GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

SENIOR PHASE – SOCIAL SCIENCES

GRADE 9

TERM 3 WORKBOOK GEOGRAPHY

TEACHER'S GUIDE

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WEEK 1:
Introduction to the topic: Surface forces that shape the earth
Concept of weathering:
Physical weathering
Chemical weathering
Biological weathering Surface forces of the Earth

1.1

1.1.1 **Define the following concepts:** **(2x1)** **(2)**

Weathering **L2**

- **Weathering is the process whereby rocks are broken into smaller particles. √√**

1.2 Mention three types of Weathering **(1 x 3)** **3**

L1

- **Physical -weathering√**
- **Chemical weathering√**
- **Biological weathering √**

1.3 **Briefly explain the processes of chemical weathering?** **3 x 2** **6**

L3

Carbonation -Rainwater dissolves a certain amount of carbon dioxide from the atmosphere and forms a weak acid known as the carbonic acid. √√

This carbonic acid reacts mainly with limestone rocks and makes them more soluble. √√

Hydrolisis: mixing of water with mineral composition in the sedimentary rock causing it to crumble√√

Oxidation -Oxygen from the atmosphere often combines with water vapour and iron in some rocks which results to the formation of rust which causes the rock to crumble. . √√

1.4 State whether the following are **True** or **False**. Elaborate why? **(1+2)** **3**

a. Plants growing on the rocks are one of the main sources of biological weathering **L2**

   a. **True √ – Roots of the plants exert pressure on the rock and result in breaking√√**

b. Which of the following causes biological weathering? Explain. **(1+2)** **3 L2**

- Ice
- Water
- Fungi
- Heat

Fungi √ – Fungi is a bacteria or biological hazard√√

1.5 What is the difference between weathering and Erosion. **(1 x2)** **2 L2**

Weathering the rock is broken down into smaller particles while in erosion the materials are move from one place to another. √√

WEEK 2: Difference between weathering, erosion and deposition

2.1 Tabulate the following statement into the three processes : **Weathering, Erosion and Deposition** and only write the letters in the table during tabulation. **(1 x6)** **6 L2**

A. Water getting into cracks,freezing and breaking rocks
B. Wind blowing sand from one place to the other
C. Floods water moving soil from one location to another
D. Raindrops on some rocks making them wear down
E. Rainwater carrying particles away from a hill
F. Muddy water being transported by fast moving river
G. Transported material built-up at river mouth

Weathering	Erosion	Deposition
- A √	- B√	G√
- D√	- C√	
	- E√	
	- F√	

A. Where is deposition taking place in the diagram (1X1) 1

In the lower course√ **L1**

B. What feature can we find in the upper course (1X1) 1

Waterfall/Rapids/Gorges/Canyons, any relevant answer **L1**

C. How is the erosional flow in the middle course (1X1) 1

Gradual Low√ **L1**

D. Is the profile concave or convex? (1X1) 1

Concave Low√ **L1**

E. Explain the longitudinal profile of a river. (2X2) 4

It is the concave river√√ **L2**

meaning is steep at the source and gentle towards the mouth.There is headward erosion at the top and also weathering.Material will deposit at the mouth . √√

2.3 Study the Diagrams below and answer the Questions that follow:

A B

	A. Between the two diagrams, which one shows gravitational erosion **B √-You see that there is more pressure exerted on the rock. √**	**1x1**	**1** **L1**
	B.What do you think is happening in disgram A **The water from sea has eroded the soil and made some cutting√√**	**1X2**	**2** **L2**
2.4	How can human cause erosion **By cutting trees and plants they remove the top soil which is good for cultivation√√** **Overgrazing of livestock√√** **Building houses or construction roads they**	**2 x2**	**4** **L3**
2.5			

a.	What do we call this process on the diagram	1 x1	1
b.	Where is it occuring on the longitudinal profile of a river	1 x1	1
c.	Does erosion take place on the outside or inside bank ?	1 x1	1
d.	Where is an oxbow taking place in this process	1 x1	1
			L1

