

WEEK: 19

Week Beginning: 27-7-20

Subject: SCIENCE

Year: 8

Lesson Objective:

- Go over homework questions
- The Earth's structure, types of rocks

Keywords/ Concepts

- Core, mantle, crust, igneous, metamorphic, sedimentary

Class Worksheets

- Questions below
- Notes

Homework

- Questions below

Additional Notes

- Attach all the classroom worksheets and homework worksheets to this lesson plan and email together.
- Assume the students don't have revision guides and workbooks. Attach all the pages you want them to have.

Homework from last week

Displacement Reactions

Q2 Some metals were placed in an iron sulfate solution.

- a) Fill in each row of the table with a tick (✓) or a cross (✗) to show which metals reacted.
- b) What would coat the surface of the metals that reacted?

Metal	Reaction with iron sulfate
Magnesium	✓
Aluminium	✓
Iron	✗
Lead	✗
Copper	✗

..... Iron

- c) A chemical company has decided to store some spare iron sulfate in aluminium tanks. Explain why this is a bad idea.

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.....

Q3 Fill in the missing words using the clues below and find the mystery metal in the shaded boxes.

a										U	
										N	
										E	
										S	
										O	

- a) A metal that's more reactive than aluminium, but less reactive than potassium.
- b) This is more reactive than copper.
- c) A metal less reactive than iron — but only just.
- d) Copper cannot displace zinc from zinc sulfate because it is not enough.
- e) When magnesium is added to blue copper sulfate solution the liquid turns
- f) This would be seen coating the zinc strip in the reaction between zinc and iron sulfate.

The mystery metal is

Section 6 — Chemical Changes

Displacement Reactions

Q4 A chemist has made five different salt solutions and added different metals to each of them.

a) Complete the table below, putting a tick (✓) where a reaction occurs.

Metal ↓ \ Salt solution →	magnesium sulfate	aluminium sulfate	zinc sulfate	iron sulfate	copper sulfate
magnesium					
aluminium					
zinc					
iron					
copper					

b) Which of the five salt solutions would you expect lead to react with?

.....

c) Copper sulfate solution is bright blue. How does the solution change when it reacts with iron?

.....

d) Write down all of the other metals in the table that would make the solution change colour.

.....

Q5 Roger reacts hydrochloric acid with sodium hydroxide solution.

a) What type of reaction is this?

.....

b) Fill in the gaps in these sentences using the words in the boxes.

The is
 from hydrochloric acid by from sodium
 hydroxide, forming a and water.

sodium

hydrogen

salt

displaced

c) Write an equation for the reaction using chemical symbols.

.....

Displacement Reactions

- Q6 Hannah and Mark were given a solution of iron sulfate and four metals — iron, magnesium, copper and a mystery metal X. They were asked to investigate the reactivity of metal X compared to the other metals. They put a piece of each metal into a test tube of iron sulfate and left them for half an hour. The table below shows their results.

Metal	Reaction with iron sulfate
Magnesium	Iron deposited
Iron	No reaction
Copper	No reaction
Metal X	No reaction

- a) Draw a diagram to show how they might have set up the apparatus.



- b) They then tested metal X and iron in copper sulfate solution. Copper was deposited in both metals. Why did they test these two with copper sulfate solution?

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- c) What could metal X be?

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- d) How do you know metal X is more reactive than copper?

.....
.....

- e) Put all the metals listed in the table in order of reactivity (including X), starting with the most reactive.

.....

Section 6 — Chemical Changes

Answers from last week's homework

Q2 a) and will not displace it.

Metal	Reaction with iron sulfate
Magnesium	4
Aluminium	4
Iron	8
Lead	8
Copper	8

- b) iron
 c) E.g. aluminium is more reactive than iron, so it will displace the iron from iron sulfate.

Q3 a) magnesium
 b) iron
 c) lead
 d) reactive
 e) colourless
 f) iron

The mystery metal is silver.

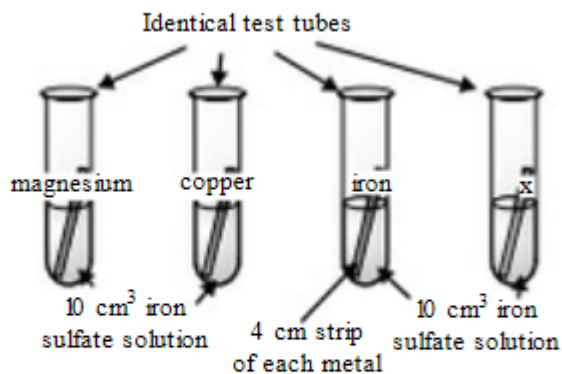
Q4 a)

Metal \ Salt solution	magnesium sulfate	aluminium sulfate	zinc sulfate	iron sulfate	copper sulfate
magnesium					
aluminium					
zinc					
iron					
copper					

- b) copper sulfate
 c) It goes green.
 d) zinc, aluminium, magnesium

Q5 a) neutralisation
 b) The hydrogen is displaced from hydrochloric acid by sodium by sodium from sodium hydroxide, forming a salt and water.
 c) $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$

Q6 a)



- b) E.g. to see if either iron or metal X were more reactive than copper.
 c) E.g. lead
 d) The copper was displaced from its salt.
 e) magnesium, iron, X, copper

The Earth's Structure

Q1 Here is a picture of the internal structure of the Earth.

a) Draw an arrow from each label to the correct layer of the Earth shown in the picture.



