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Government

Education

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GET Term 4 Take Home Package

Natural Sciences

Grade 9

TAKE HOME PACK GET SP GRADE 9 NATURAL SCIENCES TERM 4

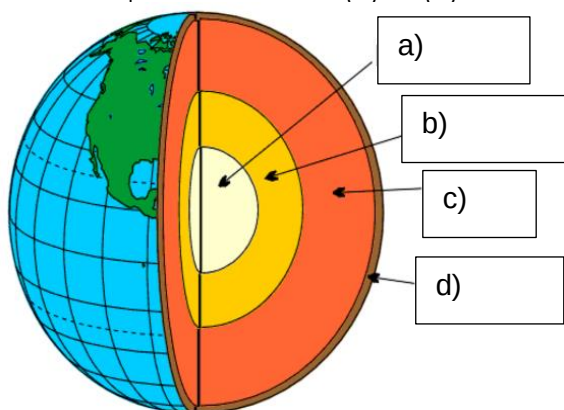


1. Match each term in **COLUMN A** with the explanation which fits it in **COLUMN B**:
Write down the correct **TERM** in the space provided in **COLUMN C**.

	Column A - TERM		Column B - EXPLANATION	COLUMN C
1.1	Lithosphere	A	All the gases of the earth.	1.1
1.2	Hydrosphere	B	All the water of the earth.	1.2
1.3	Atmosphere	C	All the rocks and soil of the earth.	1.3
1.4	Biosphere	D	All the living things of the earth.	1.4
1.5	Crust	E	Molten (liquid) rock which comes out of a volcano.	1.5
1.6	Mantle	F	Molten (liquid) rock while it is still inside the earth.	1.6
1.7	Core	G	The second layer of the lithosphere. Consists of magma (molten rock).	1.7
1.8	Magma	H	The earth's crust cracks, and hot liquid rock and smoke come out.	1.8
1.9	Lava	I	The outer layer of the lithosphere.	1.9
1.10	Volcano	J	The centre of the earth (the centre of the lithosphere).	1.10

ACTIVITY 2: The Lithosphere

- 2.1 2.1.1 Label the parts numbered (a) to (d) for the following diagram

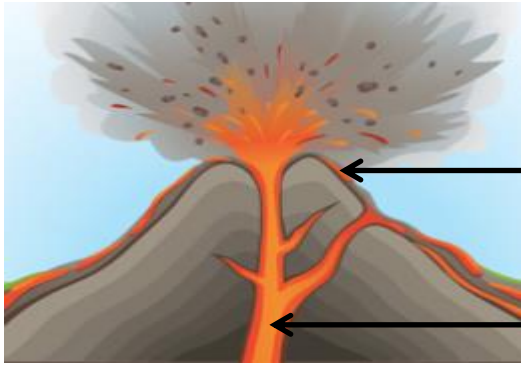


2.2

- 2.2.1 Name the two layers of the earth's lithosphere.
 2.2.2 Deep inside the earth the temperature is very (hot / cold.)
 2.2.3 This makes the metals and other materials in the core and mantle (melt / freeze.)
 2.2.4 This hot molten material, deep inside the earth is called _____?
 2.2.5 When this molten material comes out onto the crust of the earth, from the inside of a volcano it is called _____?

2.3

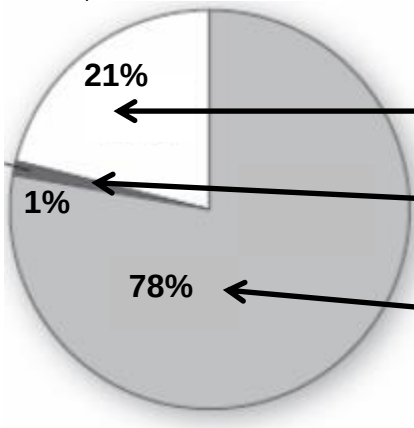
- 2.3.1 Study the diagram below showing the volcano and label parts (a) and (b)



a)

b)

2.3.2 Study the diagram below and label the gases, (a), (b) and (c) which make up the earth's atmosphere:



(a)

(b)

(c)