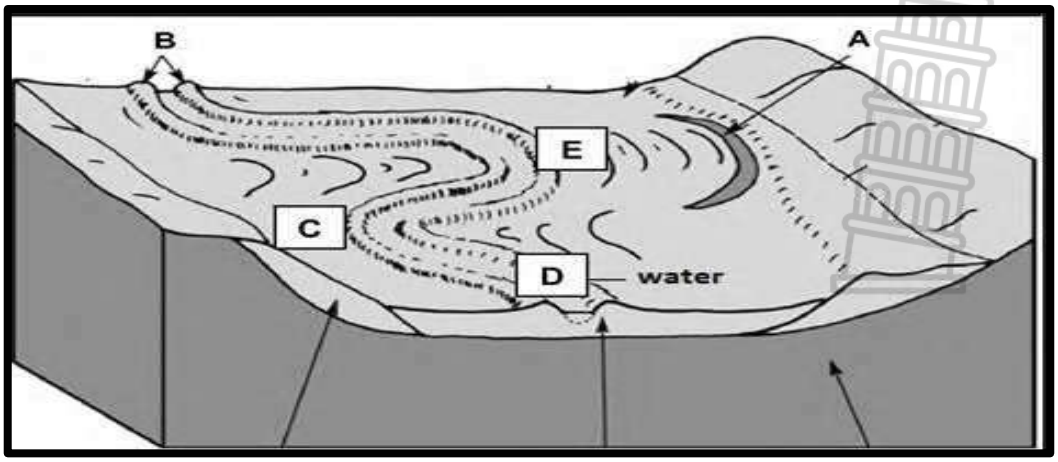
a. Meandering √

b. In the middle course of a river√

c.On the outside of a river√

d. In the Loop inside of the river√

2.6 Study the diagram below and use the options provided to answer the questions below:

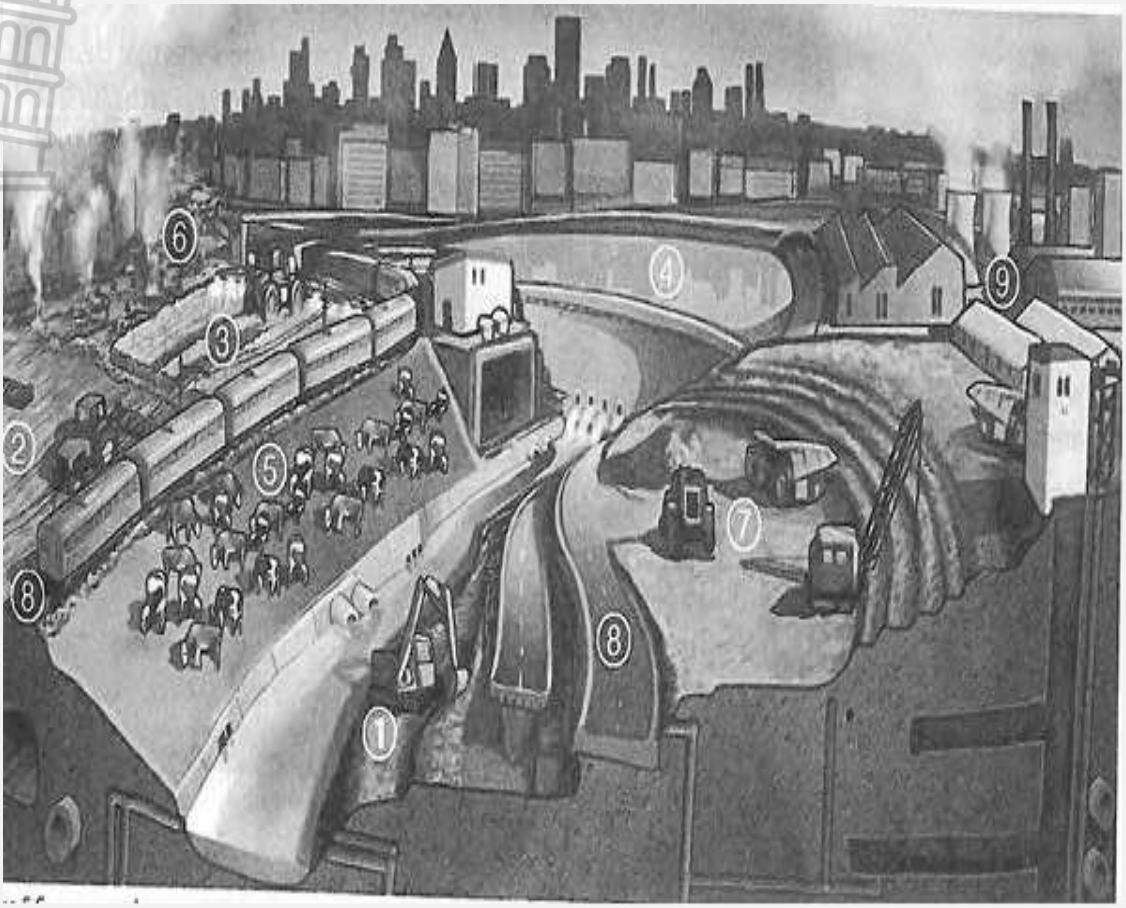


Levee, oxbow lake, delta, meander, erosion, deposition, neck, lower course, upper

2.5.1	**A** is a feature that forms when a loop is cut off from the bend of a river. **Oxbow lake**	1x1	1 L1
2.5.2	**B** develops when gravel and silt accumulates on the banks of a river resulting in the bank being raised. **Levee**	1x1	1 L1
2.5.3	Flat land next to the river and is sometimes flooded is called **C**. **Flood plain**	1x1	1 L1
2.5.4	This occurs on the outer bend of a river where the water flow the fastest. **Erosion**	1x1	1 L1
2.5.5	The pattern of the river at **E** is a **Meander**	1x1	1 L1
2.5.6	In which stage of the river is this pattern found? **Lower course**	1x1	1 L1

Week 3 - IMPACT OF HUMAN ACTIVITIES ON WEATHERING

Refer to the diagram below and answer the questions set:



3.1 State whether the following statements are **TRUE** or **FALSE**

3.1.1	Most of the activities from the above diagram are human activities resulting to weathering. √**TRUE**	**1x1**	**(1)** **L1**
3.1.2	In number 2 natural vegetation have been removed and soil is exposed to erosion. √**TRUE**	**1x1**	**(1)** **L1**
3.1.3	Breeding of cattle in a confined space is good practise. √**FALSE**	**1x1**	**(1)** **L1**
3.1.4	Number 8 have no impact on weathering. √ **FALSE**	**1x1**	**(1)** **L1**
3.1.5	There is no impact of human activity number Three (3) there is no impact of human activity in the water. √ **FALSE**	**1x1**	**(1)** **L1**

3.2.	Refer to Figure 3.1 and in a sentence/one word explain what is happening in the following numbers:			
3.2.1	2 **Removal of natural vegetation in preparation from farming√√**	**1x2**	**(2)**	**L2**
3.2.2	3 **Water pollution by chemicals from industries√√**	**1x2**	**(2)**	**L2**
3.2.3	5 **Erosion caused by overstocking/Overgrazing√√**	**1x2**	**(2)**	**L2**
3.2.4	8 **Road construction remove natural vegetation and expose rocks to weathering√√**	**1x2**	**(2)**	**L2**
3.2.5	9 **Air pollution from industries√√**	**1x2**	**(2)**	**L2**
3.3	Suggest what can be done in the following numbers to reduce the human impact on weathering.			
3.3.1	3 **Ensure chemical waste is not deposited in water√√**	**1x2**	**(2)**	**L3**
3.3.2	5 **Reduce the number of stock or provide a larger area for cattle grazing √√**	**1x2**	**(2)**	**L2**
3.3.3	9 **Industries should provide long chimneys and/ or fine industries which cause air pollution√√**	**1x2**	**(2)**	**L2**

WEEK 4

Rivers: Features of erosion and deposition along a river course:
- **Waterfalls and rapids**
- **Gorges and canyons**

4.1 Refer to the waterfall picture below and answer the questions that follow:

https://www.sa-venues.com/attractionsmpl/mac-mac-falls.php.

