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Grade 9 Term 3 Planning Memorandum

- 1.This **whole** document must be in your planning book paste in at the left hand side .**All** your planning should be done on these papers and on the clean pages of the book.
 - 2.Add **more paragraph** questions to teach learners how to answer paragraphs.
 - 3.You can **add more relevant FIGURES** and **information** to make content easier for learners to understand. These worksheets are the **minimum** to be done.
 - 4.You **MUST ADD** work out of your textbook or other resources, that extra work must also be in this planning book
 - 5.You are welcome to add **marks** for the questions in the activities, it will help learners when answering the questions. **Don't mark** in your planning book the answers.
 - 6.Please correct any **errors** on these pages.
 - 7.You cannot continue with the **following lesson** if the learners did not mark the previous work and did corrections.
 - 8.You **cannot** just give the answers to the learners, you must tell the story/explain the work only then the learners go and do the work and then you mark it together.
 - 9.If **ALL, the answers** are not completed you do it yourself on these papers.
 - 10.**Planning** must be done in **pen**, you welcome to use colour pens but dates must be in pencil.
- This is your planning book, you make it easy and pleasant to use for yourself**
- 11.Planning must be **neat and thoroughly** done to use for many years. You are just going to add every year new information. You can also do your extra notes in this book or paste it in.

Thank you for your hard work

Anette



2022 Curriculum Coverage – Term 3: SOCIAL SCIENCES (GEOGRAPHY): Grade 9

<u>Term 3</u> <u>50 days</u>	<u>Week 1</u> <u>19 July 2022</u>	<u>Week 2</u> <u>25 July 2022</u>	<u>Week 3</u> <u>1 August 2022</u>	<u>Week 4</u> <u>8 August 2022</u> <u>(3days)</u>	<u>Week 5</u> <u>15 August 2022</u>	<u>Week 6</u> <u>22 August 2022</u>	<u>Week 7</u> <u>29 August 2022</u>	<u>Week 8</u> <u>5 Sept 2022</u>	<u>Week 9</u> <u>12 Sept 2022</u>	<u>Week 10 & 11</u> <u>19 Sept 26 Sept 2022</u>
<u>CAPS Topic</u> : Surface forces that shape the earth (Physical geography)										
Content and Concepts	Learner orientation and revision of Term 2 work and assessment	Weathering			Erosion and deposition			The impact of people on soil erosion		Revision Consolidation
		•Concept of weathering •Physical weathering	•Chemical weathering	•Biological weathering •Impact of human activities on weathering	•Difference between weathering, erosion and deposition	•River features of erosion and deposition along a river course.	•Oxbow lake	•Human contributions to erosion through agriculture, construction and mining.	<u>Case study:</u> agriculture as a contributor to erosion	Formal task
Curriculum coverage ✓ signature										
Date completed with ALL classes										

Geography formal task: Grade Term 3 2022

Content: Surface forces that shape the earth

Type of formal assessment: Controlled Test

Total: 50 marks

Types of questions: Source-based ,paragraph writing (8marks) and 7 marks level 3 questions **Level 1:** 15/50 **Level 2:** 25/50 **Level 3:** 10/50

SOCIAL SCIENCES – INTERMEDIATE PHASE

LESSON PLAN : Geography

Lesson group 1

Topic: Surface forces that shape the earth Grade 9 Term 3

Content / Concepts: Weathering

1. Concept of weathering:

Word bank words:
Informal assessment / worksheet pages:
Date completed with last group:
Extra:

2. Physical weathering :

Word bank words:
Informal assessment / worksheet pages:
Date completed with last group:
Extra:

3. Chemical weathering:

Word bank words:
Informal assessment / worksheet pages:
Date completed with last group:
Extra:

4. Biological weathering:

Word bank words:
Informal assessment / worksheet pages:
Date completed with last group:
Extra:

5. Impact of human activities on weathering:

Word bank words:
Informal assessment / worksheet pages:
Date completed with last group:
Extra:

What did you do extra to assist progressed and retained learners?

