Year 12 Science: Tsunami, landslides and linked hazards

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. What makes a tsunami different from a wind wave?

2. Find the speed of a tsunami where the ocean is 1000 m deep, in m/s.

3. What happens to a tsunami's wavelength as it moves into shallow water?

4. Why do strike-slip earthquakes seldom cause large tsunami?

5. Give two ways heavy rain makes a landslide more likely.

Exam-style question: a Kermadec tsunami

A magnitude 8.1 megathrust earthquake ruptures the Kermadec subduction zone, north-east of New Zealand, and tsunami warnings are issued around the Pacific.

6. Describe a tsunami wave, referring to the water column.

7. Explain how this earthquake generates a tsunami, including the energy changes.

8. Suppose the ocean between the source and a coast 1000 km away is 4000 m deep on average. Calculate how long the tsunami takes to arrive, in hours.

9. Explain the changes in speed, wavelength and amplitude as the tsunami approaches New Zealand's coast.

Fix the mistake

10. Correct this statement: "A tsunami is a giant wind wave that is tall out at sea."

11. Correct this statement: "The tsunami speeds up as it reaches the shore, which is why it is so powerful."

12. Correct this statement: "Every big earthquake under the sea makes a big tsunami."

13. Correct this statement: "Rain causes landslides by washing the soil away."