4.1. Choose the term in brackets to make sentences correct by underlining

4.1.1	(**Erosion / Deposition**) is the primary geological process responsible for the formation of waterfalls	**1x1**	**(1)** **L2**
4.1.2	(**Resistant and less resistant rock layers/ Decreased precipitation**) is/ are the factor/s plays a crucial role in the formation of waterfalls	**1x1**	**(1)** **L2**
4.1.3	In the formation of waterfalls, (**Igneous/ Sedimentary**) rock layer typically erodes more slowly and forms the waterfall's resistant cap	**1x1**	**(1)** **L2**
4.1.4	Basin or pool of water at the base of a waterfall, created by the erosional action of the falling water(**Plunge pool/ Lagoon**)	**1x1**	**(1)** **L2**

4.1.5	(**Hanging /Retreat**) waterfall formed by the gradual retreat of a waterfall upstream due to erosion	**1x1**	**(1)** **L2**

4.2

Refer to the rapid picture below and answer the questions that follow:

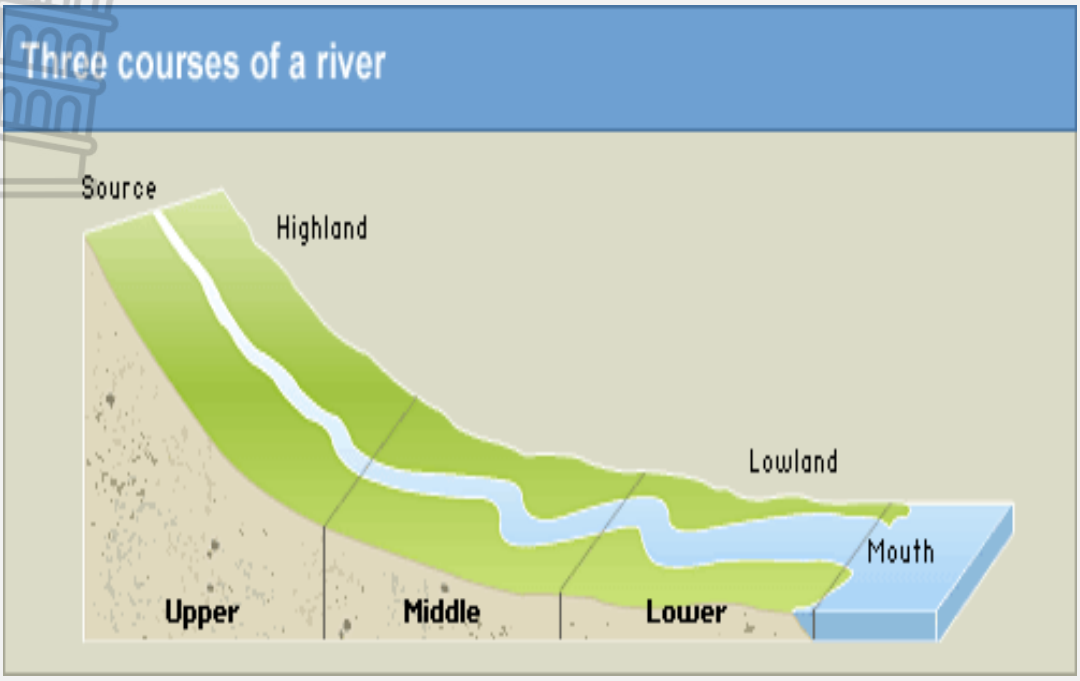
https://www.backpackers-south africa.co.za/info/businesses/28172/images/bottom_images/1.jpg

4.2 Choose the term in brackets to make sentences correct by underlining

4.2.1	(**Steep gradient or slope/Slow water flow**)is the primary factor contributing to the formation of rapids in a river.	**1x1**	**(1)** **L2**
4.2.2	(**Stagnant and still/ Fast-moving with turbulent sections**) describes the characteristic flow of water in rapids.	**1x1**	**(1)** **L2**
4.2.3	(**Gravel/ Bedrock**) is the type of riverbed material is often associated with the creation of rapids.	**1x1**	**(1)** **L2**
4.2.4	(**Exciting and challenging paddling experiences/ Slow, leisurely paddling**) is the main reason kayakers and whitewater enthusiasts are drawn to rapids.	**1x1**	**(1)** **L2**
4.2.5	(**Swirlpool/ White water**) term is used to describe the turbulent, aerated water that often characterizes rapids.	**1x1**	**(1)** **L2**

4.3 **5x1** **(5)** **L2**

Study the sketch and Complete the table below



https://www.juntadeandalucia.es/averroes/centros-tic/04005442/helvia/aula/archivos/repositorio/0/69/html/course_of_a_river1.gif

Upper Course of the river	
Shape of the valley	**Closed v-shaped valley✓**
Width of the valley	**narrow✓**
Erosion or deposition	**Erosion✓**
Features formed	**Waterfall✓ and rapids✓**