2.4 Name the gas which:

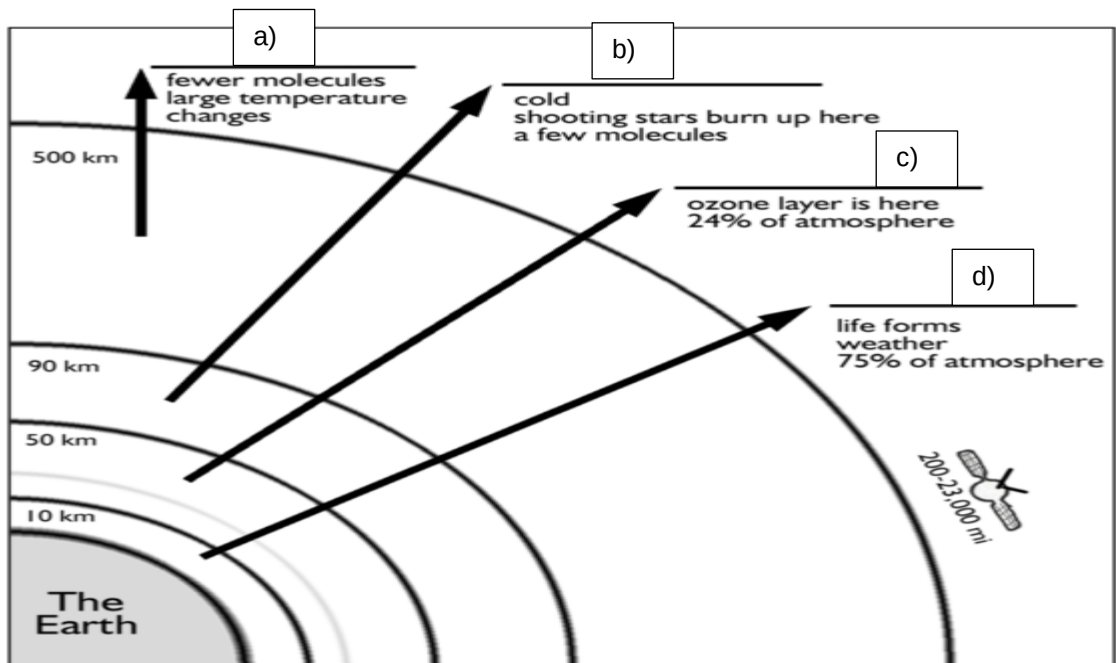
2.4.1 we need for respiration _____

2.4.2 makes up most of the atmosphere _____

2.4.3 we produce during respiration _____

2.5

2.5.1 Study the diagram below and label the layers of the Earth's Atmosphere



2.6 In which of the layers;

2.6.1 will you find the ozone layer?

2.6.2 does weather occur?

2.6.3 will shooting stars burn up?

2.6.4 does most commercial air travel take place?

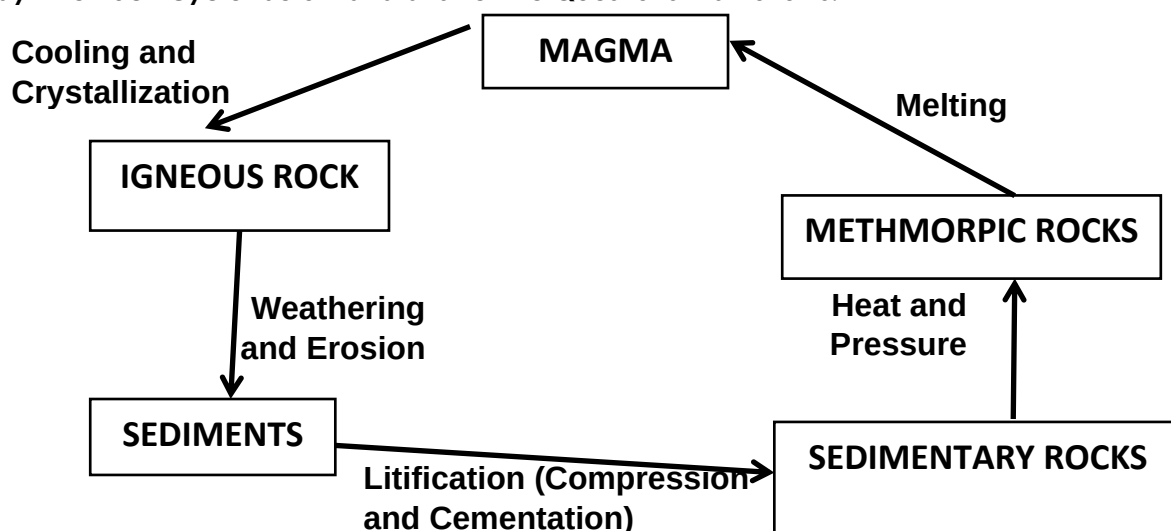
- 2.6.5 do we live in?
 2.6.6 is the air(atmospheric) pressure the lowest?
 2.6.7 is the air (atmospheric) pressure the highest?

