></tr>
<tr><td>3. First Aid</td><td>C) A plan that outlines how to safely leave your home or location during an emergency and where to</td></tr>
</table>
</td>
<td>
Answer Key:
1 - A
2 - C
3 - E
4 - D
5 - B
</td>
</tr>
</table>

		meet up with others.	
	4. Resilience	D) The ability of a person or community to recover and adapt to disasters, bouncing back from challenges.	
	5. Disaster Recovery	E) Immediate medical assistance given to an injured or ill person before professional medical treatment can be administered.	
DURING/LESSON PROPER			
READING THE KEY IDEA/STEM	**EARTHQUAKE PREPAREDNESS** Earthquake Terminology Earthquake: a sudden slipping or movement of a portion of the Earth's crust, followed by a series of vibrations. Aftershock: an earthquake of less intensity that follows the main earthquake. **Associated Hazards** ❖ Collapsing of buildings & bridges ❖ Disruption of gas, electricity & phone services ❖ Landslides & Avalanches ❖ Flash Floods ❖ Fires		

- Tsunamis

(Not So) Fun Fact:

Since 1984 earthquake activity in San Diego County has doubled over that of the preceding 50 years!

Before an Earthquake Hits

1) Check for Hazards

2) Identify Safe Places Indoors & Outdoors

3) Learn How to Shut off Gas Valves

4) Have Emergency Supplies on Hand

5) Develop a Communication Plan

Check for Hazards

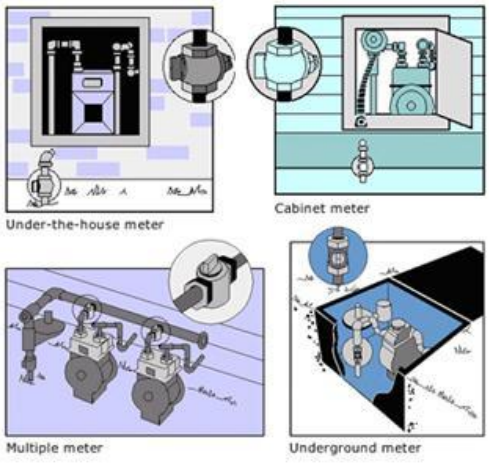
- Fasten shelves and décor securely to walls
- Place heavy objects on lower shelves
- Hang heavy items away from places where people sit
- Store any flammable products securely on bottom shelves in proper containers

Identify Safe Places

- Under sturdy furniture pieces such as a heavy desk or table
- Against an inside wall
- Away from any and all glass

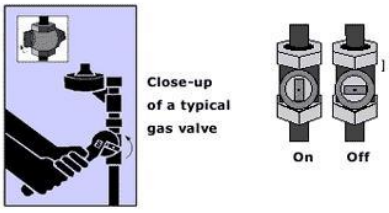
- Away from heavy furniture that might fall over
- In the open, away from buildings, trees, electrical lines, overpasses etc.

Gas Valves



Know where your meter is located... everyone!

Utilizing the Shut-Off Valve



Turning Gas Valves "On"

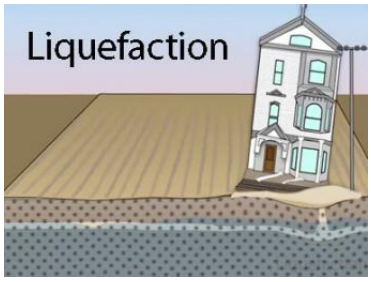
Contact SDG&E to turn valves back "On". Do not turn on yourself!

Workplace Disaster Supplies

- Flashlight & extra batteries
- Battery-operated radio
- Emergency food and water
- Nonelectric can opener
- Medication
- First Aid kit and manual
- Tools & Supplies

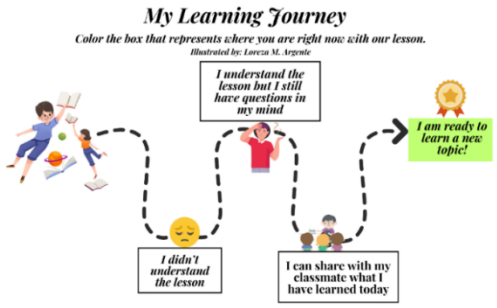
Communication Plan

- Persons to identify after earthquake ceases:
- Emergency Contact (family member/friend)
- Your buddy property
- Out of town contact

DEVELOPING and DEEPENING UNDERSTANDING OF THE KEY IDEA/STEM	**SUB-TOPIC 2: 2. Preparedness (different locations and contextualized local disaster plans)** **1. Explicitation** Learners will determine if the photo shows a hazard of earthquake or not. 1.  2.  3.  **2. Worked Examples** **I. Activity No. 4.2.1:** Disaster Readiness Plan Simulation – Earthquake Response (30 mins) **II. Objective(s):** At the end of the activity, you should be able to demonstrate their understanding of	The Modified Mercalli Intensity value assigned to a specific site after an earthquake has a more meaningful measure of severity to the nonscientist than the magnitude because intensity refers to the effects experienced at that place. The lower numbers of the intensity scale generally deal with how the earthquake is felt by people. The higher numbers on the scale are based on observed structural damage. Structural engineers usually contribute information for assigning intensity values of VIII or above. **Answer:** 1. Yes. Ground rupture 2. Yes. Liquefaction 3. No. This protects you from any objects that may hurt you. The teacher may divide the class into 2 so that there will be groups to participate in the role paly, and groups to evaluate the performance. Use a stopwatch or timer to ensure that each group has sufficient time to simulate