4.4 Study the pictures below of a waterfall and rapid and answer the questions below

https://live.staticflickr.com/3100/2418532676_d61fe88069_b.jpg

https://www.clarens.co.za/wp-content/uploads/2021/03/white-river-rafting.jpg

4.4.1	How do rapids differ from waterfalls? **Rapids are formed by steep gradients ✓✓or obstructions, while waterfalls are formed by resistant rock layers✓✓**	**2x2**	**(4)** **L3**
4.4.2	What is the significance of waterfalls and rapids in shaping the Earth's surface? **They contribute to the erosion and transportation of sediments✓✓**	**1x2**	**(2)** **L3**

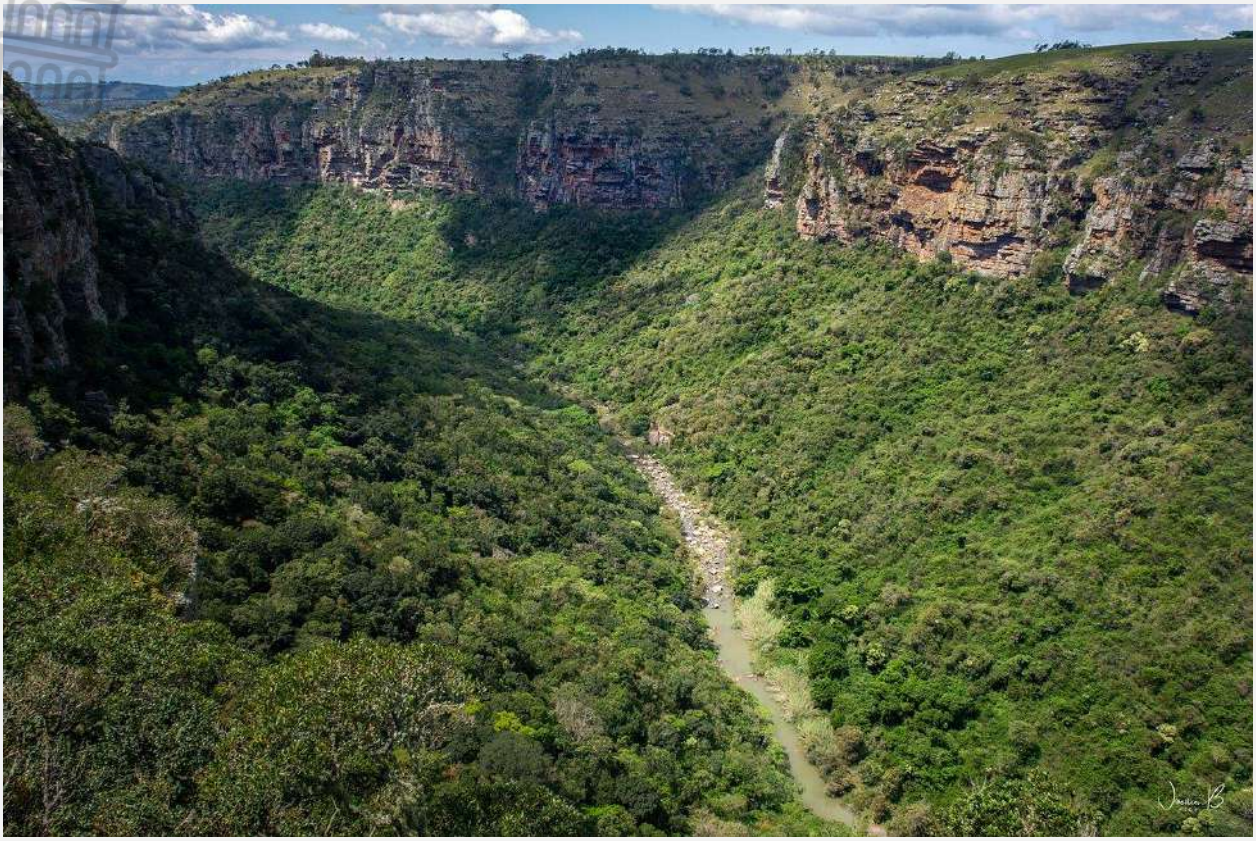
4.4.3	What are the primary erosional processes involved in the formation of waterfalls? **Hydraulic action✓ and abrasion✓**	**1x1**	**(2)** **L2**
4.4.4	What recreational activities can be enjoyed at waterfalls and rapids? **Whitewater rafting✓ and kayaking✓**	**2x1**	**(2)** **L1**
4.4.5	Discuss the environmental impact of human activities, such as dam construction and deforestation, on the formation and sustainability of waterfalls in natural landscapes. **Human activities can alter river flow,** **sediment deposition,** **and erosion patterns,** **potentially leading to changes in waterfall formation and sustainability, as seen in the case of dam construction. Any 2**	**2x2**	**(4)** **L3**
4.4.6	Imagine you are a geologist tasked with studying a newly discovered waterfall. What geological and environmental factors would you investigate to understand its formation and long-term stability? **To understand the waterfall, you would examine the rock type,** **river characteristics,** **climate** **, and any nearby human activities impacting the area.**	**2x2**	**4** **L3**

4.5 Study the following picture of Blyderiver Canyon and anser the questions below:

https://images.rove.me/w_1920,q_85/mwn0ns5wmxutgysx5y4m/south-africa-blyde-river-canyon.jpg

4.5.1	What is the primary agent responsible for the formation of canyons and gorges? **Water**	**1x1**	**(1)** **L1**
4.5.2	How might climatic factors, such as changes in precipitation patterns and temperature over geological time scales, influence the formation and evolution of canyons? **Climate can impact erosion rates, sediment transport, and vegetation patterns, influencing the formation and characteristics of canyons.**	**1x2**	**(2)** **L3**
4.5.3	How does the underlying rock type affect the formation and characteristics of canyons? **The type of rock influences a canyon's resistance to erosion, impacting the depth and shape of the canyon**	**1x2**	**(2)** **L3**

