

## Applying Self-directed Learning (SDL) strategies in Learning Geography

### What is Self-directed Learning (SDL)?

Self-directed learning is a learning approach that encourages you to become actively involved in the learning progress in your own way. In this kind of learning, the responsibility for learning is mainly on you instead of the teacher.

In self-directed learning (SDL), you take the initiative and the responsibility for what to do. For example, you can select, manage, and assess your own learning activities, which can be pursued according to your learning styles, interests and pace. SDL involves starting personal activities according to your level and developing the personal qualities to pursue them successfully.

### Benefits of Self-directed Learning (SDL)?

Here are some of the benefits of Self-directed Learning (SDL):

- Self-directed learning provides you with the opportunity to teach yourself the most essential skill to become lifelong learners: knowledge of how to learn.
- Self-directed learning helps you develop the application of skills: thinking skills, research skills, self-management skills, social skills and communication skills.
- Students are given the freedom to choose the who, the what, the where and the how.
- Self-directed learning promotes creative problem-solving.

### How to become a good Self-directed Learner?

Below are 20 tips to help you become a good Self-directed Learner. At the beginning, you can first try 2-3 tips. Once you are more confident and comfortable, you can try other tips as well.

1. Identify your learning goals.
2. Question the importance of things.
3. Seek out interesting challenges.
4. Monitor your own learning process.
5. Understand your own learning style and preferences.
6. Use game-based motivation strategies (such as reward systems or fun reasons to challenge yourself).
7. Start with background on a topic.
8. Develop intrinsic motivation.
9. Share your learning with peers and teachers.
10. Create something out of what you've learned.
11. Build your own personal learning plan.
12. Use time to your advantage.
13. Pursue knowledge, not (only) good grades.
14. Create your own personal learning record.
15. Verbalise your achievements.
16. Make a list of topics "to master."
17. Practise using what you've learned.
18. Value progress over performance.
19. Keep your goals realistic.
20. Build a network of "learning buddies."

### SELF-DIRECTED LEARNING CYCLE



Use the Self-Directed Learning Cycle to set goals, develop a plan to achieve those goals, learn what you need to know, show evidence of what you have learned, and reflect on the process.

## 5.5 Why does our land shake violently? The causes and effects of earthquakes

### Part A: Pre-lesson tasks

#### Task 1: What is an Earthquake? What causes an Earthquake to happen?

<b>Estimated time needed:</b>	<b>Actual time spent:</b>
15-20 minutes	




註解 [team1]: C1. Equipping students with prior knowledge and raising learning interests  
C8. Diversified learning tasks  
C10. Contingent scaffolding

INSTRUCTION: In this section, you are going to learn about the **causes and effects of earthquakes**. Follow the steps below and complete Activity 1.

#### Step 1: Choose and watch a video related to **earthquake**

All these videos tell you what causes earthquakes but in different styles. Read the information, and **choose one video** that you would like to watch.

註解 [team2]: C7. Students' choice of learning paths  
C9. Tiered learning tasks

	Option 1 <input type="radio"/>	Option 2 <input type="radio"/>	Option 3 <input type="radio"/>
Title	What Causes Earthquakes?	What Is An Earthquake?   The Dr. Binocs Show	How does earthquake occur?
Access	<a href="https://goo.gl/HW5jTz">https://goo.gl/HW5jTz</a> 	<a href="https://goo.gl/Zcg8hr">https://goo.gl/Zcg8hr</a> 	<a href="https://goo.gl/D2vMR5">https://goo.gl/D2vMR5</a> 
Duration	3'46''	3'42''	4'10''
Characteristics	<ul style="list-style-type: none"> <li>like a chat with young learners</li> <li>using everyday language</li> <li>use of metaphor (analogy)</li> <li>language simple yet a bit fast, with subtitle</li> </ul>	<ul style="list-style-type: none"> <li>cartoon</li> <li>using everyday language with some technical Geog terms,</li> <li>use of metaphor (analogy)</li> <li>language is simple, moderate pace, with subtitle</li> </ul>	<ul style="list-style-type: none"> <li>documentary style,</li> <li>using academic language with many technical terms,</li> <li>moderate pace but volume is weak, with subtitle</li> </ul>
Level of difficulty	☆	☆☆	☆☆☆☆
Suitable for whom?	learners who prefer more relaxing materials & good at listening skills	learners who prefer more relaxing materials & willing to listen to English speakers with some accent & to learn some Geography terms	serious-style learners stronger in English academic language & willing to learn more Geog terms and the scientific aspect of earthquakes