1. Concept of weathering

Date: _____

The earth's crust is made of solid rock. Rocks on or close to the surface of the earth slowly break down into smaller pieces. This occurs when rocks come into contact with the Earth's atmosphere, biota and waters. This breakdown of rocks is called **weathering**. Weathering is very important as it provides the particles of rock that will become soil. Minerals in the rocks that are weathered become dissolved in the soil and provide the nutrients that plants need in order to grow. Animals (including humans) eat the plants and in this way, they too get the minerals from the rocks.

Rocks weather in three ways:

- physical weathering by physical forces such as frost and temperature changes;
- chemical weathering by chemicals that weaken rocks; and
- biological weathering by the action of plants and animals.

Compared to a human lifetime, weathering is a slow process. Weathering causes many changes to the landscape over long periods of time. You are not very likely to observe changes in rocks over the time of your lifespan, however, small changes add up over thousands of years.

Study above information and answer the following questions

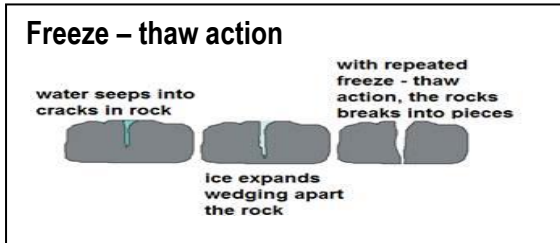
1. Give a broad definition of weathering. (2x2)(4)
 Rocks on or close to the surface of the earth slowly break down into smaller pieces. ✓✓
 This occurs when rocks come into contact with the Earth's atmosphere, biota and waters. ✓✓
2. Name three forces that cause weathering. (3x2)(6)
 - The Earth's atmosphere. ✓✓
 - Biota. ✓✓
 - Water. ✓✓
3. What happens to the minerals in weathered rocks? (2x2)(4)
 Minerals in the rocks that are weathered become dissolved in the soil ✓✓ and provide the nutrients that plants need in order to grow. ✓✓

2. Physical weathering

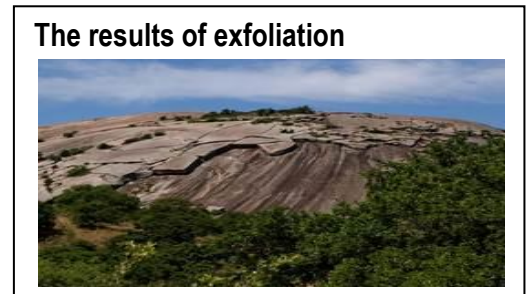
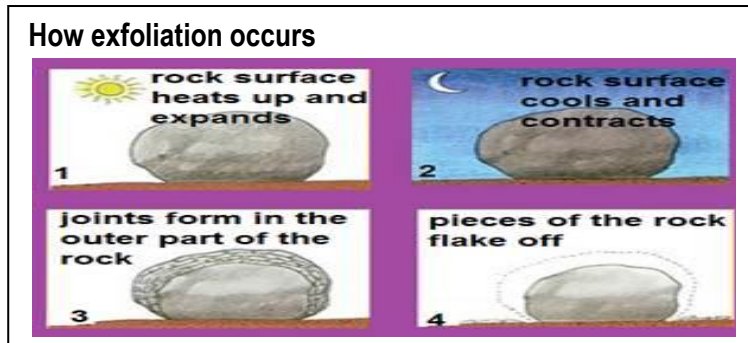
Date: _____

Physical weathering involves physical forces that break up rocks. Natural forces such as ice, water and temperature changes act like a hammer on the surface of the rock. You will explore two different physical processes that weather or break down rocks: frost shattering and exfoliation.

- **Frost shattering:** Frost shattering is caused by the constant freezing and thawing of water in cracks in rocks. Frost shattering occurs mostly in mountains and high lying areas where temperatures drop below freezing frequently. Ice takes up about 10% more space than water. Water gets lies in cracks in the rock. It freezes. The expanded ice puts pressure on the cracks in the rocks. The repeated cycles of freeze – thaw weakens the rock, causing small pieces to chatter and fall off. Rocks are wedged apart over millions of years.



