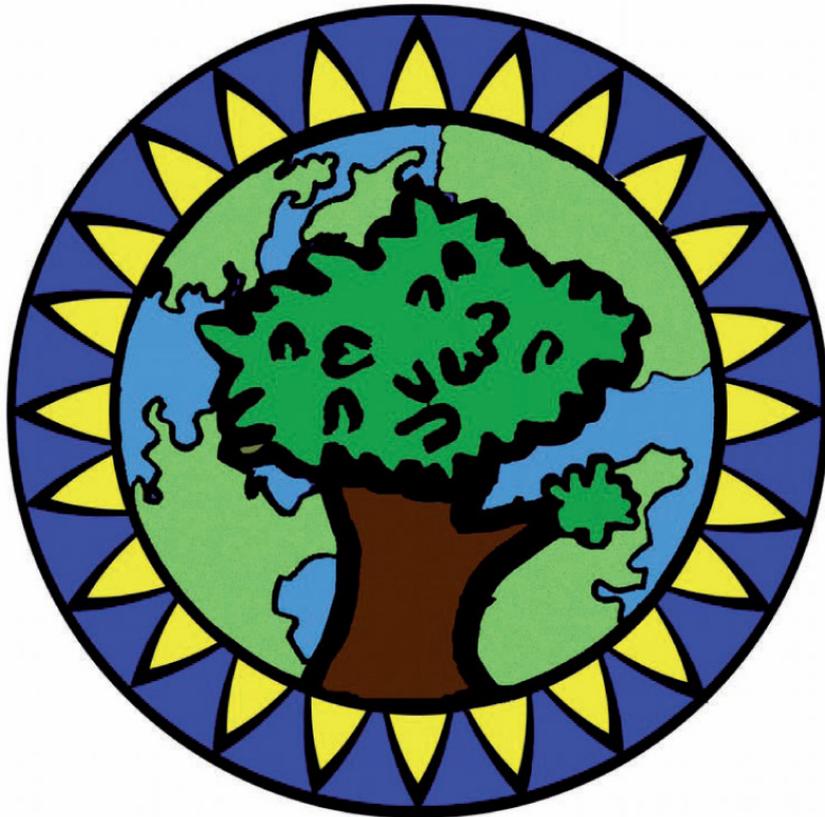


# Branch Out World



*Let's Explore*

# Earthquakes

*Let's Explore* topic packs are written primarily for use by Home Educating families but they will be useful to any parent who wishes to support their child's learning whether they attend school or not. Each lapbook comes with an intended age range but can easily be adapted to include older or younger siblings accordingly. This helps to keep Home Education a truly family experience.

This PDF file refers to a single male child throughout. I use this convention because it is just a shorter and easier way to write this material. It by no means is meant to imply that this material is aimed at boys only, or at one child families. It's not. It's equally as relevant to girls as to boys and can be used in family groups with siblings of mixed ages and abilities with differing interests.

\*Disclaimer: **Branch Out World** is not responsible for any of the content on any of the websites linked in this lapbook. Please check suitability for your child beforehand.  
Thank you.

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## What is a lapbook?

A lapbook is more than just a cardboard folder with a selection of small booklets stuck inside.

It's an effective means of displaying and recording a child's learning.

It's a way of helping children learn by breaking big projects up into smaller, more achievable chunks.

It's more versatile than a workbook, being more hands-on and more creative.

It's a means of providing a personalised education; lapbooks can be adapted for each individual child by selecting the minibooks that best suit them and minibooks can be completed in a way that builds on each child's strengths.

Some of the different ways that children can complete the minibooks:

- some minibooks come with pre-written answers that simply need glueing in;
- children can write answers of varying lengths, from a single word to a full paragraph;
- children can draw pictures, instead of writing, to show what they have learnt;
- parents can scribe for less confident writers so that the child's knowledge is recorded without them becoming discouraged;
- children can add stickers or clip art to the lapbook base for decoration and to add further information;
- children who don't complete all the minibooks can still get a sense of achievement by putting a lapbook together, even with only one or two minibooks;
- projects can be continually built on over time by the addition of extension flaps, or even by adding a second lapbook base. Bases can be glued back to back, or outer panels can be glued together.

### Making This Lapbook

#### Necessary Materials:

You will need:

lapbook base

A4 card for extension flap

a good quality gluestick

double-sided sticky tape

extra wide sellotape or similar (for fixing extension flap)

#### Completing the minibooks:

Unless your children particularly enjoy cutting and folding, I strongly recommend cutting out all the minibook pieces before starting this project with them.

If a minibook is made of more than one component, paper-clip the pieces together or store them in individual self-sealing bags or envelopes.

Store the whole lot, including completed minibooks, in a ziplock bag or document wallet until the project is finished.

Use a good quality glue stick to stick the minibook components together.

Use double-sided sticky tape to stick the heavier minibooks to the lapbook base.

