

St Andrew's Secondary School
Geography Unit

Topic: Living with Tectonic Hazards (Extra Practice Questions)

Name: _____ () Class: _____ Date: _____

1a. Study Fig. 1 which shows how plate movement is caused. *ACSBR PRELIM 2017*

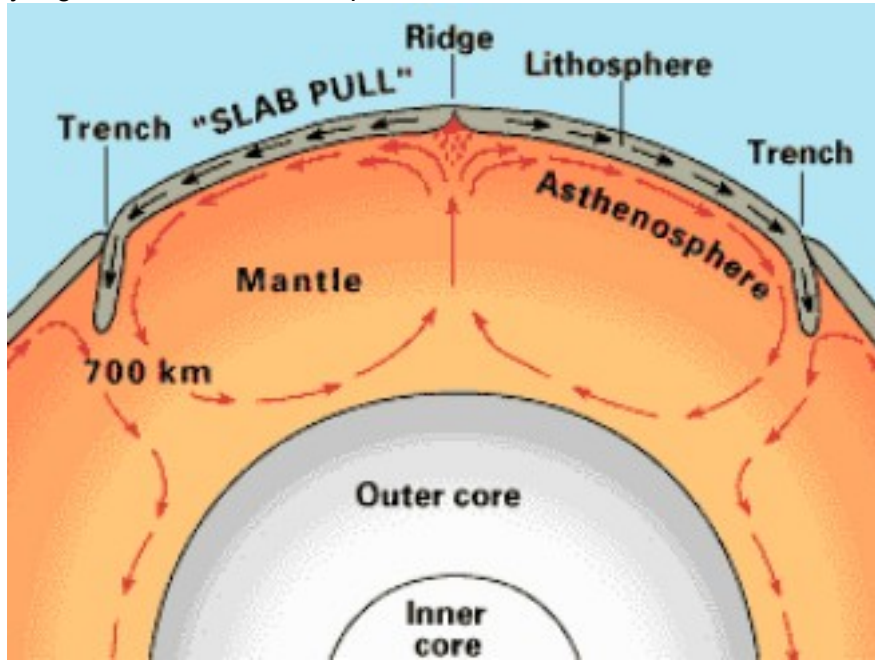


Fig. 1

Using Fig. 1, describe and explain how the slab pull force occurs. [4]

b. Explain how volcanic materials cause massive destruction to the surrounding area during a volcanic eruption. [4]

2a

Fig. 2 is an aerial photograph of the Great African Rift Valley in Africa, while Fig. 3 shows its location on a map. **Aerial photograph of the Great African Rift Valley in Africa**

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Fig. 2

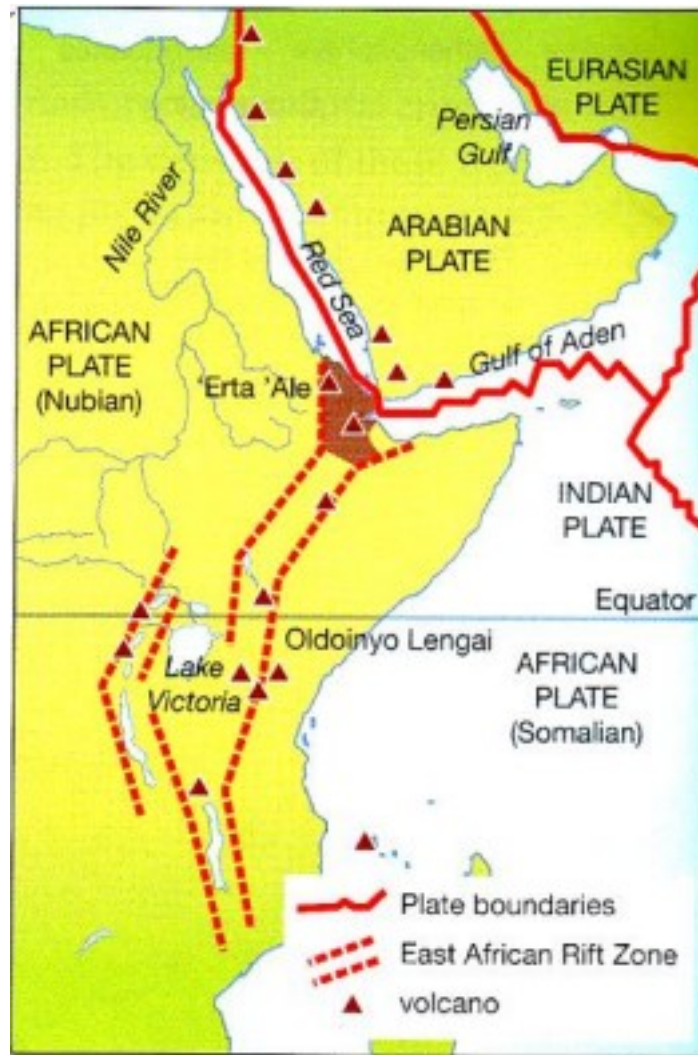


Fig. 3

Use Fig. 3 to explain how the formation and appearance of the rift valley shown in Fig. 2 are a result of plate tectonics. [5]

- 2b.** Study Fig. 3 (Insert), which shows the magnitude of the earthquake that occurred offshore Japan, and Fig. 4, which shows the wave heights of the tsunami that formed as a result of the earthquake.



