



Pluriliteracies making meaning happen

A Pluriliteracies Approach to Teaching for Learning

Worksheets: Soil erosion



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Worksheet 1: Soil Erosion

1. Look at the material and underline and note down all nominalizations you can find in the text and video that summarize soil erosion processes (see worksheet 2).
2. Record all nominalizations in the table on worksheet 2 and summarize the meanings in colloquial language.
3. Create a scheme on worksheet 3 and explain which conditions lead to soil erosion. Label all components of your scheme. Use colloquial language.
4. Explain in colloquial language how soil erosion occurs. You may use your phrases from task 2 (see worksheet 4).
5. Rewrite your explanation from task 4. Explain in academic language how soil erosion occurs. You may use the nominalizations from task 2 (see worksheet 4).

Soil Erosion

- 1 Soil is like a thin skin covering the Earth's rocky surface. It is naturally created when small pieces of weathered rocks and minerals mix with organic materials from decaying plants and animals. Soil creation is a slow process, taking many years. However, the soil that is created is constantly subjected to natural and manmade forces that disrupt it.
- 5 Soil does not always stay in one place, though. Wind and water can carry soil from one place to another. This natural process is called erosion. Humans can cause erosion, too, or make it worse.
Soil erosion is a naturally occurring process that affects all landforms. In agriculture, soil erosion refers to the wearing away of a field's topsoil by the natural physical forces of water and wind or through forces associated with farming activities such as tillage.
Erosion can be broadly grouped into two forms, wind and water erosion. Faster water and wind erosion can occur where the soil surface is bare and exposed to intense rainfall and windstorms.
- 15 Human activities such as the clearance of vegetation, inappropriate cultivation practices and overgrazing can cause the disruption of the soil surface and increase its vulnerability to erosion.
Whether it is caused by water, wind or tillage, erosion involves three distinct actions – soil detachment, movement and deposition. Topsoil is the top layer of soil and is the most fertile because it contains the most organic, nutrient-rich materials. Therefore, this is the layer that farmers want to protect for growing their crops and ranchers want to protect for growing grasses for their cattle to graze on.
- 20 Soil erosion can be a slow process that goes relatively unnoticed or can occur at an alarming rate, causing serious loss of topsoil. Soil compaction, low organic matter, loss of soil structure, poor internal drainage, salinization and soil acidity problems are other serious soil degradation conditions that can quicken the soil erosion process.
- 25 Generally, soils with faster infiltration rates, higher levels of organic matter and improved soil structure have a greater resistance to erosion. Tillage and cropping practices that reduce soil organic matter levels, cause poor soil structure, or result in soil compaction contribute to increases in soil erodibility.
- 30



M2: Soil Erosion by Water (Source: soilfreedom.files.wordpress.com)

M1: Soil Erosion (Source: edhelper.com, edited; natsoc.org.au, edited; education-portal.com, edited; omafra.gov.on.ca, edited)

General information on soil erosion:
https://www.youtube.com/watch?v=ofhQvAu_L1I&spfreload=10
Watch 00:00-1:48 min!

Word Bank

decaying = verfallend
to be subjected to sth. = etw. ausgesetzt sein
to disrupt = zerrütten
tillage = Bodenbearbeitung
bare = unbedeckt
vulnerability = Anfälligkeit
nutrient-rich = nährstoffreich
soil compaction = Bodenverdichtung
drainage = Entwässerung
salinization = Versalzung
soil acidity = Bodenacidität (Säuregehalt)
infiltration = Versickerung

Worksheet 2: Soil Erosion

Here you can solve task 2.

nominalization	colloquial language
Soil creation	

Worksheet 3: Soil Erosion

Here you can solve task 3. Label all components and state what they stand for! The given structure might help you. Use the phrase bank to label and link the different components.

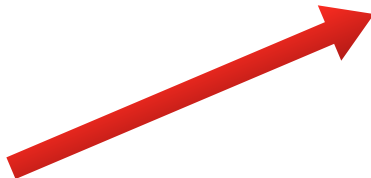
Several conditions lead to soil erosion. Soil erosion occurs if...

____ 1



____ 2





____ 3

Phrase Bank

- if...then
- cause A triggers B
- cause A reinforces B
- A leads to B
- multiple causes lead to
- the effect only occurs if
- the result is/ this may lead to
- this occurs if
- as a consequence/ as a result

The boxes on the left stand for _____

The arrows stand for _____

The box on the right stands for _____

Worksheet 4: Soil Erosion

Here you can solve task 4. Remember to use cause and effect schemes and to use colloquial language!