Mantle

Core

Crust

b) Fill in the gaps in these sentences about the Earth's structure.

The Earth is almost a and is made up of several layers. The is a thin layer of solid

The core is at the of the Earth.

c) The mantle is mostly solid, but deep down it can flow like a liquid.

i) Explain why this is.

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.....

ii) Does the mantle flow quickly or slowly?

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d) Write down which layer of the Earth each sentence is talking about.

i) The part of the Earth that we live on.

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ii) Scientists think this layer is made from iron and nickel.

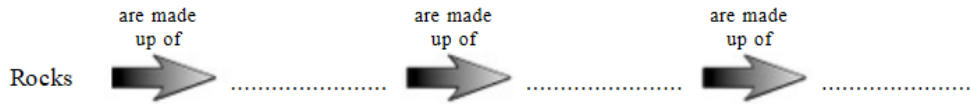
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The Earth's Structure

Q2 The Earth's crust is made up of rocks.

compounds
elements minerals

- a) Use the words in the box to fill in these gaps to show what the rocks are made from.



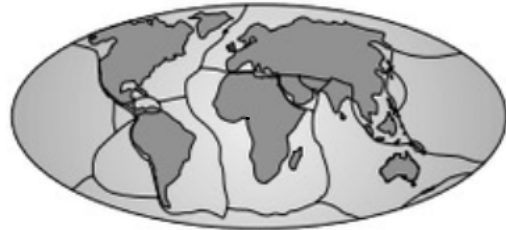
- b) Give an example of a mineral found in the Earth's crust.

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Q3 The picture below shows the Earth's tectonic plates.

- a) Describe what a tectonic plate is and which layers of the Earth they are made from.

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- b) Tectonic plates are moving all the time.

i) Why can the plates move?

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ii) How fast do the plates normally move?

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- c) Kazuki lives in Tokyo, Japan, close to where two tectonic plates meet. Sometimes there are earthquakes in Tokyo. What causes earthquakes?

.....

- d) Which of the following are often found where two tectonic plates meet? Circle the correct answer.

Volcanoes

Lakes

Waterfalls

Deserts

Beaches

Forests

Rock Types

Q1

Here are some sentences about different types of rock.
Put the following words in the gaps so that the sentences make sense.

age crust crystals crystals fast fossils large layers layers
long magma millions minerals seas size three volcanoes

There are different types of rock. Igneous rocks are made from melted underground rock called, which is pushed up towards the surface of the and sometimes out through

Igneous rocks contain minerals arranged in interlocking

The of the crystals depends on how the rock cools down. crystals mean the rock cooled slowly.

Sedimentary rocks are formed from of sediment laid down in lakes or over of years. The particles are then cemented together by other Sometimes the remains of long dead plants and animals are found in the rock. These are called Scientists study the fossil type to work out the of the rock.

Metamorphic rocks are formed by heating and increased pressure acting on existing rocks over periods of time. Metamorphic rocks can contain tiny and may also have

Q2

There are two different types of igneous rock.

a) Name the two types of igneous rock.

1. 2.

b) Describe how the two different types of igneous rock are formed.

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Section 7 — The Earth and The Atmosphere

Homework

Rock Types

Q3

Look at the descriptions of various rocks below. Try to identify each type of rock as igneous, sedimentary or metamorphic by ticking the correct column in the box below.

Basalt	A dark rock with small crystals, formed on the surface of the Earth.
Chalk	A white rock formed from the shells of sea animals which collected at the bottom of shallow seas.
Slate	A dark rock showing crystals and layers. It was formed by shale being changed by heating and pressure.
Grit	Rock formed from small particles stuck together.
Granite	A speckled rock. The speckles are different crystals that have formed from melted rock which cooled slowly inside the earth.
Marble	A white sugary rock. It is made from crystals, but also shows layers. It is formed from chalk or limestone by heating and pressure.
Breccia	A rock made from different sized angular particles which have collected together and been cemented.
Obsidian	A glassy rock formed by volcanoes. The melted rock has cooled very quickly, so the crystals are tiny.
Pumice	A rock that contains air bubbles. It is formed by volcanic rock cooling and trapping air inside.
Sandstone	A rock formed from small grains of sand which have been squeezed tightly together.
Marl	A rock made from small, dark grey fragments which have been squeezed together.
Quartzite	A crystalline rock which has been formed by changes due to heating and pressure within the earth.

Rock	Igneous	Sedimentary	Metamorphic
Basalt			
Chalk			
Slate			
Grit			
Granite			
Marble			
Breccia			
Obsidian			
Pumice			
Sandstone			
Marl			
Quartzite			

Section 7 — The Earth and The Atmosphere