### Lapbook base:

There are different ways to make a lapbook base: some people stick pieces of A4 card together; some people use A3 card folded into 3 & some people use square-cut A4 folders and refold them to create 3 panels. Personally, I prefer to use A4 document wallets. These make a pre-folded base, all you have to do is cut off the sides of the pockets as shown below.



### Adding the optional extension flap:

This can be a little tricky so will need to be done by an adult.

Wide tape is used to make for a stronger 'hinge'. I have used brown parcel tape for illustration purposes. Clear sellotape works just as well.

Carefully line up one of the short edges of the A4 card against the edge of the middle panel of the lapbook base. Do not overlap the two edges.



Tape the card and lapbook base together.

Fold the card extension into the lapbook.

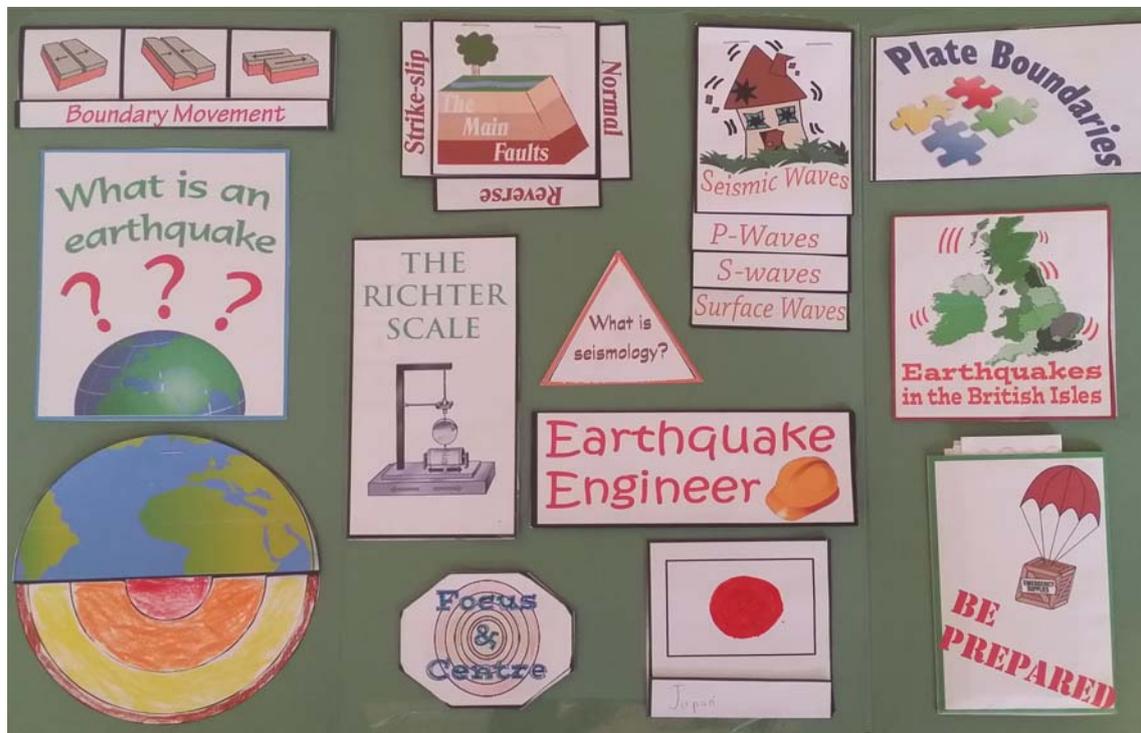
With the extension flap still folded in, stick tape along the card to half the width. Then fold the tape over on to the back of the lapbook to complete the 'hinge'.



## Adding the minibooks:

Your finished lapbook may well look different to the illustration because children often prefer to design their own layout. Also, children don't always want to complete all the minibooks and their layout will reflect this. Feel free to adapt this lapbook to suit your own children's needs. Drawings and worksheets can be glued to the back of the extension flap. You may need to add a second extension flap to the top of the lapbook base if you want to add photos and artwork.

### Suggested Layout



## Suggested Schedule

Day	Pages	Activity	Supplies needed	Done
1	8; 17;25-28;	Minibook 1 & 2 Exploration A	Play-doh - red, orange, yellow, brown, blue & green	
2	9; 17; 29	Minibook 3 Exploration B	5 cups, transparent box, food colouring, water	
3	9; 17; 30	Watch video Minibook 4 Exploration C	Internet access Oat cakes, cream cheese (or similar)	
4	10; 18;31-33	Minibook 5 & 6 Exploration D		
5	11-12; 18; 34-35;	Watch video Minibook 7 Watch video Minibook 8 Exploration E	Internet access  Internet access  2 slinky springs	
6	12-13; 18; 36	Minibook 9 Exploration F	Art materials or digital art package	
7	13-14;19; 38;	Visit website Minibook 10 Watch Video Exploration G	Internet access  Internet access Large clear empty plastic bottle with lid, small gravel, measuring jug, water	
8	14-15; 19; 39	Exploration H & Minibook 11	Internet access, reference books or news reports	
9	15-16; 19; 20; 40	Exploration I  Watch video Exploration J  Minibook 12	Jelly, rectangular dish, spaghetti, mini marshmallows  Internet access Plastic box, sand, water, brick, pingpong ball, matchsticks, lollipop sticks	
10	4; 20; 39; 41-43	Minibook 13 Exploration K Make lapbook, lapbook cover Take it further	A4 paper, drawing materials Lapbook base, glue stick, double sided sticky tape Internet access	