ACTIVITY 3: The Rock Cycle

3. Match each term in **COLUMN A** with the explanation which fits it in **COLUMN B**:
 Write down the correct **TERM** in the space provided in **COLUMN C**.

		Column A - TERM		Column B - EXPLANATION	COLUMN C
	3.1	Igneous rock	A	Rock made from material which settles down in a liquid. Has layers.	5.1
	3.2	Weather	B	Squashed.	5.2
	3.3	Granite	C	Sedimentary rock formed when skeletons and shells of sea animals were compressed.	5.3
	3.4	Basalt	D	Igneous rock formed from magma which does not reach the surface.	5.4
	3.5	Sedimentary rock	E	Sedimentary rock formed when plants were compressed.	5.5
	3.6	Compressed	F	Drop (e.g., drop particles on flood plains or the seabed).	5.6
	3.7	Limestone	G	Rock produced by volcanoes. Hardened magma / lava.	5.7
	3.8	Erode	H	Break down (e.g., break down rock into small particles).	5.8
	3.9	Sandstone	I	Sedimentary rock formed when sand was compressed.	5.9
	3.10	Coal	J	Igneous rock formed from lava which cools and solidifies on the surface of the earth.	5.10
	3.11	Metamorphic rock	K	A metamorphic rock formed when limestone is changed by heat and pressure.	5.11
	3.12	Marble	L	Rock which was changed from igneous or sedimentary rock by heat / pressure.	5.12
	3.13	Slate	M	A metamorphic rock formed when shale is changed by heat and pressure.	5.13
	3.14	Deposit	N	Pick up and carry (e.g., pick up particles of rock and soil and carry these).	5.14
	3.15	Lithification	O	Change from solid to liquid.	5.15
	3.16	Melt	P	Change from sediments to rock. (Making of rock.)	5.16

3.2 Study 'The Rock Cycle' below and answer the Questions that follows.



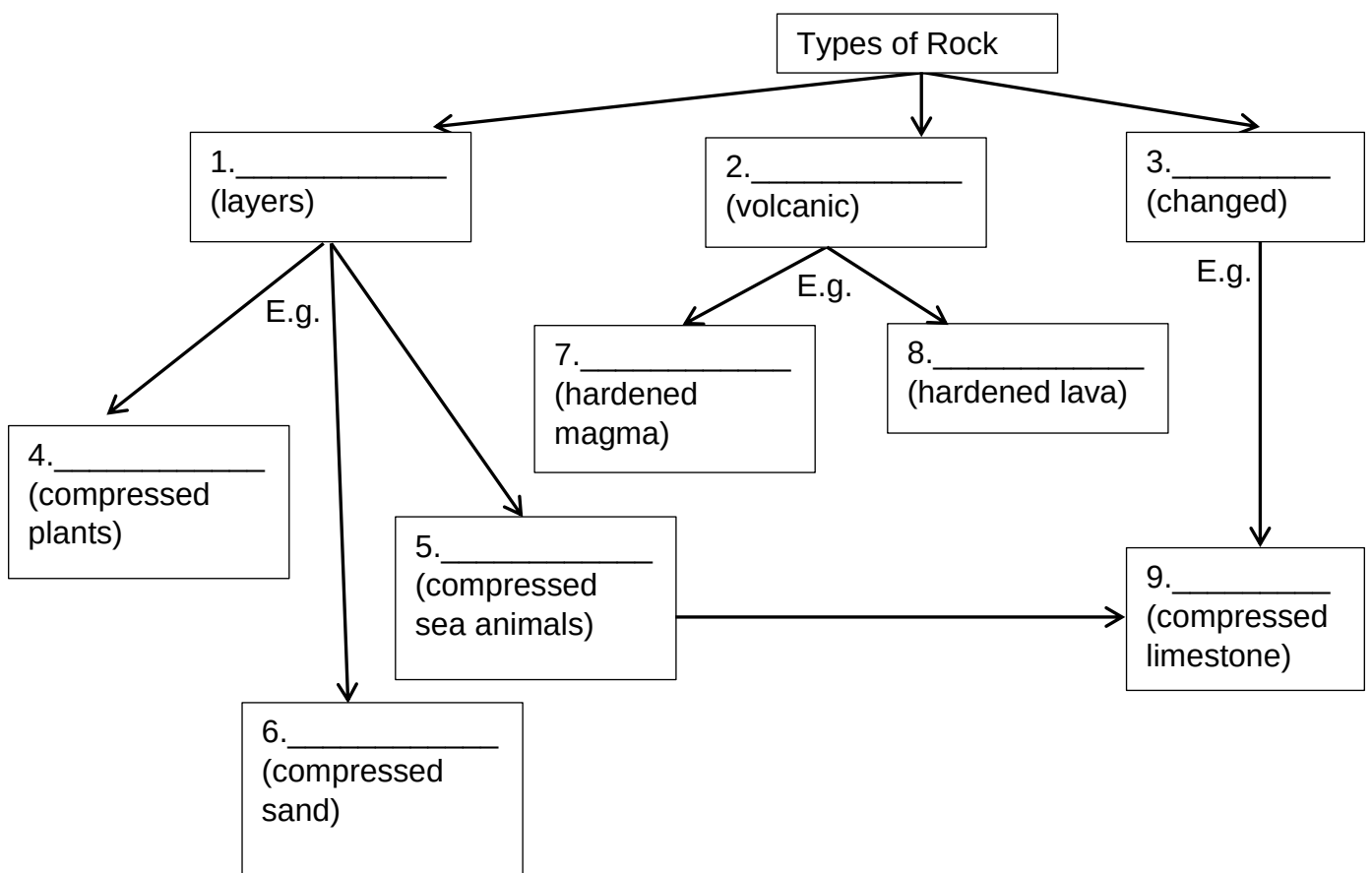
- 3.2.1 Molten rock from the mantle is called _____ while it is under earth's surface and _____ on the surface.
 3.2.2 When magma / lava cools it hardens (crystallizes) to form _____ rock.