**Step 2: After watching your chosen video, select one of the following activities to do before the lesson:**

- Level 1: fill in the missing words in the guide note for your chosen video
- Level 2: without the help of the guide notes, jot down some key points while/after watching the video
- Level 3: after jotting down some key points, organize the key points into appropriate groups or a concept map

註解 [team3]: C7. Students' choice of learning paths  
C8. Diversified learning tasks  
C9. Tiered learning tasks

○ **Level 1: fill in the missing words in guide note and review the video you have chosen**

**Guide Note for Video 1: What Causes Earthquakes?**

The world around you is just full of things that are on the move. Airplanes in the sky, cars on the road and tons of animals – including you and me! – are walking around everywhere. But you know what, it turns out that the \_\_\_\_\_ beneath your feet is

\_\_\_\_\_ too! Most of the time, you can't feel it. Because, most of the time, the ground is moving very slowly. But when you do feel the ground move, that's called an \_\_\_\_\_.

During an earthquake, the ground shakes – sometimes a little, and sometimes a lot. It might seem kind of strange that the ground which holds up houses and skyscrapers and everything else, can actually move. But it does – and it's all because of the way the \_\_\_\_\_ is made.

If you could cut the Earth in half, and look at it like this, you'd see that the Earth isn't a solid ball all the way through. It has \_\_\_\_\_ – kind of like a cake. The top, or outside layer of the Earth ... what we think of as the ground is called the \_\_\_\_\_. Now, even though the crust of the Earth is certainly very strong – it's not made of one big piece. The Earth's crust is actually made of \_\_\_\_\_ that fit together. You can think of these pieces as being like the pieces of a giant jigsaw puzzle. And we call these pieces of the \_\_\_\_\_.

Now, the edges of these plates aren't smooth along their edges, like the edges of the plates you eat off of. These plates are made of very thick layers of rock – so their edges are bumpy and ragged, with rocky chunks sticking out of them. And it's these plates that make up the Earth's crust that are always moving. As mentioned earlier, you usually can't feel or see them moving, because they move very, very slowly. Most plates just creep along at about one or two centimetres a year. That's slower than your fingernails grow! But how do these moving plates cause the earthquakes?

Well, if you look at pieces of a puzzle, you'll see that there's a gap between the pieces where they touch. And, there's a line where the plates touch, too. We call that line a \_\_\_\_\_. Some faults are very thin, and too small to be seen. And some are very deep in the Earth's crust. But some faults are really big, and you can see them right on the Earth's surface. For example, this fault, which runs almost the whole length of the state of California, is more than a thousand kilometres long! And faults are where most earthquakes \_\_\_\_\_. As the plates of the Earth's crust move past each other at a fault, the gagged edges sometimes bump into one another. And when this