4.6 Study the following picture of Oribi Gorge and answer the questions below:



https://dynamic-media-cdn.tripadvisor.com/media/photo-o/15/6e/96/56/we-have-just-returned.jpg?w=1200&h=-1&s=1

4.6.1	What are the primary geological processes responsible for the formation of gorges? **Gorges are primarily formed through erosional processes, often associated with river erosion and the cutting of deep, narrow valleys into the landscape.**	**2x2**	**(4)** **L2**
4.6.2	Differentiate between a V-shaped valley and a gorge. **V-shaped valleys are initially formed by river erosion and become gorges as the erosion deepens, widens, and narrows the valley, creating steep, narrow features.**	**2x2**	**(4)** **L3**
4.6.3	How can human activities, such as mining and urban development, impact the formation and preservation of gorges in natural landscapes? **Human activities can accelerate erosion, disrupt natural processes, and alter the landscape, potentially affecting the formation and preservation of gorges**	**2x2**	**(4)** **L2**

Week 5: Rivers: Features of erosion and deposition along river course: Meanders and Oxbow lakes

5.1	Define the following concepts. a. Meander **Meander is a bend in a river.✓✓**	**1x2**	**2** **L2**
	b. Oxbow lake **Oxbow Lake is a lake or area of water in a U-shape.✓✓**	**1x2**	**2** **L2**
5.2	Label the below diagram that shows features of river erosion and deposition.		

https://th.bing.com/th/id/OIP.hUr1KxJhuxgP2fCWpe-u0QAAAA?pid=ImgDet&rs

1. **Source✓**
2. **Tributary✓**
3. **Hills✓**
4. **Waterfall✓**
5. **Undercut Slope✓**
6. **Slip-off slope✓**
7. **Sand banks✓**
8. **Ox-bow Lake and Meander✓**

9. **Floodplain✓**

10. **Mouth✓**

5.3	Explain how does meanders form.		
	As the river erodes laterally, to the right side then the left side, it forms large bends,✓✓ and then horseshoe-like loops called meanders. ✓✓	**2x2**	**4 L3**
5.4	In which stage of the river do you find meander and waterfall?		
	Lower stage or Middle - Meander✓	**1x1**	**1 L1**
	Upper stage- Waterfall✓	**1x1**	**1 L1**

Week 6: Rivers: Features of erosion and deposition along river course: Levees and Delta

6.1	Define the following concepts.		
	a. delta **delta are wetlands that form as rivers enters ocean / sea or standing water mass.✓ ✓**	**1x2**	**2 L2**
	b. Levee **Levee is a natural or artificial wall that blocks water from overflowing.✓✓**	**1x2**	**2 L2**
6.2	In which stage of the river do you find Delta and Levee?	**1x2**	**2 L1**
	Delta- lower course✓ **Levee- Lower course✓**		
6.3	Explain similarities between Delta and Levee.	**2x2**	**4 L3**
	Both are made are found in the lower course of the sea.✓✓ **Levee and Delta are formed by the deposition of the river.✓✓**		
6.4	What is the difference between a meander and delta?	**2x2**	**4 L2**

Meander is a winding curve band of a river.✓✓

Delta is an area of low, flat land shaped like a triangle,where a splits and spreads out into several branches before entering the sea. ✓✓

6.5	Give Three (3) Disadvantages of living around around of Deltas.	**3x2**	**6** **L2**

Areas are at constant risk of flood. ✓✓

Water is often stagnant, dirty and polluted ✓✓

Mosquitoes are attracted to water. ✓✓

Hard to make transport links by roads

ANY THREE

WEEK 7

The impact of people on soil erosion

- **Human contributions to erosion through agriculture, construction, and mining**
  Agriculture as a contributor to erosion

7.1	**Human contributions to erosion through agriculture, construction, and mining**		
7.1.1	Soil erosion is the wearing or removal of topsoil. **(True/ False)**	**(1x1)**	**(1)**
	True ✓		**L1**
7.1.2	**Refer to the pictures below to identify how the human activities impact on soil erosion**	**(5x1)**	**(5)** **L1**

7.1.2.1

Mining ✓

7.1.2.2

Overgrazing ✓

7.1.2.3

Farming ✓

7.1.2.4

Road construction✓

7.1.2.5

Deforestation✓

7.1.3 List any 2 effects of soil erosion **(2X1)** **(2)**

- **Pollution ✓**
- **Flooding ✓**
- **Damage water in the rivers**

L1

(ANY OTHER REVELANT ANSWER)

7.2 **Case study:** Agriculture as a contributor to erosion

Read the following case study and answer the questions that follow.

The main source of livelihood of the people in the Denku Region in Ethiopia is agriculture. The major source of crops grown in the area include tef (the staple grain of Ethiopia), haricot beans and maize.
However, in recent years, because of soil erosion that has reached a chronic level, agricultural production has declined significantly. The people in this

area say that because of a decline in agriculture due to soil erosion, they have had to reduce the numbers of daily meals as well as the quantity of food per meal.

