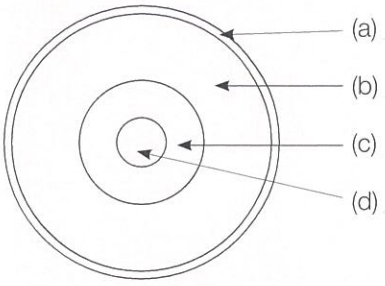
BASIC WORKSHEET

Layers of the Earth

1. Label this diagram of the Earth.



2. Describe the Earth's core in terms of content, state and temperature.

3. Describe where the thickest part of the Earth's crust is. Explain your answer.

4. Explain how the Earth's mantle is like golden syrup.

5. Describe the evidence supporting the idea that the crust of the Earth is not continuous but rather is cracked like a cracked hardboiled egg.

6. Explain, with reference to convection currents, how heat travels from the mantle to the crust.

7. Explain why the inner core is solid even though the outer core is liquid.

8. Explain how the phenomenon of sea floor spreading leads to new crust being made.

BASIC WORKSHEET

When plates meet – plate boundaries

1. Match each of these terms with its definition.

Term	Definition
Continental drift	(a) A current that occurs in gases and liquids where hot material rises, cools and then falls
Convection current	(b) Place where one plate dives under another plate
Convergent plate boundary	(c) Outdated theory that explained why continents had been joined and are now apart. Had the flaw of not giving the mechanism for continents moving apart
Divergent plate boundary	(d) Place where two plates collide towards each other
Subduction	(e) Place where two plates are moving away from each other

2. For each of the following statements, decide whether it is true or false. Circle your choice and give a reason for your answer.

(a) The continents of South America and Africa look like they are jigsaw pieces that can join up so they must have once been joined. True/False

(b) Fossils of the same kind of ancient fern were found in South America, Antarctica, Australia and Africa so the fern must have lived in very hot and very cold regions at the same time. True/False

(c) The middle of the Atlantic Ocean has a massive, deep sea trench that is pushing the two tectonic plates apart. This observation provided evidence for the theory of plate tectonics. True/False

3. In your book, describe the evidence for the theory of continental drift.

4. Describe a fault line.

5. Answer these questions in your book.

(a) Explain what sea floor spreading is and how it drives plate tectonics.

(b) Explain how convection currents work to move the tectonic plates far above them in the Earth's crust.

How is heat cycled around the Earth?

1. Match each of the following terms to its definition.

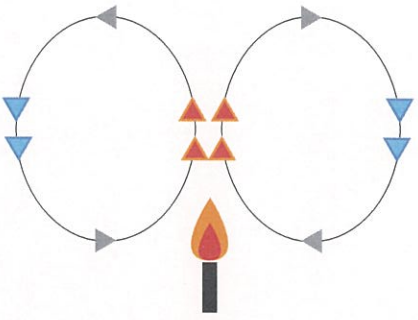
Term
Convection
Conduction
Radiation
Convection current
Electromagnetic radiation

Definition
(a) The type of energy that carries heat from the Sun
(b) A cycle of heat rising and then falling; it heats gases and liquids
(c) Method of heat transfer in liquids and gases
(d) Method of heat transfer in a vacuum
(e) Method of heat transfer that needs particles to touch in order to transfer energy

2. Describe what the Earth's two sources of heat are.

3. Explain how the core of the Earth heats the Earth's crust.

4. Describe what is happening to the particles in this diagram as they are heated, rise and then fall again in a convection current.



5. Explain, in terms of convection, conduction and radiation, how the energy from the Sun travels to the surface of the Earth to heat it.

6. Great ocean currents such as the Gulf Stream keep northern oceans warmer than they should be as they move warm water from the equator north. Describe how this warm water is transported in the ocean.

BASIC WORKSHEET

Volcanoes

1. In your book, create a picture of a "typical" volcano and label it with the words from the box.

crater	vent	magma chamber	cone	lava flow	ash cloud

2. Finish each of these sentences.

(a) An active volcano is a volcano that _____

(b) A dormant volcano _____

(c) An extinct volcano _____

3. Describe three warning signs that could mean a volcano is about to erupt.

4. Is each of the following statements true or false? Circle your choice then give a reason for your answer.

(a) Volcanoes can be located anywhere. True/False

(b) Volcanoes erupt to keep the core of the Earth cool so the ground does not get too hot. True/False

(c) Australia has no active volcanoes. True/False

(d) Volcanoes look the same everywhere. True/False

(e) Hot springs are an indicator of volcanic activity below the surface of the Earth. True/False

BASIC WORKSHEET

Earthquakes

1. Fill the gaps to complete this passage.

Earthquakes occur under the ground where massive amounts of energy are released as (a)_____, (b)_____ and (c)_____ waves.