- **Exfoliation:** Exfoliation is caused by big day and night temperature changes such as occur in the desert or semi desert regions. The figure below describes how repeated expansion and contraction of the rock with temperature changes causes the outer surface of the rock to crack and flake off.



Study above information and answer the following questions

1. Explain the concept of physical weathering. (2x2) (4)
Physical weathering involves physical forces that break up rocks.✓✓ Natural forces such as ice, water and temperature changes act like a hammer on the surface of the rock.✓✓
2. Explain the term, frost shattering. (2x2) (4)
Frost shattering is caused by the constant freezing and thawing of water in cracks in rocks.✓✓ Frost shattering occurs mostly in mountains and high lying areas where temperatures drop below freezing frequently.✓✓
3. Explain how ice can break down rocks into smaller pieces. (4x1) (4)
Water lies in cracks in the rock.✓ It freezes.✓ The expanded ice puts pressure on the cracks in the rocks.✓ The repeated cycles of freeze – thaw weakens the rock, causing small pieces to chatter and fall off.✓
4. Explain the term, exfoliation. (2x2) (4)
Exfoliation is caused by big day and night temperature changes✓✓ such as those that occur in the desert or semi desert regions.✓✓
5. How does exfoliation occur? (4x1) (4)
 - Rock surfaces heat up and expand.✓
 - Rock surfaces cool down and contract.✓
 - Joints form in the outer part of the rock.✓
 - Pieces of the rock flake off.✓

6. Describe the differences between frost shattering and exfoliation.

(4x2) (8)

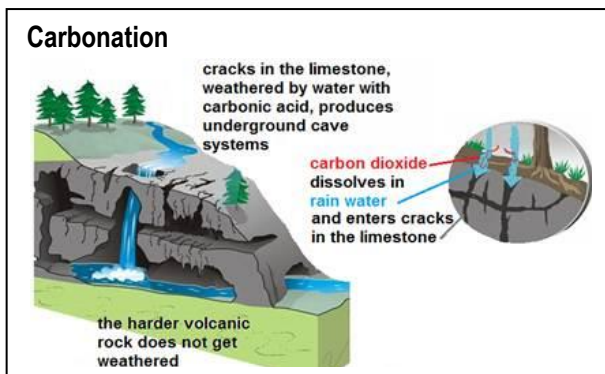
Frost shattering happens in areas where there is water present and where the temperatures drop low enough to freeze the water that is caught in cracks in the rocks.√√ The expanded ice will put pressure on the rock crack causing it to widen and pieces of the rock to shatter off.√√ In exfoliation, the rock is in an area that is dry and experiences wide ranges of temperature changes from day to night.√√ The constant expansion and contraction of the rock causes cracks in the rocks, and the cracked pieces of rock flake off the parent rock.

3. Chemical weathering

Date: _____

Rocks are made up of different minerals. Each mineral has its own chemical **composition**. Chemical weathering changes the chemical composition of the minerals in the rock. This weakens the rock, causing it to break up and wear away.

Two examples of chemical weathering are: carbonation and oxidation.



As rain passes through the atmosphere it mixes with chemicals in the air to form weak acids. For example, rain water combines with carbon dioxide to make carbonic acid. Carbonic acid reacts with calcium carbonate which is a mineral found in many rocks such as limestone. The carbonic acid changes the calcium carbonate into calcium bicarbonate – which is soluble. This means it can be washed away in the water, causing the rock to break down. Cave systems often develop in limestone deposits that are weathered by carbonation.

Oxidation

When oxygen dissolves in water and then combines with minerals such as iron in rocks, chemical weathering can occur. The oxygen combines with iron to form iron oxide. It makes the rock look 'rusty'. Oxidation weakens the rock and causes it to crumble. Red rocks and red sand are tell-tale evidence of weathering by oxidation.

Study above information and answer the following questions1. Give two examples of chemical weathering.