	local disaster readiness plans by simulating appropriate actions to take during and after an earthquake. **III. Materials Needed:** Local disaster readiness plans or guidelines provided by relevant authorities, Visual aids (posters, diagrams, or presentations) illustrating earthquake safety procedures, stopwatch or timer, safety equipment (if applicable, such as helmets or goggles for demonstration purposes) **IV. Instructions:** 1. Simulate the actions you would take before earthquake based on the scenario provided, following the procedures outlined in the readiness plans. 2. Demonstrate appropriate responses during shaking, such as taking cover under sturdy furniture, staying away from windows and heavy objects, and holding on until the shaking stops. 3. After the simulated earthquake, demonstrate post-earthquake actions, such as checking for injuries, assessing damage, and evacuating to safe assembly areas if necessary. **Rubric in Rating the Performance:** Proper Simulation (before during, and after): 10 points Creativity and impact: 5 points Time-bound: 5 points Total: 20 points **V. Extension.** Share what you have learned with your families and friends, promoting a culture of preparedness within your community. **3. Lesson Activity** **I. Activity No. 4.2.2:** Tsunami Alert and Response Simulation	their scenario and discuss their actions. Begin by discussing with the students the importance of being prepared for earthquakes and the role of disaster readiness plans in ensuring safety. Introduce the local disaster readiness plans or guidelines provided by relevant authorities, highlighting key procedures for earthquake response. Begin by recalling with students' what tsunamis are and why they are dangerous natural disasters. Explain the importance of having alert systems and procedures in place to warn communities about impending tsunamis and to respond effectively in case of an impact. In case the large open area is not available, the teacher may maximize

	II. Objective(s): At the end of the activity, you should be able to describe procedures that authorities have in place to alert communities of pending tsunamis and propose procedures to implement should a tsunami impact community. **III. Materials Needed:** Large open area or gymnasium, cones or markers to designate different zones, whistles or bells, printed cards with roles and scenarios, timer or stopwatch, whiteboard and markers **IV. Instructions:** 1. Each member of the group will be assigned to a specific role which may include local authorities, emergency responders, community members, and media representatives. Scenarios may involve different levels of tsunami threat and impact on the community. 2. A tsunami alert has been issued, and you must act out your assigned roles based on the given scenario. 3. Start the simulation by sounding a whistle or bell to signal the beginning of the alert phase. 4. Students in the roles of local authorities initiate alert procedures, such as activating sirens, broadcasting warnings through loudspeakers, and sending out text messages and social media alerts. 5. Students representing emergency responders should mobilize resources, coordinate evacuation efforts, and provide assistance to vulnerable populations. 6. Community members should follow evacuation procedures, gather at designated assembly points, and support each other during the evacuation process.	the space inside the classroom. Learners who performed in the previous activity may now be the evaluators and switch with the other group to perform the activity. Distribute printed cards to each group, assigning them roles and scenarios related to tsunami alert and response. Designate different zones within the playing area to represent the coastline,

	7. Make sure to communicate and collaborate as you navigate through the simulation. **Rubric in Rating the Performance:** Proper Simulation (before during, and after): 10 points Creativity and impact: 5 points Time-bound: 5 points Total: 20 points **V. Extension.** Research historical tsunamis and analyze the effectiveness of alert systems and response efforts in mitigating the impact on affected communities.	residential areas, evacuation routes, etc.
AFTER AFTER/POST-LESSON		
MAKING GENERALIZATIONS AND ABSTRACTIONS	• Learners' Takeaways (Day 4) Craft a brochure to promote the importance of preparedness before, during, and after a disaster. The learners are free to choose, which disaster they wanted to work on. • Reflection on Learning  Question/s I wanted to ask: _____ _____ _____	The brochure can be hand written or printed The teacher may reproduce the learning journey map. If reproduction is not possible, the learners may just write the statement that corresponds to their answer.

	_____	
EVALUATING LEARNING	**Direction:** Read each question carefully and choose the best answer. Encircle the letter of the correct answer. **1. What is the primary purpose of an emergency kit?** A) To provide entertainment during a disaster B) To ensure survival with essential supplies for at least 72 hours C) To make travel easier during evacuations D) To prevent natural disasters from occurring **2. Which of the following should be included in an evacuation plan?** A) Only a list of family phone numbers B) Routes to a safe location and a meeting point for family members C) A schedule of when to evacuate based on the weather D) A detailed plan to avoid all traffic **3. Which of the following is an example of "first aid"?** A) Calling emergency services without attempting to help B) Providing CPR or bandaging a wound until medical help arrives C) Waiting for professional treatment in a hospital D) Sending someone to get medicine during an emergency **4. What does "resilience" refer to in the context of preparedness?** A) The speed at which an emergency kit is assembled B) The ability to endure and recover from disasters C) The total number of people affected by a disaster	**Answers:** 1. B) To ensure survival with essential supplies for at least 72 hours 2. B) Routes to a safe location and a meeting point for family members 3. B) Providing CPR or bandaging a wound until medical help arrives 4. B) The ability to endure and recover from disasters 5. B) Returning to normal life by rebuilding and providing support to the affected community

	D) The number of evacuation routes available in a city **5. Which of the following is a key component of disaster recovery?** A) Waiting for help to arrive B) Returning to normal life by rebuilding and providing support to the affected community C) Preventing the disaster from reoccurring D) Ignoring the damage until the situation improves	
ADDITIONAL ACTIVITIES FOR APPLICATION OR REMEDIATION (IF APPLICABLE)		
REMARKS		
REFLECTION		

Prepared by:

_____

Subject Teacher

Reviewed by:

_____

Master Teacher/Head Teacher