They can be measured by the (d)_____ scale, which is a scale out of 10 and measures how much (e)_____ is released by the earthquake.

Earthquakes can also be measured by the (f)_____ scale, which measures the effect the earthquake had on (g)_____

2. Match each of these terms with its definition.

Term
Focus
Epicentre
Aftershock
Fault
Magnitude

Definition
(a) A weakness in the Earth's crust
(b) How much energy is released by the earthquake as measured on the Richter scale
(c) The area of Earth's surface directly above where the earthquake started
(d) Lesser earthquake after the main shock of an earthquake
(e) The place inside the Earth where the earthquake originated

3. Draw two diagrams below: one of primary and the other of secondary earthquake waves.

Primary waves	Secondary waves

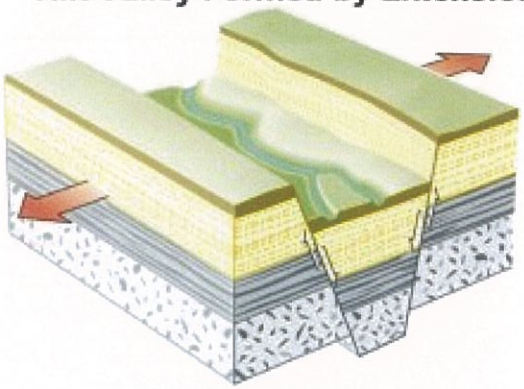
4. Explain why Australia has very few earthquakes each year in comparison with its close neighbour, New Zealand.

5. In the first major earthquake in Canterbury, New Zealand in 2010, many residents were woken by a rumbling noise before they felt the first P wave. Explain why this is a common phenomenon.

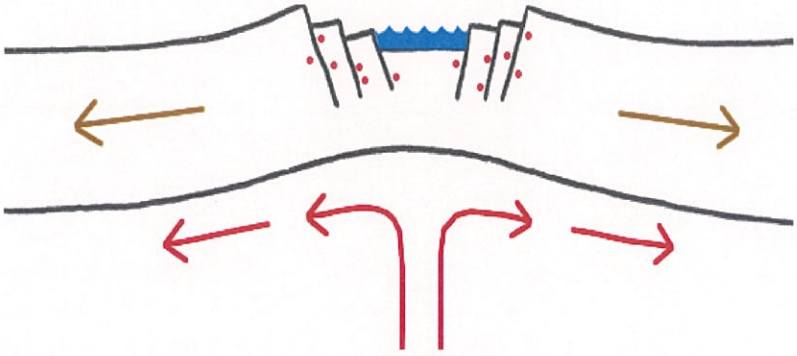
FAULTS AND FOLDS

IN PLATE TECTONIC BOUNDARIES.

Rift Valley Formed by Extension



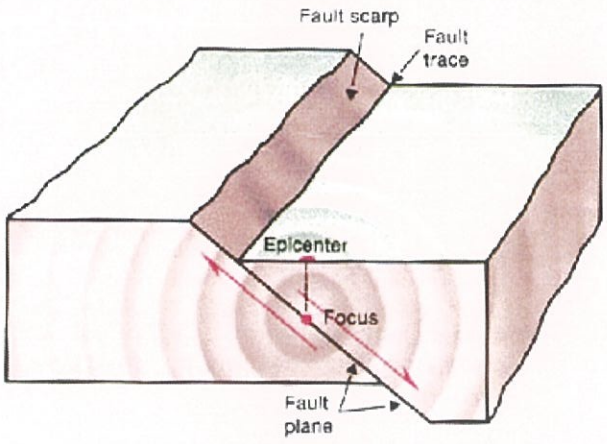
Normal Faults occur typically in _____ _____ where continents are being pulled apart due to an upwelling _____ current.



The continent is placed under _____. Eventually the _____ forces causes the rock to crack along planes called fault planes.