3.3 Read through the following passage and underline the correct words/terms in-between the {brackets}

- 3.3.1 Heat, cold, wind and water break down {weather / erode / deposit} rocks to form smaller particles. Wind and water carry {weather / erode / deposit} these smaller particles to flood plains or the seabed where they are dropped {weathered / eroded / deposited}. These particles gather to form layers {magma / sediments}, which are compressed to form _____ rock. This process is called lithification {making rock}.
- 3.3.2 _____ rock forms when igneous or sedimentary rock experiences high heat and/or pressure.
- 3.3.3 Magma forms when rock _____ (changes from solid to liquid) in the {core / mantle / crust}.

3.4 Rock Types

- 3.4.1 Place each term at the correct place: **granite, coal, marble, sandstone, igneous, sedimentary, basalt, limestone, metamorphic**



ACTIVITY 4: MINING

4.1	Column A - TERM		Column B - EXPLANATION	COLUMN C
4.1.1	Ore	A	carbon extracted from the earth, made from fossilised plants (plants covered by rock)	
4.1.2	Extract	B	valuable chemicals	
4.1.3	Chemical process	C	carbon made from partly burnt wood	
4.1.4	Physical process	D	has holes in it: smaller particles go through and larger particles stay behind	
4.1.5	Sifting	E	does not involve a chemical reaction (e.g., hand sorting or using flotation or sifting)	

4.1.6	Sieve	F	separating particles which can float from those which sink (e.g., in water)	
4.1.7	Flotation	G	rock that contains high concentrations of a valuable mineral	
4.1.8	Iron extraction	H	extracting minerals or ores from the earth's crust	
4.1.9	Archaeological site	I	Fuel with a high carbon content, usually made from coal	
4.1.10	Coke	J	separating smaller particles from bigger particles using a sieve	
4.1.11	Charcoal	K	iron ore is heated with charcoal (in the past) or coke (today) to extract iron	
4.1.12	Coal	L	take out (e.g., take out a mineral from its ore)	
4.1.13	Minerals	M	involves a chemical reaction (e.g., lead oxide and carbon are heated to extract lead)	
4.1.14	Refine	N	a place where people dig up things buried from the past to learn about history	
4.1.15	Mining	O	make purer (take out unwanted chemicals and leave the wanted chemical)	