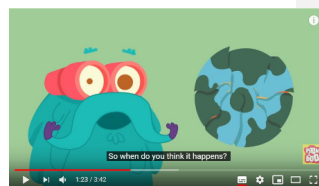


happens, the ground above the plates – and anything on the ground – \_\_\_\_\_. But, sometimes the plates do more than just bumping into each other. They get stuck! Have you ever tried to open a door that's stuck? You push and push... and then, all of a sudden... it opens really fast and bangs against the wall! Well, sometimes, two different plates can't move past each other... and they get \_\_\_\_\_. But they keep trying to move. They \_\_\_\_\_ each other, just like you pushing against that stuck door. When two things push against each other, the force of all of that pushing causes what we call \_\_\_\_\_. And if the thing that's being pushed doesn't move, that pressure has nowhere to go. So it keeps building up. In the case of our plates of crust, the pressure builds up where they're stuck. It builds and builds... until the rocks break... and the plates suddenly move. This causes the ground above the plates to shake... sometimes a lot. How much the ground shakes depends on how much pressure has built up between the plates. The more pressure, the bigger the earthquake. So there's a lot of cool stuff happening beneath your feet. Even if most of the time you can't even feel it.

Thanks for joining us on SciShow Kids! We love viewer questions... so if you have a question about something you see, ask a grownup to help you leave a comment down below, or send us an email to [kids@scishow.com](mailto:kids@scishow.com).

## Guide Note for Video 2: What Is An Earthquake?

Wow. You're laughing, right? Watching me tumble like that? Are you? Oh! No, no, go ahead! But hey, do you know what just happened? There we go again! Well, this is nothing but an \_\_\_\_\_, a small one indeed. Come, let me tell you about Earthquakes today. Zoom in!



The \_\_\_\_\_ of the Earth is like a jigsaw puzzle. Yes, it's not a single piece of land, but approximately 20 pieces of a puzzle that \_\_\_\_\_. But you don't feel it because they move quite slowly. Each one of those puzzle pieces are called \_\_\_\_\_. So whenever those plates \_\_\_\_\_, \_\_\_\_\_ or \_\_\_\_\_ another plate, an earthquake is caused. The surface where these plates slip is called the \_\_\_\_\_ or the \_\_\_\_\_.

So when do you think it happens? Well, it happens \_\_\_\_\_! But hey, don't be scared. Most of the times, we don't feel the quakes as they are too small to reach us. But sometimes, they are so strong that they can be felt over 1000 miles away. The place where the earthquake \_\_\_\_\_ is called the \_\_\_\_\_. And the place where it \_\_\_\_\_ on the Earth's surface is called the \_\_\_\_\_.

There are three types of Earthquakes. \_\_\_\_\_. Here, one plate is forced over another during an earthquake, which causes a \_\_\_\_\_. Many hills and mountains have been formed due to the convergent boundary. \_\_\_\_\_. Here, plates are drifted apart from each other, forming a \_\_\_\_\_. This kind gives birth to new ocean floors. \_\_\_\_\_. Here, the plates here \_\_\_\_\_ by each other and this is also called Strike-Slip. So earthquakes are nothing by the shaking, rolling, or a sudden shock of \_\_\_\_\_.

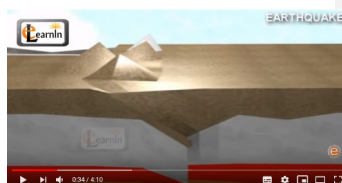
Now you know that whenever the Earth is stressed or angry, it shakes and grumbles. Don't be scared, I was just kidding.

Trivia Time. The instrument used by Scientists to measure the intensity of Earthquake is known as a Seismograph! A \_\_\_\_\_ is caused when earthquakes occur under \_\_\_\_\_.

Yikes. I need to rush before I tumble again. So this is me zooming out. Tune in next time for more fun facts.

### Guide Note for Video 3: How does earthquake occur?

Earthquakes. An unexpected \_\_\_\_\_ of the Earth's \_\_\_\_\_ is called an earthquake. When two parts of the Earth's surface move suddenly in relation to each other along a \_\_\_\_\_ due to \_\_\_\_\_ forces, an earthquake occurs. A tremendous amount of \_\_\_\_\_ is released in the form of tremors and \_\_\_\_\_, such earthquakes are called tectonic earthquakes. The point of origin of an earthquake is called the \_\_\_\_\_ while the point directly about it on the surface of the Earth is called the \_\_\_\_\_. Owing to the strong vibrations around the point of origin, the degree of \_\_\_\_\_ is greater around the epicenter. The branch of knowledge that deals with the study of earthquake is called seismology and the experts who study seismic waves are called seismologists.