[Source: Via Afrika, Social Sciences, Grade 9, page 179]

7.2.1	Explain the meaning of the term soil erosion. **Removal of soil by forces of erosion such as running water and wind ✓✓**	**(1x2)**	**(1)** **L2**
7.2.2.	Name ONE way soil erosion has disadvantaged the people living in the Denku Region of Ethiopia ➢ **Agricultural production declined. ✓** ➢ **the number of daily meals has declined.** ➢ **the quantity of food per meal has declined.** **(ANY OTHER RELEVANT ANSWER FROM THE TEXT)**	**(1x1)**	**(1)** **L1**
7.2.3	Mention any **Four (4)** bad farming practices that can cause soil erosion. ➢ **Overgrazing ✓✓** ➢ **over-cultivation ✓✓** ➢ **deforestation** ➢ **ploughing across contour lines** ➢ **over-use of pesticides and herbicides** **(ANY OTHER RELEVANT ANSWER)**	**4x1**	**(4)** **L1**
7.2.4	Write a paragraph to discuss how better practices can be introduced to help the small-scale farmer. **a. Reduce soil erosion.** ➢ **To limit tilling of the soil ✓✓** ➢ **Crop rotation ✓✓** ➢ **Stock rotation** ➢ **Reforestation** ➢ **Cultivation parallel to contour lines to limit run-off** ➢ **Constructing anti-erosion walls** ➢ **Use of windbreaks** **b. Improve Agricultural production.** ➢ **To genetically manipulate seed varieties ✓✓** ➢ **Greenhouses and plastic tunnels ✓✓** ➢ **Permaculture or hydroponics** ➢ **Use of naturally occurring methods to curb pests.** ➢ **Education of farmers** ➢ **Use a variety of compatible plant species.** ➢ **Rain-tanks, drip-irrigation** ➢ **Use of appropriate technology that the people can understand and afford.** **((ANY OTHER RELEVANT ANSWERS)**	**(4x2)**	**(8)** **L3**

WEEK 8

Case study: Agriculture as a contributor to erosion

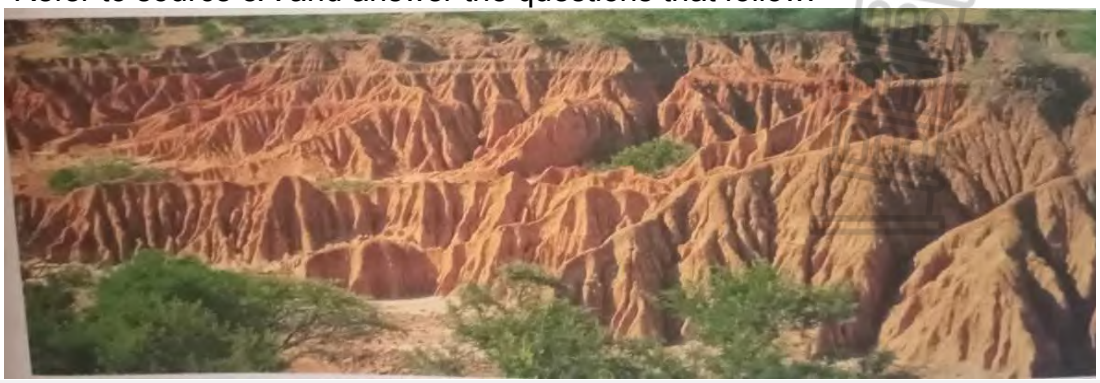
8. Study **Figure 8A** below on Soil erosion in the Ithala Game Reserve in KwaZulu Natal. The area in the foreground used to be covered in thick soil, next to a small stream. Then answer the questions that follow:

An example of soil erosion in KwaZulu-Natal.

Source from Platinum; Social Science Grade 9 p.78

8.1	Define the following concepts:	**(4x1)**	**L2**
8.1.1	Monoculture: **growing one kind of crop in a field, year after year.** ✓		
8.1.2	Crop rotation: **growing different crops in a sequence that benefits the soil.** ✓		
8.1.3	Overstocking: **too many animals on a single piece of land.** ✓		
8.1.4	Over-grazing: **keeping more animals than the land can support.** ✓		

8.2 Refer to source 8A and answer the questions that follow:



8.2.1	Identify **THREE** (3) clues from the source that indicate whether the soil was removed by wind or water erosion.	(3x1)	L2

- **River valley in the foreground✓**
- **Vegetation on the land✓**
- **Agent of erosion is water✓**

8.2.2 Explain why do you think soil erosion is a serious environmental issue in Ithala Game Reserve? **(1x2)** **L2**

- **The photograph shows that the soil has not been replaced by nature. ✓✓**
- **Soil erosion reduces the amount of land available for farmers.**
- **This can impact on food availability and food prices.**

8.2.3 The area shown on the photograph was used for cattle. Explain **THREE** reasons that could have contributed to soil erosion. **(3x2)** **L2**

- **The area may have been overstocked with cattle. ✓✓**
- **The cattle could have over-grazed the land. ✓✓**
- **Over-grazing results in large areas of bare soil being exposed to soil erosion processes. ✓✓**
- **A few years of heavy storms can wash away thousands of tonnes of soil.**

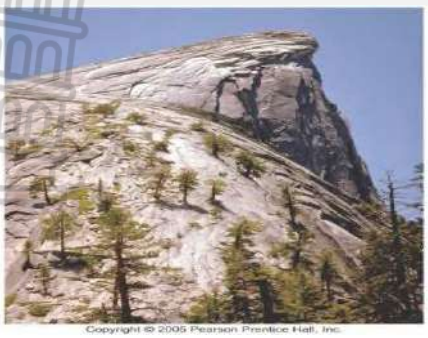
(Any THREE)

8.2.4 Write a paragraph to explain how using farm machines could have contributed to soil erosion, when this area was a farm. **4x2** **8**

- Farm machines such as ploughs remove plants and dig up the land. **L3**
- This exposes the soil for long periods to wind and water erosion.