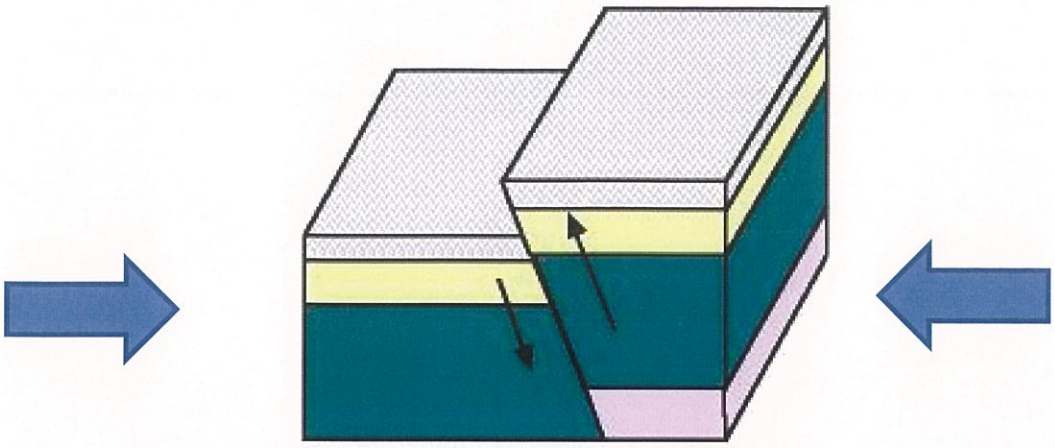
As the plate moves apart, the blocks slide _____ the _____, pulled down by gravity.

This movement causes _____.



Reverse (Thrust) Faults occur when continents are being compressed together by tectonic forces.

The _____ forces cause continental rocks to crack along planes called _____.

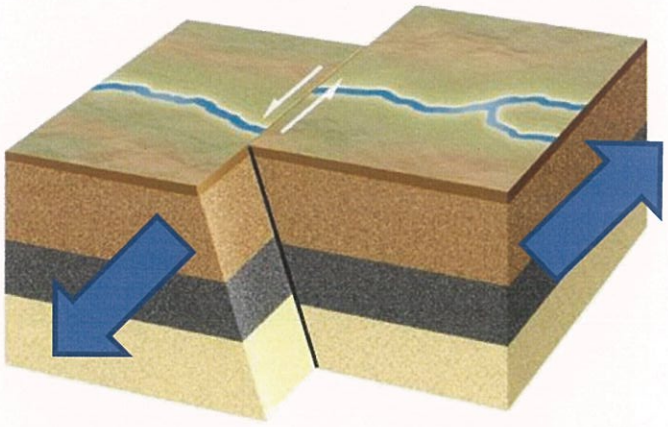


The force _____ these blocks _____ the slope of the fault plane. Movement along the fault plane causes _____.

Thrust or reverse faults can be found in convergent plate boundaries. Eg Indian continent colliding into the Asian continent.

Strike- Slip Faults occur when the forces are _____ to the _____ of the fault line.

_____ faults at Mid _____ Ridges are **Strike Slip** faults.



The famous **San** _____ **Fault** in California is a strike slip fault. The Cities of San _____ and Los _____ are built on this fault!

Why is this cause for concern

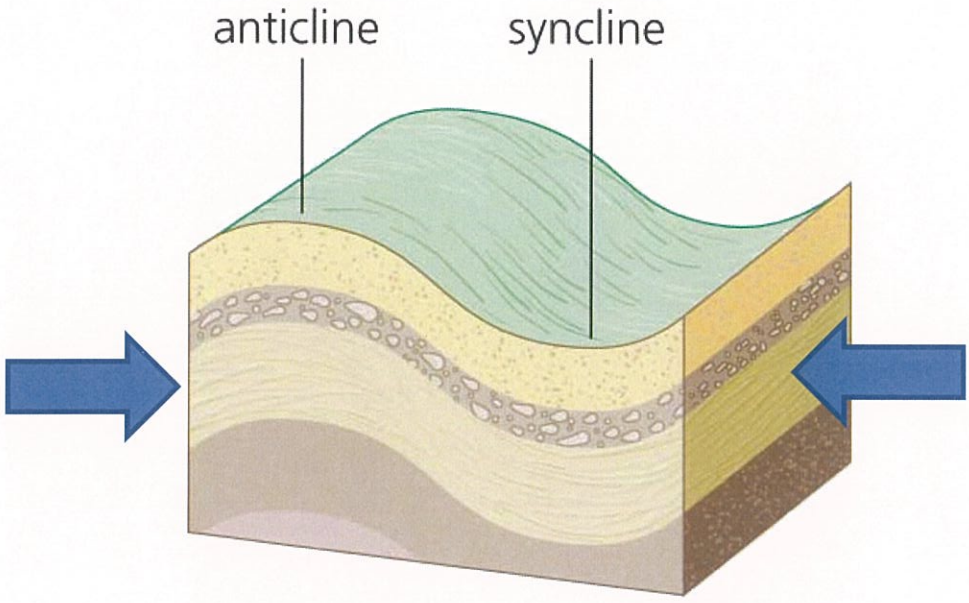
Movement along these faults can cause mountains to be made along the length of the fault line.