(2x2) (4)

Carbonation√√

Oxidation√√

2. Explain the concept of chemical weathering.

(2x2) (4)

Chemical weathering changes the chemical composition of the minerals in the rock.√√ This weakens the rock, causing it to break up and wear away.√√

3. Explain carbonation

(4x1) (4)

As rain passes through the atmosphere it mixes with chemicals in the air to form weak acids.√ For example, rain water combines with carbon dioxide to make carbonic acid.√ Carbonic acid reacts with calcium carbonate which is a mineral found in many rocks such as limestone. The carbonic acid changes the calcium carbonate into calcium bicarbonate – which is soluble.√ This means it can be washed away in the water, causing the rock to break down.√

4. List one effect of carbonation and state where it will occur.

(4x1) (4)

Cave systems√√ in limestone deposits.√√

5. Explain the process of oxidation.

(4x1) (4)

When oxygen dissolves in water and then combines with minerals such as iron in rocks, chemical weathering can occur.√ The oxygen combines with iron to form iron oxide.√ It makes the rock look 'rusty'.√ Oxidation weakens the rock and causes it to crumble.√

6. Explain how physical and chemical weathering differs.

(2x2) (4)

The sheer physical forces of ice expanding, and rock heating and cooling, causes physical weathering.√√ However, in chemical weathering, chemical reactions take place between elements such as water and oxygen and the minerals in the rock.√√

4. Biological weathering

Date: _____

Biological weathering is weathering that is caused by the actions of plants and animals.

Roots growing over rocks**Lichens on rocks**

Plants and animals work in two ways to weather rocks. Animals can physically cause weathering when they walk over rocks and their hooves break off pieces of rock. Animals burrowing into the soil can also break and wear away rocks and stones. Plants and animals release chemicals that can weather the rocks. Lichens are tiny plants that grow in rocks. They produce dilute acids that breaks down the minerals in the rock, thus crumbling the rock over time and producing soil. Plant roots grow over rocks and can also cause weathering by placing pressure on the rocks and causing them to break where the roots force themselves into cracks, seeking water. The decaying remains of dead plants and animals in the soil forms dilute acids which further cause chemical weathering.

Study above information and answer the following questions

1. What is biological weathering? Weathering that is caused by the actions of plants and animals.

2. How do plants cause weathering?

Plants release chemicals that can weather the rocks.√ Lichens are tiny plants that grow in rocks. They produce dilute acids that breaks down the minerals in the rock,√ thus crumbling the rock over time and producing soil.√ Plant roots grow over rocks and can also cause weathering by placing pressure on the rocks√ and causing them to break where the roots force themselves into cracks, seeking water.√

3. How do animals cause weathering?

Animals can physically cause weathering when they walk over rocks and their hooves break off pieces of rock.√√ Animals burrowing into the soil can also break and wear away rocks and stones.√√

4. What happens when plants and animals die?

The decaying remains of dead plants and animals in the soil forms dilute acids√√ which further causes chemical weathering.√√

5. How is biological weathering a combination of both physical and chemical weathering?

Roots of plants growing into cracks√√, hooves of animals walking over rocks and the action of animals burrowing in rocky areas are examples of physical weathering√√ caused by living organisms. However, plants and animals produce weak acids which can also chemically weather rocks.√√ In this way, biological weathering is actually a combination of physical and chemical weathering – but it is caused by living organisms.√√

5. Impact of human activities on weathering

Date: _____

Each of the following human activities can increase weathering: building, settlements, farming, mining, building roads, railways

Irrespective of the kind of human activity that causes the weathering – the weathering will always be physical, chemical or biological. So digging mine shafts and making tunnels, making roads and railways that cut through hills and rocky outcrops – these are all examples of physical weathering. Human activities are breaking down the rocks, exposing rocks to the air and causing them to weaken and crumble. Tons of rock and soil are also shifted during these activities.

When humans burn fossil fuels, they add to the chemicals in the air – carbon dioxide, nitrous oxide and sulphur dioxide are some of the chemicals that are released into the atmosphere. These are the chemicals that produce acid rain when combining with water in the atmosphere. Acid rain falling on rocks has the effect of chemically weathering them.