4.2	Mining minerals and ores	
4.2.1	There are many valuable _____ in the lithosphere.	
4.2.2	People take these minerals out of the earth's crust (part of the [atmos/hydros/lithos]phere).	
4.2.3	This is called _____.	
4.2.4	People use some minerals in their natural form just after they have been mined from the earth's crust. Examples are: [sand/iron/copper/diamonds/gold/potash]. (Choose 3).	
4.2.5	Other minerals are found inside rock and so they cannot be used in their natural form. This rock is called _____. The mineral must first be _____ (taken out) of this rock (ore). Examples are: [sand/iron/copper/diamonds/gold/potash]. (Choose 3).	
4.3	Extracting minerals from their ores	
4.3.1	Some minerals can only be extracted (taken out) of their ore by a chemical reaction. This is called a _____ process. For example:	
	a.	Many years ago, people in KZN and Limpopo heated iron ore with _____ (carbon made from partly burnt wood) to extract _____ (Fe). We know this from _____ sites where people dug up things buried from the past to learn about our history.
	b.	Today iron ore is heated with _____ (carbon made from coal) to extract _____ (Fe). This iron is then heated with other metals to form steel.
	c.	Lead ore (lead oxide) is heated on a carbon block to extract _____ (Pb).
4.3.2	Sometimes a chemical reaction is not needed. Instead people can use a _____ process to separate or help separate the mineral from surrounding rock or from its ore. Examples of physical processes:	
	d.	_____ sorting: e.g., diamonds are separated from stones by hand.
	e.	_____ (e.g., diamonds are separated from sand: the sand passes through the small holes of the sieve and the diamonds stay behind in the sieve)
	f.	_____ (e.g., gold dust / ore is separated from sand: the sand floats on water and the gold sinks)

4.4		Mining in South Africa														
4.4.1		Mining is very important to South Africa's economy, e.g.:														
	a.	_____ mining, e.g., in Gauteng, Welkom, North-West														
	b.	_____ mining, e.g., in Kimberley, Free State, Northern Cape														
	c.	_____ mining, e.g., in KZN														
	d.	_____ mining, e.g., in KZN, Limpopo														
	e.	_____ mining, e.g., in Limpopo, Rustenburg, Marikana														
4.5		Environmental impacts														
		Mining damages the environment, e.g., through: (Use arrows to match the statements/terms in column A with the correct descriptions / sentences in column B.)														
	<table><tr><th>Column A</th></tr><tr><td>creation of mine dumps</td></tr><tr><td>pollution of water resources</td></tr><tr><td>damage to tourist attractions</td></tr><tr><td>damage to cultural heritage sites</td></tr><tr><td>loss of farming land</td></tr></table>		Column A	creation of mine dumps	pollution of water resources	damage to tourist attractions	damage to cultural heritage sites	loss of farming land	<table><tr><th>Column B</th></tr><tr><td>using land which could have been used for farming</td></tr><tr><td>spoiling the beauty of places which visitors would have paid money to go to</td></tr><tr><td>making heaps (hills) of mining waste</td></tr><tr><td>using land which could have been used for wild animals to live on</td></tr><tr><td>spoiling places of historical importance</td></tr></table>		Column B	using land which could have been used for farming	spoiling the beauty of places which visitors would have paid money to go to	making heaps (hills) of mining waste	using land which could have been used for wild animals to live on	spoiling places of historical importance
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	loss of wildlife environments		dirtying rivers and lakes with e.g., chemicals from the mines
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MEMORANDUM									
ACTIVITY 1: The Earth as a system									
1.									
	1.1	A	Atmosphere✓	1.6	F	Magma✓			
	1.2	B	Hydrosphere✓	1.7	G	Mantle✓			
	1.3	C	Lithosphere✓	1.8	H	Volcano✓			
	1.4	D	Biosphere✓	1.9	I	Crust✓			
	1.5	E	Lava✓	1.10	J	Core✓			
ACTIVITY 2: The Lithosphere									
2.1	(a)	Inner Core✓							
	(b)	Outer Core✓							
	(c)	Mantle✓							
	(d)	Crust✓							
2.2	2.2.1	Crust✓ and Upper Mantle✓							
	2.2.2	hot✓							
	2.2.3	melt✓							
	2.2.4	Magma✓							
	2.2.5	Lava✓							
2.3	2.3.1	a) Lava✓				b) Magma✓			
	2.3.2	21%	Oxygen✓	1%	Argon, Carbon dioxide and other gases✓			78%	Nitrogen✓
2.4	2.4.1	Oxygen gas✓							
	2.4.2	Nitrogen gas✓							
	2.4.3	Carbon dioxide gas✓							
2.5		(a) Thermosphere✓			(b) Mesosphere✓				
		(c) Stratosphere✓			(d) Troposphere✓				
2.6									
	2.6.1	Stratosphere✓							
	2.6.2	Troposphere✓							
	2.6.3	Mesosphere✓							
	2.6.4	Stratosphere✓							
	2.6.5	Troposphere✓							
	2.6.6	Thermosphere✓							
	2.6.7	Troposphere✓							