There are three types of \_\_\_\_\_ that spread in all directions from the focus. They are the P, S and L waves. The compressional waves are the first to reach the earthquake recording station as they travel 1.7 times faster than the shear waves and are therefore called primary or P waves while the shear waves are called secondary or S waves. The primary waves cause the particles of rock to vibrate forwards and backwards in the direction of the waves. Secondary waves on the other hand cause the particles to oscillate at the right angles to the direction of the waves. When P and S reached the surface of the earth they get converted into L – long waves – that travel along the surface, vibrating horizontally at right angles to the direction of the waves called love waves or Rayleigh waves as they also travel like sea waves. The most violent shocks and subsequent \_\_\_\_\_ is caused by the L waves.

The instrument used to detect and record \_\_\_\_\_ is called a seismograph. The recorded material appears like the graph and is called a seismogram. Based on the \_\_\_\_\_ of the foci, earthquakes, are classified into \_\_\_\_\_. They are deep focus earthquakes that occur at depths exceeding 300 kilometres. The reasons for which have not yet been identified. Intermediate focus earthquakes with depths of foci ranging between 55 and 300 kilometres. Shallow focus earthquakes with depths lesser than 55 kilometres. To measure the \_\_\_\_\_ of the earthquake, a Richter scale is used. The point scale is arranged in such a way that each of the units on the scale is equivalent to 30 times the energy released by the previous unit. While a magnitude of 2 is seldom filled, a magnitude of 7 indicates the lower limit of an earthquake that has a devastating effect over a large area.

**Level 2: without the help of the guide notes, jot down some key points while/after watching the video, OR**

**Level 3: after jotting down some key points, organize the key points into appropriate groups or a concept map**



Task 2: Set your own learning goals

註解 [team4]: B1. Diversified learning goals

Estimated time needed:	Actual time spent:
5 minutes	

INSTRUCTION: In this section, you are going to learn about the **causes** and **effects** of **earthquakes**.



There are **two main learning objectives** for this section. Each learning objective is divided into different levels. Before your lesson starts, select an appropriate level of learning objectives as your learning goals. Put a tick next to your chosen level.

**Objective 1: About the structure of the earth, the global distribution of earthquakes and its relationship with plate boundaries**

<b>recognize</b> the structure of the earth and the global distribution of earthquakes and its relationship with plate boundaries	<b>summarize</b> the structure of the earth and the global distribution of earthquakes and its relationship with plate boundaries
Level 1 <input type="radio"/>	Level 2 <input type="radio"/>

**Objective 2: About the causes and effect of earthquakes**

<b>list</b> the causes of earthquakes and suggest ways people prepare for and respond to earthquakes	<b>summarize</b> the causes of earthquakes and ways people prepare for and respond to earthquakes	<b>identify</b> the causes of earthquakes and suggest ways people prepare for and respond to earthquakes
Level 1 <input type="radio"/>	Level 2 <input type="radio"/>	Level 3 <input type="radio"/>

After finish learning this section, go back to your chosen level of the learning objectives. Reflect whether you have achieved your selected level of learning objectives.

**Task 3: Graphic Organizer – What is this topic about?**

INSTRUCTION: In this section, the geographical knowledge that you are going to learn include:

1. Effects of earthquakes:
  - a. primary damage
  - b. secondary damage
2. Causes of earthquakes
  - a. The structure of the earth
  - b. Plate movement
3. Global distribution of earthquakes and its relationship with plate boundaries
4. Ways people prepare for and respond to earthquakes:
  - a. Preventive measures
  - b. Remedial measures

<b>Estimated time needed:</b>	<b>Actual time spent:</b>
5-10 minutes	

The following graphic organizer summarizes the gist of this section. Take a look at it and see if you can fill in the missing words.