When humans make farms, they speed up many kinds of weathering. They expose rocks and soil to the air by ploughing. They introduce a high concentration of plants to a field and thus biological weathering will continue at a higher rate than normal.

Study above information and answer the following questions

1. Name four human activities that can cause weathering. (4x1) (4)

Building and making settlements Farming Mining Building roads and railways

2. Give examples of physical weathering caused by humans. (4x1) (4)

Digging mine shafts✓ and making tunnels✓, making roads and railways that cut through hills✓ and rocky outcrops✓.

3. How do humans cause chemical weathering? (3x2) (6)

When humans burn fossil fuels, they add to the chemicals in the air✓✓ – carbon dioxide, nitrous oxide and sulphur dioxide are some of the chemicals that are released into the atmosphere. These are the chemicals that produce acid rain when combining with water in the atmosphere✓✓. Acid rain falling on rocks has the effect of chemically weathering them.✓✓

4. Farming makes an important contribution to our country's economy and GDP. Many people rely on farming as a source of income. How does farming contribute to weathering? (3x2) (6)

When humans make farms✓✓, they speed up many kinds of weathering. They expose rocks and soil to the air by ploughing✓✓. They introduce a high concentration of plants to a field and thus biological weathering✓✓ will continue at a higher rate than normal.

SOCIAL SCIENCES – INTERMEDIATE PHASE

LESSON PLAN : Geography

Lesson group 2

Topic: Surface forces that shape the earth Grade 9 Term 3

Content / Concepts: Erosion and deposition

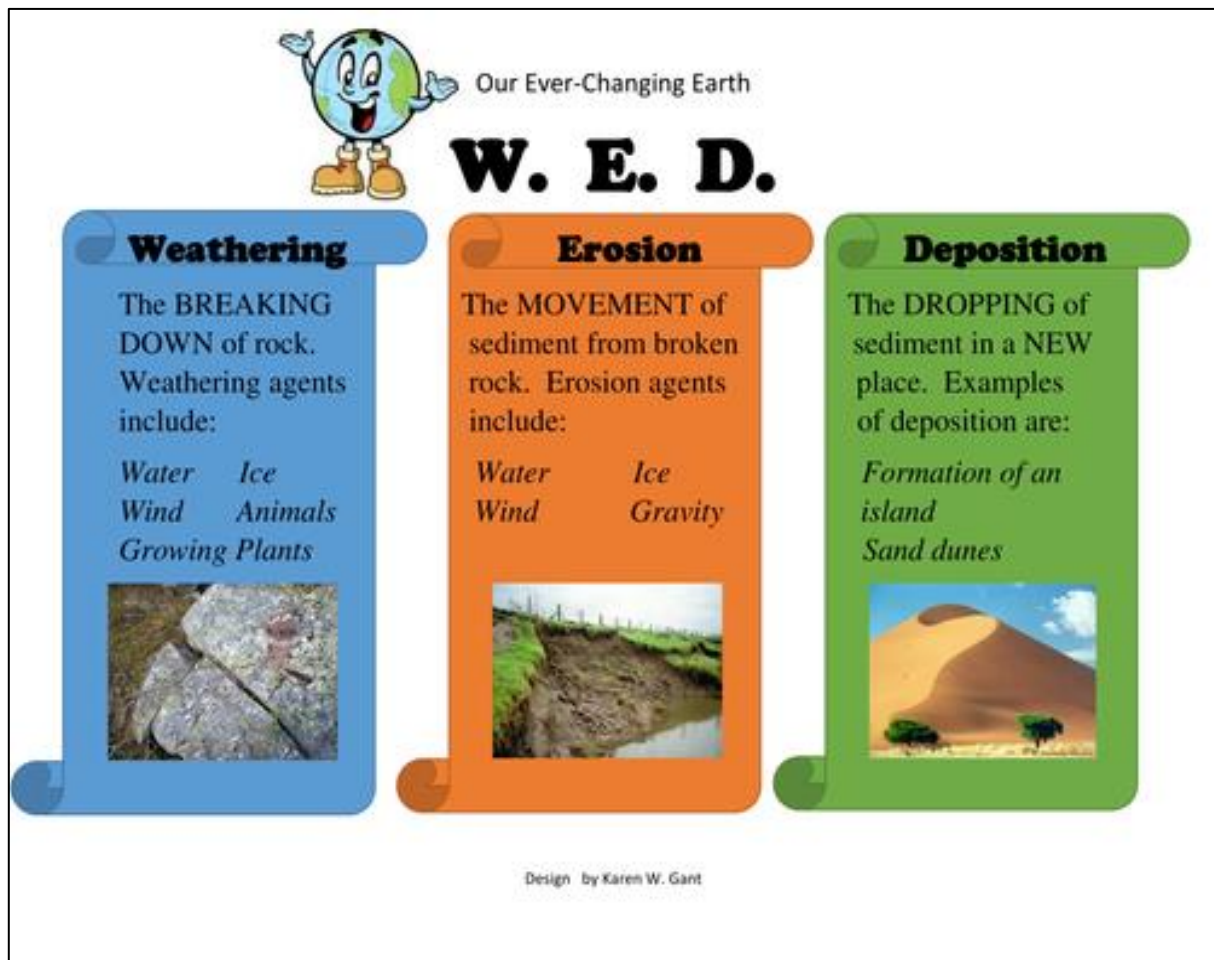
1. Difference between weathering, erosion and deposition:

Word bank words:
Informal assessment / worksheet pages:
Date completed with last group:
Extra:

What did you do extra to assist progressed and retained learners?

FIGURE A: Weathering, erosion and deposition

Date: _____

**Study FIGURE A and answer the following questions:**

1. Name the three processes shown in .FIGURE A (3x1) (3)
 Weathering, erosion, and deposition
2. How does weathering differ from the other two processes? (1x1) (1)
 Weathering is not associated with movement.
3. Which agents does weathering and erosion have in common? (3x1) (3)
 Water, ice and wind
4. How do you think should the effects of erosion be reduced? (3x1) (3)

Good agricultural practices, reducing deforestation, planting of crops in off seasons.
 Any other acceptable answer.

SOCIAL SCIENCES – INTERMEDIATE PHASE

LESSON PLAN : Geography

Lesson group 2

Topic: Surface forces that shape the earth Grade 9 Term 3

Content / Concepts: Erosion and deposition

1. Rivers

Word bank words:
Informal assessment / worksheet pages:
Date completed with last group:
Extra:

2. Rivers – features of erosion and deposition along a river course:

Word bank words:
Informal assessment / worksheet pages:
Date completed with last group:
Extra:

What did you do extra to assist progressed and retained learners?

FIGURE B : Rivers

Date: _____



Study **FIGURE B** and answer the following questions:

1. Name the two landforms in **FIGURE B** : (2x1) (2)
Valley and waterfall

2. How does a valley differ from the upper and lower course of a river? (2x1)(2)
Upper course of a river is steep and the river erodes downward.
The lower course is less steep and erosion takes place in a sideward form.

3. How does a waterfall form?
When a river flows over a hard type of rock it struggles to erode it and thus it forms a step where it fall on softer rock forming a pool. (3x1)(3)

FIGURE C: Oxbow lake

Study **FIGURE C** and answer the following questions:

1. Name the landform in **FIGURE C**: (1x1) (1)
Oxbow lake
2. How does the landform in **FIGURE C** form? (3x1) (3)
 - Narrow neck of a river is gradually eroded.
 - Neck of the meander is washed open and the river follows the shortest route.
 - Through deposition the neck is cut off.
3. The landform in FIGURE B forms in a floodplain. What is a floodplain? (2x1) (2)
The area covered by water when a river is in flood.
4. Is the lower course of a river suitable for settlements? Yes
Motivate your answer:
Flat and fertile

SOCIAL SCIENCES – INTERMEDIATE PHASE

LESSON PLAN : Geography

Lesson group 3

Topic: Surface forces that shape the earth Grade 9 Term 3

CONTENT / CONCEPTS: The impact of people on soil erosion

1. Human contributions to erosion through agriculture, construction and mining:

Word bank words:
Informal assessment / worksheet pages:
Date completed with last group:
Extra:

2. Case study: agriculture as a contributor to erosion:

Word bank words:
Informal assessment / worksheet pages:
Date completed with last group:
Extra:

What did you do extra to assist progressed and retained learners?