Folds occur in when the _____ plate tectonic forces cause sedimentary layers to _____ **and** _____.

The sedimentary rocks are more _____ and bend rather than _____ and break.

The layers _____ into folds.

A downward fold is called a _____. An upward fold is called a _____.



Rocks and minerals

1. Match each of these terms with its definition.

Term
Minerals
Lustre
Habit
Cleavage plane
Mohs hardness scale
Streak test
Magnetic

Definition
(a) A way of showing the true colour of a mineral
(b) The substances that rocks are made up of
(c) 10-point scale on which diamond is a 10
(d) The way that a mineral reflects light
(e) A quality showing the mineral is rich in iron
(f) The way a crystal will split to give a flat surface
(g) The way that crystals grow together

2. Complete the table by writing each substance from the box in the correct column.

granite	diamond
gold	limestone
slate	coal
marble	sandstone
quartz	calcite

Rock	Mineral

3. Check whether each statement below is correct. If it is, then put a tick next to it. If you find mistakes, rewrite it in your book so that it is a correct statement.

(a) It is a myth that diamond is the hardest substance known to humanity as titanium has now taken this status.

(b) Gold is valued because it is unreactive and easy to find as itself.

(c) Iron pyrite is called fool's gold because it looks like gold but when you do the streak test on it, the streak is dark – not yellow like gold's streak.

(d) The outback of Australia is full of iron ore because it is the same colour as iron.

4. Explain how gold panning succeeds in swirling the water and the non-gold material away from the gold in the pan.

Churchlands Senior High School

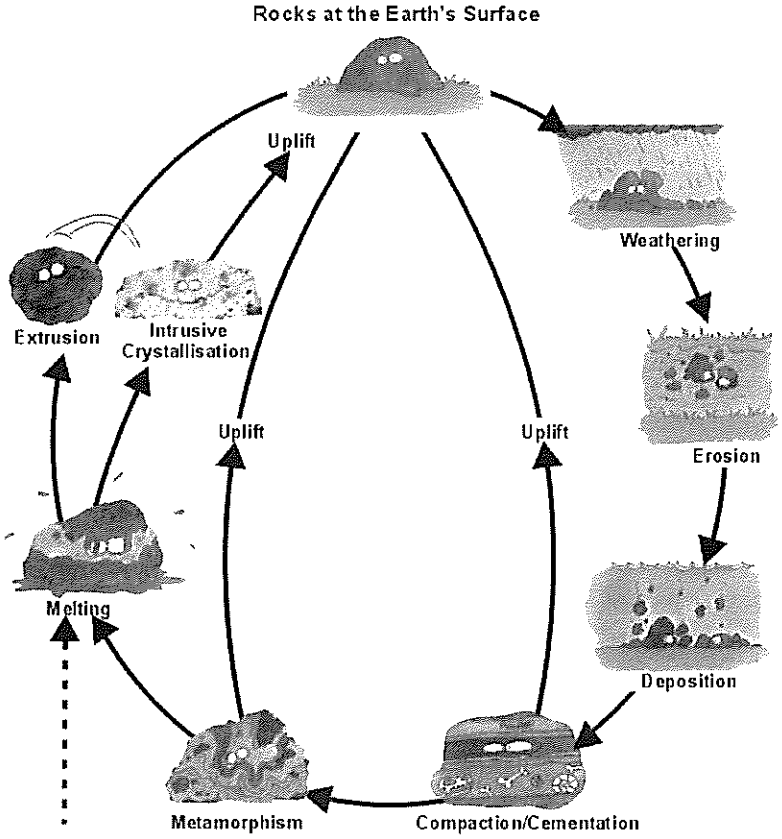
Year 8 Earth and Space Sciences

Mid-topic Test Revision

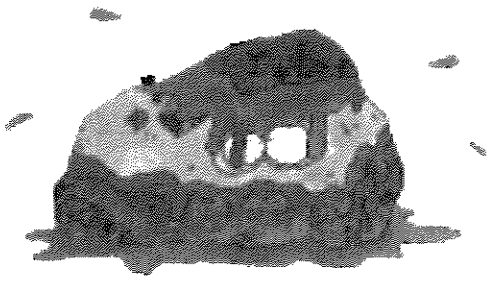
Visit the following link and then complete the following paragraphs.

http://www.oum.ox.ac.uk/thezone/rocks/cycle/index.htm

Start here by exploring the rock cycle ...