ACTIVITY 3: The Rock Cycle				
	COLUMN C			
	3.1	Sedimentary✓	3.9	Sandstone✓
	3.2	Compressed✓	3.10	Basalt✓
	3.3	Limestone✓	3.11	Marble✓
	3.4	Granite✓	3.12	Metamorphic✓
	3.5	Coal✓	3.13	Slate✓
	3.6	Deposit✓	3.14	Erode✓

	3.7	Igneous✓	3.15	Melt✓	
	3.8	Weather✓	3.16	Lithification✓	
3.2					
	3.2.1	Molten rock from the mantle is called <u>magma</u> ✓ while it is under earth's surface and <u>lava</u> ✓ on the surface.			
	3.2.2	When magma / lava cools it hardens (crystallizes) to form <u>igneous</u> ✓ rock.			
3.3					
	3.3.1	Heat, cold, wind and water break down { <u>weather</u> ✓ / erode / deposit} rocks to form smaller particles. Wind and water carry {weather / <u>erode</u> ✓ / deposit} these smaller particles to flood plains or the seabed where they are dropped {weathered / eroded / <u>deposited</u> ✓}. These particles gather to form layers {magma / <u>sediments</u> ✓}, which are compressed to form <u>sedimentary</u> ✓ rock. This process is called lithification {making rock}.			
	3.3.2	<u>Metamorphic</u> ✓ rock forms when igneous or sedimentary rock experiences high heat and/or pressure.			
	3.3.3	Magma forms when rock <u>melts</u> ✓ (changes from solid to liquid) in the { <u>core</u> / mantle / crust}.			
3.4	Rock Types				
3.4.1	1.	sedimentary✓	6.	sandstone✓	
	2.	igneous✓	7.	granite✓	
	3.	metamorphic✓	8.	basalt✓	
	4.	coal✓	9.	marble✓	
	5.	limestone✓			
ACTIVITY 4: MINING					
	COLUMN C				
	4.1.1	coal✓	4.1.9	coke✓	
	4.1.2	minerals✓	4.1.10	sifting✓	
	4.1.3	charcoal✓	4.1.11	Iron extraction✓	
	4.1.4	sieve✓	4.1.12	extract✓	
	4.1.5	physical process✓	4.1.13	chemical process✓	
	4.1.6	flotation✓	4.1.14	Archaeological site✓	
	4.1.7	ore✓	4.1.15	refine✓	
	4.1.8	mining✓			
4.2	Mining minerals and ores				
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4.2.3	This is called <u>mining</u> ✓.				
4.2.4	People use some minerals in their natural form just after they have been mined from the earth's crust. Examples are: [<u>sand</u> ✓/iron/copper/ <u>diamonds</u> ✓/gold/ <u>potash</u> ✓]. (Choose 3).				
4.2.5	Other minerals are found inside rock and so they cannot be used in their natural form. This rock is called <u>ore</u> ✓. The mineral must first be <u>extracted</u> ✓ (taken out) of this rock (ore). Examples are: [sand/ <u>iron</u> ✓/ <u>copper</u> ✓/diamonds/ <u>gold</u> ✓/potash]. (Choose 3).				
4.3	Extracting minerals from their ores				
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	b.	Today iron ore is heated with <u>coke</u> ✓ (carbon made from coal) to extract <u>iron</u> ✓ (Fe). This iron is then heated with other metals to form steel.														
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	b.	<u>Diamond</u> ✓ mining, e.g., in Kimberley, Free State, Northern Cape														
	c.	<u>Coal</u> ✓ mining, e.g., in KZN														
	d.	<u>Iron</u> ✓ mining, e.g., in KZN, Limpopo														
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