Examine how human activities can accelerate soil erosion and methods used to prevent it

Soil is a non-renewable resource that once it is eroded it is not renewed. Soil erosion is the permanent change of the main characteristics of soil that could see it lose its fertility, pH, colour, humus content or structure. Soil erosion occurs naturally by wind or harsh climatic conditions but human activities include overgrazing, over cropping and deforestation.

Overgrazing occurs when farmers stock too many animals such as sheep, cattle or goats on their land. The animals damage the soil surface by eating the vegetation and either digging into wet soil or compacting dry soil with their hooves. This can prevent grass growing and slow down the percolation of water through the soil. This leads to the damaging of the soil structure as the level of nutrients is removed and the air between pods is compressed out. This then can reduce the amount of water between the soil crumbs as the weight and movement of the animals flattens and compresses the soil. Soils with less vegetation become exposed, drier and prone to further erosion by the wind and rain. Soils that become drier tend to be vulnerable to the winds blowing the top soil away. The Sahel region of Africa is an example of soil erosion caused both by overgrazing and population growth.

Over cropping is when the land is being continuously under cultivation and is not allowed to lie fallow between crops. This constant farming of the land reduces the soils ability to produce valuable humus for soil fertility as it is constantly being ploughed or stripped for crop growth. The soil becomes drier and less fertile. While humus is primarily needed for the addition of nutrients and minerals it is also a valuable source of air and water needed by soil to keep it moist and aerated. With less humus the soil dries out and is open for wind and rain erosion. Usually over cropping occurs in areas where there is a demand for crops either for market or a large local population. Many farmers attempt to restore soil fertility by adding fertilizers or artificial nutrients but some countries do not have this opportunity due to poverty or lack of education.

Deforestation is the cutting down of large areas of forests leaving an open, exposed landscape. Deforestation occurs for many reasons such as the sale of wood, charcoal or as a source of fuel, while cleared land is used as [pasture](#) for livestock, plantations of commodities, and settlements. The removal of trees without sufficient [reforestation](#) has resulted in damage to [habitat](#), [biodiversity](#) loss and [aridity](#) (drying of soil). This human activity quickly accelerates natural erosion in two ways. Firstly the removal of trees is a removal of nutrients and minerals from the soil as the source of humus is greatly reduced. The natural dead organic material that supplies the soil with its humus is generally leaves that have fallen from the trees, animal droppings, tree fruit or decaying trees in the soil. Secondly, deforestation accelerates soil erosion by leaving large areas exposed to heavy rainfall (which can cause leaching or flash floods) or wind erosion. Without the roots of the trees to keep the soil structure in place the soil is loose and easier to erode. The tropical rainforests of Brazil are seeing huge areas of forest being cut down each day. Each year about 13 million hectares of the world's forests are lost due to deforestation. Overgrazing, over cropping and or deforestation can lead to desertification – the spread of desert like lands due to these human activities accelerating natural erosion of soil. However, while soil erosion can be accelerated by human activities it can also be conserved by methods such as windbreaks, reforestation, farm techniques and stone walls.

Study above information and answer the following questions

1. Explain what soil erosion is. (4x1) (4)

Soil erosion is the permanent change of the main characteristics of soil that could see it lose its fertility, PH, colour, humus content or structure.

2. Outline main human activities that accelerate soil erosion. (3x1) (3)

Human activities include overgrazing, over cropping and deforestation.

3. Examine two of the above activities in detail (2x5) (10)

4. Outline the main methods used to prevent soil erosion. (1x4) (4)

However, while soil erosion can be accelerated by human activities it can also be conserved by methods such as windbreaks, reforestation, farm techniques and stone walls.

Case study: Agriculture as a contributor to erosion**Teacher above case study is for your own preparation**