Fig. 4

i. Use information from Fig. 3 to explain how the tsunamis with wave height of 10 ft. or more as shown in Fig. 4 are formed. [4]

- ii. Suggest the possible impacts of the earthquake and tsunami along the Japan coastline. [4]
- c. Explain how land use regulations can help reduce impacts of earthquakes and tsunamis. [4]

Study Fig. 2, which shows tectonic activities along the Sunda Trench.



(Source: <http://dl0.creation.com/articles/p047/c04722/4722-tsunami-diagram.jpg>)

Fig. 2

- i. Use the information on Fig. 2 to **explain** the formation of a tsunami along the Sunda Trench and **describe** possible risks to surrounding coastal towns. [5]
- ii. With the use of examples, **explain** how potential risks from tsunamis may be better managed. [4]

3. Study Figs. 3a and 3b. Fig. 3a shows the nature of the earthquake in Nepal in April 2015 while Fig. 3b shows the statistics of earthquakes between Nepal and Japan.

Earthquake profile in Nepal

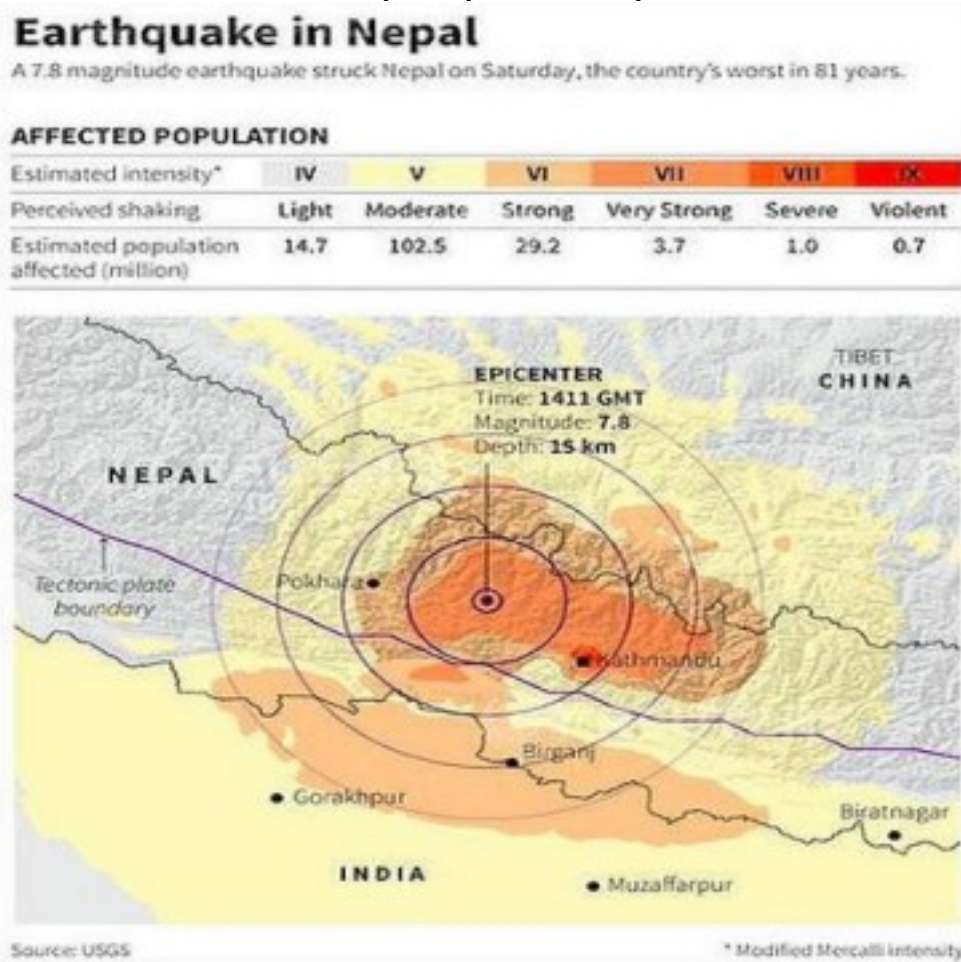


Fig. 3a
Comparison of Earthquake Statistics

Country	Nepal, 2015	Japan, 1993
Magnitude	7.8	7.7
Death toll	8000	239

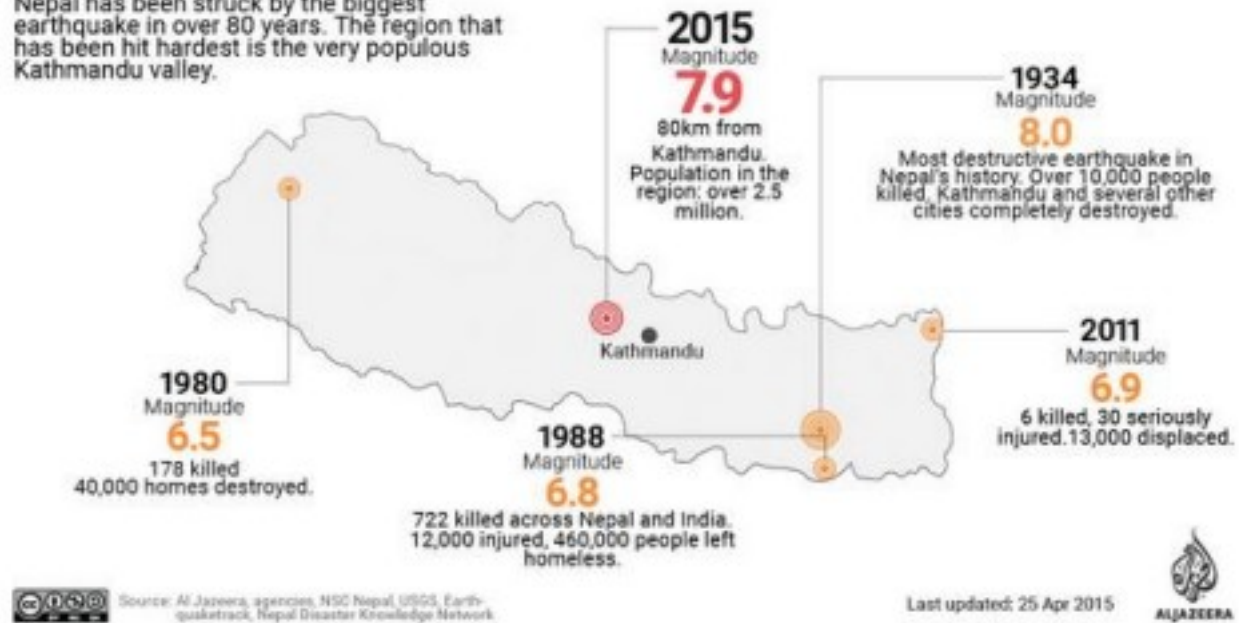
Fig. 3b

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With reference to Figs. 3a and 3b and your own studies, **account for** the earthquake in Nepal and **suggest** why Nepal has a higher death toll than Japan despite having similar earthquake magnitude. [6]

4. Describe and explain two measures the Japanese government took in response to the 9.0 magnitude earthquake that happened in Tohoku, in order to reduce future risks. [4]