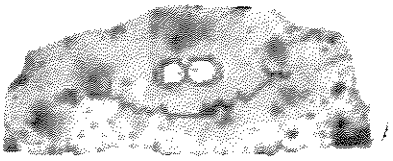


Melting



It can get quite hot deep in the Earth's crust. In fact, it can get so hot that the rocks that make up the crust can actually begin to _____. This molten material is called _____. It is less dense than the surrounding rock so it tends to move _____ through the crust. Magma also comes from _____ below the Earth's crust – the mantle. This new material rises up from the mantle and adds to the magma produced from the _____ crust.

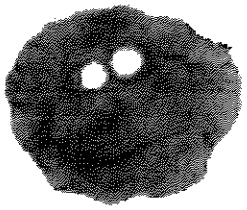
Intrusive Crystallisation



Molten rock can sometimes form huge reservoirs called magma _____ within the Earth's crust. Left undisturbed over many hundreds of thousands of years this magma will cool and _____ to form intrusive igneous rocks. Intrusive igneous rocks like granite and gabbro have some things in common. Like:

1. Both are _____ grained – magma cools very slowly beneath the Earth's surface so the crystals in the rock have a long time to form.
2. Both are made up of large _____ crystals.

Extrusion



Sometimes magma can force itself through a crack or _____ in the rock at the Earth's surface. It pours out over the Earth's surface in a _____ eruption. This process is called _____.

The rocks that form from extruded _____ are called _____ igneous rocks. Basalt and _____ are extrusive igneous rocks. The type of rock that forms depends on the magma it came from, but generally extrusive rocks:

1. Are _____ grained – lava cools very _____ when it erupts onto the Earth's surface and the crystals in the rock don't have much time to form.
2. May contain volcanic _____ vesicles.

Now try the following web site for more revision.

http://www.oum.ox.ac.uk/thezone/minerals/index.htm

Now complete the following minerals quiz ...

Mineral Practice Test

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. A mineral is inorganic, which means that it contains
a. compounds.
b. materials made by humans.
c. parts of living things.
d. no materials that were once part of living things.

____ 2. The color of a mineral's powder is called its
a. streak.
b. luster.
c. density.
d. hardness.

____ 3. If you broke a mineral into tiny pieces, each piece would
a. still show the same crystal structure.
b. have the same shape.
c. be roughly the same size.
d. be metallic.

____ 4. Magma that cools very slowly deep beneath the surface forms minerals with what type of crystals?
a. small
b. large
c. very hard
d. cubic

____ 5. The repeating pattern of a mineral's particles forms a solid called a(n)
a. crystal.
b. element.
c. compound.
d. rock.

____ 6. What is the hardest known mineral?
a. talc
b. quartz
c. diamond
d. gold

____ 7. Most minerals do NOT split apart evenly. Instead, they have a characteristic type of
a. cleavage.
b. fracture.
c. crystal.
d. luster.

____ 8. What crystal shape does halite have?
a. cubic
b. monoclinic
c. hexagonal
d. glassy

____ 9. The softest mineral on the Mohs hardness scale is
a. quartz.
b. talc.
c. apatite.
d. gypsum.

Modified True/False
Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

____ 10. Minerals come from organic materials. _____

____ 11. Halite crystals form when a solution of water and salt condenses.
_____

____ 12. A mineral that does not split apart evenly has the property of fracture.
_____

____ 13. The faster magma cools, the smaller the mineral crystals form.
_____

Completion
Complete each statement.

14. A mineral is always a(n) _____ because it has a definite volume and shape.

15. The atoms of a mineral are arranged in a repeating pattern to form a solid called a(n) _____.

16. One way to identify a mineral is to rub it against a piece of unglazed tile to observe its _____.

17. The process by which atoms are arranged to form a material with a crystal shape is called _____.

18. Shiny minerals, such as galena, are said to have metallic _____.

Short Answer

Use the diagram to answer each question.

Mohs Hardness Scale

Mineral	*Hardness*
Talc	*1*
Gypsum	*2*
Calcite	*3*
Fluorite	*4*
Apatite	*5*
Feldspar	*6*
Quartz	*7*
Topaz	*8*
Corundum	*9*
Diamond	*10*

19. What would happen if you rubbed a piece of fluorite against a piece of feldspar?

20. What would you expect to happen if you rubbed a mineral of hardness 7.5 against a piece of quartz?

21. If an unknown mineral has a hardness between 5 and 9, what could you do to the mineral to find out more about its hardness?

22. Which minerals in the table will scratch quartz?