## About Earthquakes

In ancient times, people believed that earthquakes were caused by gods and giant creatures that slept beneath the Earth. The Japanese believed that earthquakes were caused by Namazu, a giant catfish that lived in the mud under the islands of Japan. He was restrained with a stone by the god Kashima. If Kashima let his guard down, Namazu would begin thrashing about and cause an earthquake.

Early Greek philosophers thought earthquakes were caused by gases trying to escape and, until the 18<sup>th</sup> century, western scientists believed they were caused by underground explosions. It wasn't until 1760 that Rev. J. Mitchell proposed that they were caused by rock movement.



*Kashima controls Namazu*

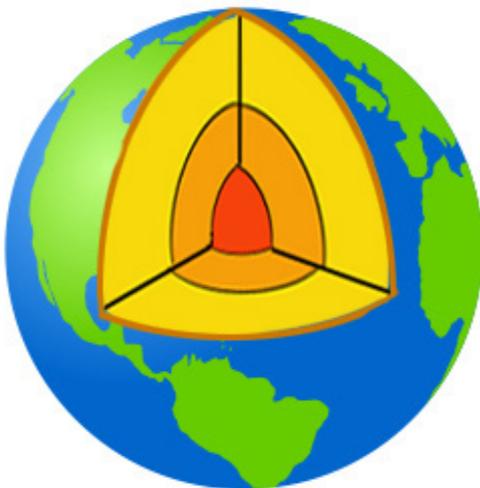
### What is an Earthquake?

An earthquake is a vibration of the Earth's crust caused by the movement of the tectonic plates. Most earthquakes occur at the plate boundaries and are interplate earthquakes.

Did you know that there is an earthquake every thirty seconds somewhere in the world? The majority of these earthquakes have no impact and can't even be felt by humans. But sadly, some earthquakes are very forceful and cause extensive damage to buildings and even result in loss of life. These are the earthquakes that we hear about on the news. To understand why earthquakes occur, we need to learn about the Earth.

Complete [Minibook 1 p.25](#)

### The Layers of the Earth



The Earth is made up of 4 main layers. At the centre of the Earth is the inner core with a radius of 1,370 km/851 miles. It is believed to be extremely hot and to be made of solid metal. It is also believed that the core creates the magnetic field around the Earth. The second layer is the outer core which is 2,000 km/1,242 miles thick. It is made of liquid metal. The third layer is the mantle. It is made up of dense, semi-molten rock, iron and magnesium. It is 2,900 km/1,801 miles thick.

The fourth and final layer is the crust that "floats" on the mantle. It is made of hard rock and is 4 - 60 km/2.5 - 37 miles thick. Oceanic crust is found under the sea. It is thinner and more dense than continental crust which is found under the land.

Complete [Minibook 2 p.26](#) and try [Exploration A on p.17](#).

### Exploration G: Explore a tsunami wave

**You will need** an empty 2l clear plastic bottle with labels removed, small gravel, funnel, measuring jug, water.

1. Use the funnel to put the gravel into the bottle to make a 5cm/2" deep layer. This is the land.
2. Use the jug to measure 200ml/8fl.oz of water. Pour it into the bottle. This is the sea. Put the lid on the bottle.
3. Carefully lay the bottle on its side so that a 'hill' of gravel is created at the bottom end.
4. Place your hand under the neck of the bottle, then lift and lower it to replicate the jolt of an earthquake.
5. Observe how the wave of water (ocean) floods the gravel (coastline) like a tsunami floods the land after an underwater earthquake.



*Seismic Waves*

*P-Waves*

*Surface Waves*

*S-waves*

Thank you for your purchase.

I hope you and your child have enjoyed your time exploring with this lapbook and the included activities.

I am always looking to improve my products to give my customers exactly what they want. Your feedback is most welcome. My aim is to help you to facilitate your child's learning journey in a fun and positive way whilst creating happy memories together.

If you have any questions or suggestions for future units please don't hesitate to contact me by email at [helen@picturebookexplorers.co.uk](mailto:helen@picturebookexplorers.co.uk)

Visit the website for more ideas, activities and updates at [www.picturebookexplorers.co.uk](http://www.picturebookexplorers.co.uk)

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