5. Study Fig. 4 which shows the damage of earthquakes in Nepal.

Nepal has been struck by the biggest earthquake in over 80 years. The region that has been hit hardest is the very populous Kathmandu valley.



Magnitude:7.9
80 km from
Kathmandu.
Population: over 2.5
million
More than 9,000 killed,
over 23,000 injured

1980

1934

Magnitude:8.0
Most destructive earthquake in Nepal's
history.
Population: over 3 million Over 10,000 killed,
Kathmandu and several other cities
completely destroyed

2011

Magnitude: 6.9

Magnitude:6.5 Population: over 1 million 178
killed.
40,000 homes destroyed.

Fig.

4

1988

Magnitude:6.8
Population: 2.3 million 722
killed across Nepal and India.
12,000 injured,
460,000 left homeless

Population:
1.5
million
6 killed, 30 seriously
injured, 13,000

displaced.

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With reference to Fig. 4 and your own knowledge, suggest reasons for the difference in damage shown. [4]

- 6a.** Explain in detail the formation of tsunamis. You may use annotated diagrams in your answer. [5]
- b.** Figures 5A and 5B show features of building design in order to mitigate the effects of earthquakes.

Damper system
between the
87th to 91st
levels

Figure 5A Figure 5B

<http://imaginationstationtoledo.org/content/2011/03> and https://en.wikipedia.org/wiki/Tuned_mass_damper

Using Figures 5A and 5B, describe and explain how these design features are able to mitigate the effects of earthquakes. [4]