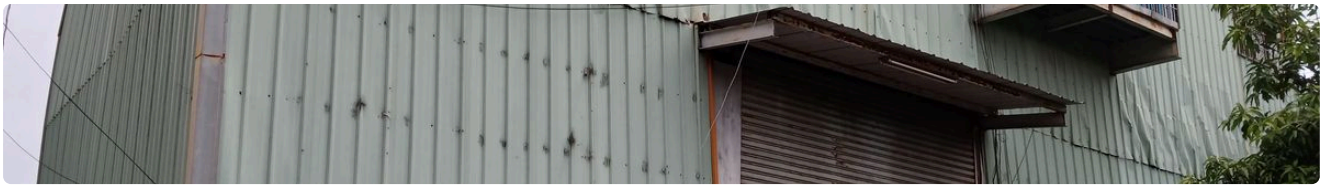

Earthquakes in Taiwan - Science and Seismology

Reading Worksheet — Level F | tahricteaches.com

Taiwan sits at the convergence of the Eurasian Plate and the Philippine Sea Plate, making it one of the most **seismically** active regions on Earth. The collision of these tectonic plates generates enormous **geological** stress released as earthquakes. Taiwan experiences roughly 18,000 earthquakes annually, though most are too minor to detect. Its position on the Pacific Ring of Fire ensures significant earthquakes are not a question of if, but when.

Earthquake intensity is measured using the moment magnitude scale. Shallow earthquakes cause more **structural** damage than deep ones, as their energy is less dispersed reaching populated areas. The 1999 Chi-Chi earthquake — magnitude 7.3, depth just 8 kilometers — produced **catastrophic** surface rupturing that destroyed thousands of buildings and killed over 2,400 people.

Taiwan's construction industry reformed significantly after 1999. Modern building codes require strict **seismic** standards: reinforced concrete, base isolators, and tuned mass dampers. Taipei 101 features a 660-ton steel pendulum that **counteracts** both earthquake motion and wind sway. These advances have substantially reduced the risk of collapse in newer structures.

Taiwan operates a sophisticated early warning system that detects P-waves before a quake's more **destructive** S-waves arrive, broadcasting alerts within seconds. This five-to-thirty-second window allows people to take cover and emergency systems to respond. The system represents a major achievement in disaster **mitigation**.

Earthquake preparedness combines engineering, education, and community **resilience**. Taiwan holds nationwide drills every September 21st, reinforcing drop-cover-hold-on protocols. Emergency stockpiles, community **evacuation** plans, and post-earthquake mental health support are integrated into Taiwan's framework, making it a model studied by other seismically active nations.

A. Vocabulary

1. seismically ____	a. of or relating to earthquakes
2. geological ____	b. the ability to recover quickly from difficulties
3. catastrophic ____	c. relating to the physical structure and processes of the Earth
4. seismic ____	d. the organized removal of people from a dangerous place
5. counteracts ____	e. works against something to reduce or cancel its effect
6. mitigation ____	f. the action of reducing the severity of something harmful
7. resilience ____	g. relating to or caused by earthquakes
8. evacuation ____	h. causing sudden and widespread disaster

B. True or False

_____ 1. Taiwan sits between the Eurasian and Philippine Sea plates.

_____ 2. The Richter scale is the current standard for measuring earthquakes.

_____ 3. Shallow earthquakes cause less damage than deep ones.

_____ 4. The Chi-Chi earthquake had a magnitude of 7.3.

_____ 5. Taipei 101 uses a steel pendulum to reduce earthquake motion.

_____ 6. Taiwan's early warning system detects P-waves before S-waves arrive.

_____ 7. Taiwan holds nationwide earthquake drills every September 21st.

_____ 8. Base isolators increase the risk of building collapse.

_____ 9. The early warning system can give up to 30 seconds of notice.

_____ 10. Taiwan's preparedness model is studied by other countries.

C. Fill in the Blanks

Word Bank: seismically, geological, catastrophic, seismic, counteracts, mitigation, resilience, evacuation

1. Taiwan is one of the most _____ active regions on Earth.

2. The Chi-Chi earthquake caused _____ damage due to its shallow depth.

3. Taipei 101's pendulum _____ both earthquake motion and wind sway.

4. Early warning systems represent a major advance in disaster _____.

D. Comprehension Questions

1. Why do shallow earthquakes cause more damage than deep ones?

2. How does Taiwan's early warning system work, and what can people do with the warning time?

3. What measures has Taiwan taken to improve earthquake preparedness since 1999?

E. Discussion Questions

1. Should earthquake preparedness education be mandatory in all schools worldwide? Why?

2. How does engineering help reduce the impact of natural disasters like earthquakes?

Answer Key

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A. Vocabulary: 1-g, 2-c, 3-h, 4-a, 5-e, 6-f, 7-b, 8-d

B. True/False: 1-T, 2-F, 3-F, 4-T, 5-T, 6-T, 7-T, 8-F, 9-T, 10-T

C. Fill Blanks: 1-seismically, 2-catastrophic, 3-counteracts, 4-mitigation

D. Comprehension:

1. Their energy is less dispersed when it reaches the surface, causing more damage
2. It detects P-waves and broadcasts alerts; people have 5-30 seconds to take cover
3. Stricter building codes, early warning systems, national drills, emergency stockpiles