WEEK 9: Revision & consolidation

9.1 Refer to the pictures below and answer the question set:



A **B** **C**

9.1.1	Identify different types of mechanical weathering from pictures labeled **A** to **C** **A- Frost wedging√** **B- Exfoliation√** **C- Salt wedging√**	**3x1**	**(3)L 1**
9.2	Look at the pictures labelled **A – E** below. For each picture state whether it causes physical, chemical or biological weathering.	**5x1**	**(5) L1**

A

B

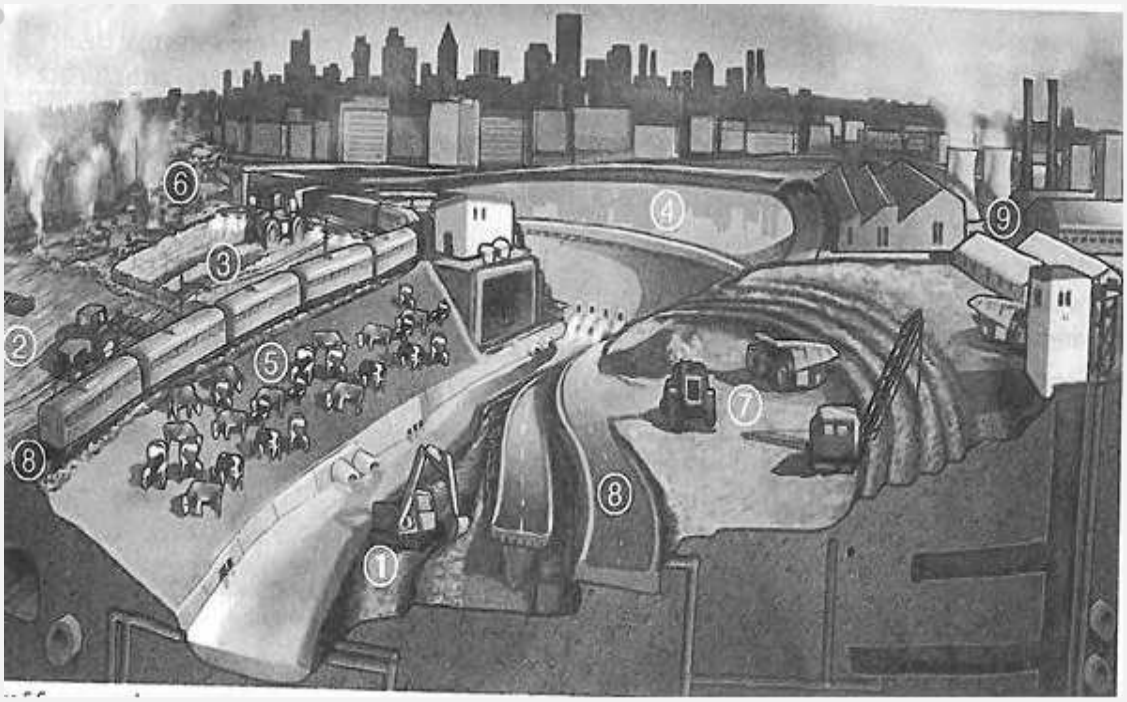
C

D

E

A- Chemical√
B- Biological√
C- Biological√
D- Biological√
E- Biological√

9.3 **Refer to the diagram below and answer the set questions:**



9.3.1 Identify **ONE** example from the diagram where each kind of weathering is taking place: **1x3** **(3)** **L1**

a. physical
exfoliation (no.1) √

b. chemical

acid in water (no.3)

c. biological

grazing cattle (no.5) √

9.3.2 Name **4** ways that human activities expose soil and rocks. **4x1** **(4)** **L1**

- **Road construction**√,
- **Mining** √
- **Removal of natural vegetation and use of machinery**√
- **Underground tunnels**√
- **Agriculture**

Any other

9.3.3	Explain in **3** ways how can exposing soil and rocks increase physical weathering? ➢ **Exfoliation- temperature changes (expansion and contraction) cause the rock to crack√√** ➢ **Frost wedging- in winter water in the rock cravices freezes and expand in volume resulting to the crack in the rock to widen√√** ➢ **Abrasion- the breaking down of rocks by rubbing against each other as they move due to wind, water or gravity√√** **Any other**	**3x2**	**(6)** **L2**
9.3.4	Describe **ONE** way that human activities contribute to increased chemical weathering. **Air pollution- chemicals which will results to acid rain√√**	**1x2**	**(2)** **L2**
9.3.5	Which human activity has greatly increased biological weathering as you see from the picture? **Underground tunnel √**	**1x1**	**(1)** **L1**
9.3.6	**Describe** the effect of this activity (9.3.5) on the earth's surface. **It will expose rocks, leave a heap of soil on the surface, disturb the natural vegetation in the area. √√**	**1x2**	**(2)** **L2**
9.4	Look at the pictures below labelled **A – D**. For each picture state what process has caused the weathering.	**4x1**	**(4)** **L1**

A

B

C

D


A- Oxidation√
B- Hydrolysis√
C- Oxidation√
D- Exfoliation√

9.5 Complete the table below

	Weathering	Erosion	Deposition		
Definition	**Decomposition (breaking down) of rocks, soil and their minerals. √√No movement of material takes place**	**Movement of soil, mud, rock and other particles, usually by wind, water, or ice. √√**	**Laying down of eroded material, usually by water, wind or ice. √√**	**3x2**	**(6) L2**
Types	**Physical√, chemical√ and biological√**	**Water√, wind√, ice√, gravity√**	**Water√, wind√, ice√**	**10x1**	**(10) L2**
Results	**Small particles of rock, soil√√**	**Landforms are created by the removal of rock and soil particles√√**	**Landforms are built up by deposited material√√**	**3x2**	**6 L2**

9.6

9.6.1 Name the most important agent of erosion. **1x1** **(1) L1**

Running water√

9.6.2 Name the three stages of a river? **3x1** **(3) L1**

Upper course√

Middle course√

Lower course√

9.6.3 Name the main process in the upper course of the river. **1x1** **(1)**

Downward Erosion√ L1

9.6.4 Explain what happens at each river stages. 3x2 (6)

L2

Upper course- erosion occur mainly downcutting√√

Middle course- mainly downcutting and lateral erosion and deposition occur √√

Lower course- mainly deposition takes place√√

9.7 **Draw 3 stages and explain how the ox bow lake is formed** 3x4

L3

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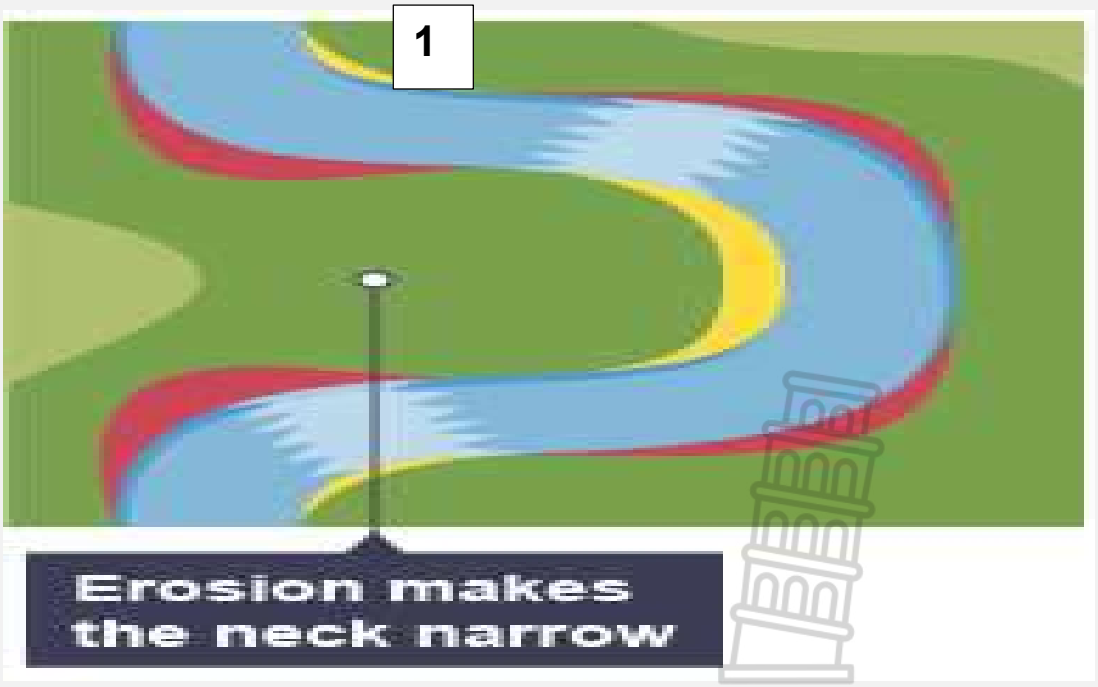
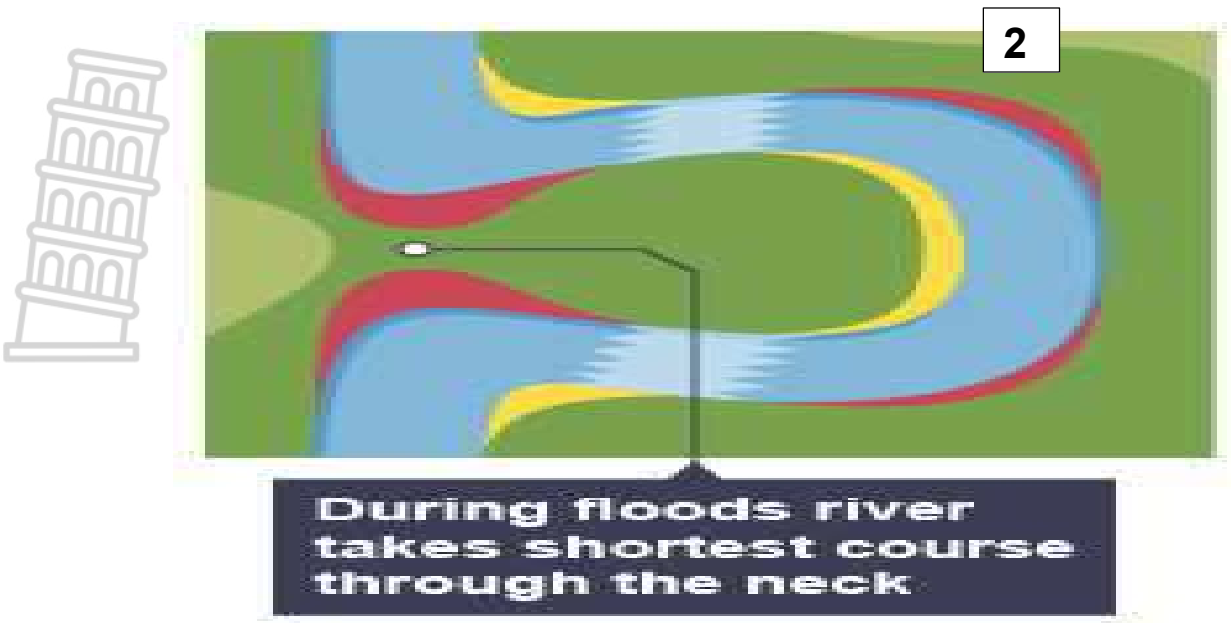


As the outer banks of a meander continue to be eroded the neck of the meander becomes narrower and narrower. √√

2



Eventually the two outer bends meet and the river cuts through the neck of the meander. √√
The water now takes its shortest route rather than flowing around the bend.

3

- **Deposition slowly cuts off the old meander bend forming a new straighter river channel. √√**
- **Due to deposition the old meander bend is left cut off from the**

main channel as an ox-bow lake.

- Over time the oxbow may fill up with sediment and dry up.
- When the water dries up, the feature left behind is known as a meander scar.