Phrase Bank

- firstly, secondly
- if...then
- this only happens if
- this occurs if
- A leads/causes to B
- multiple causes lead to
- as a consequence
- as a result

Here you can solve task 5. Remember to use academic language!

Phrase Bank

- firstly, secondly
- if...then
- this only happens if
- this occurs if
- multiple causes lead to
- A leads/causes to B
- as a consequence
- as a result

Worksheet 5: Soil Erosion

6. Firstly, read the text, and secondly, go on a tour using Google Street View and look at what the landscape looks like in the Great Plains. Use the provided links, which lead you to roads in South Dakota and Montana. Describe the land use, vegetation and climate in this area in the table on worksheet 6.
7. Name the conditions that increase the potential for soil erosion in the Great Plains. Use nominalizations to describe the processes (see worksheet 6)!
8. Visualize the conditions that increase the potential for soil erosion. The given structure on worksheet 7 might help you. Use nominalizations.
9. Explain briefly in colloquial language how soil erosion occurs in the Great Plains (see worksheet 8).
10. Visualize your explanation from task 9. The given structure on worksheet 8 might help you. Use colloquial language.

Soil Erosion in the Great Plains

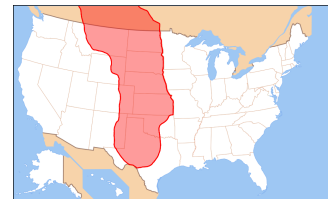
- 1 The Great Plains are a vast expanse of grasslands stretching from the Rocky Mountains to the Missouri River and from the Rio Grande to the coniferous forests of Canada—an area more than eighteen hundred miles from north to south and more than five hundred miles from east to west. The region, once
- 5 labeled "the Great American Desert," is sometimes called "the breadbasket of the world" because of its fertile soil and agriculture.

The Dust Bowl was the name given to the Great Plains region devastated by drought in the 1930s in America. The 150,000-square-mile area, encompassing parts of Oklahoma and Texas and neighboring sections of

- 10 Kansas, Colorado, and New Mexico, has little rainfall, light soil, and strong winds, a potentially destructive combination. Ideal conditions for wind erosion are loose, finely divided, dry soil on a bare, smooth surface. When drought struck from 1934 to 1937, the soil lacked the stronger root system of grass as an anchor, so the winds easily picked up the loose topsoil and
- 15 swirled it into dense dust clouds. On May 12, 1934, for example, winds carried an estimated 200 million tons of soil from the Southern Great Plains over 1,500 miles to the Atlantic Ocean.

Wind erosion is a serious threat to food security and contributes to the degradation of a sustainable agriculture in the United States and throughout the world. In addition, dust storms affect air quality and

- 20 airborne dust has significant economic, health, ecological, and hydrological impacts. Soil erosion by wind is worse in arid and semiarid regions.



M4: Map of the Great Plains
(Source: wikipedia.org)



M5: Dust Bowl (Source: english.illinois.edu)

M3: Soil Erosion in the Great Plains (Source: plainshumanities.unl.edu, edited; history.com, edited)

Here you can go on a tour using Google Street View:



M6: Photo on Google Street View (Source: google.de/maps)

Visit South Dakota: <https://www.google.de/maps/@45.442897,-102.1693687,3a,75y,2.16h,89.52t/data=!3m4!1e1!3m2!1susPjiVflzMJPvPMfgOjjCA!2e0>

Visit Montana: <https://www.google.de/maps/@46.4250627,-104.8280658,3a,75y,345.89h,90t/data=!3m4!1e1!3m2!1sKloGximk0OQc030chk2Zjg!2e0>

Word Bank

coniferous forest = Nadelwald
fertile = fruchtbar
devastated = verwüstet
drought = Dürre
encompassing = umfassend
anchor = Anker
to swirl = wirbeln
dense = dicht
estimated = geschätzt
airborne = luftgetragener Staub

Worksheet 6: Soil Erosion

Here you can solve task 6.

Great Plains:

Land Use:	Vegetation:	Climate:
-	-	-
-	-	-
-	-	-
-	-	-

Here you can solve task 7.

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Worksheet 7: Soil Erosion

Here you can solve task 8.

Factors which increases the potential for soil erosion:

Factor 1

Factor 2

Factor 3

Factor 4



Increase the potential for
soil erosion

Phrase Bank:

- firstly, secondly...
- when/if...then...
- only of...
- conditions for this effect are
- due to/ because of (this)
- A leads to B/ A triggers B
- consequently/ inevitably
- the effect is
- as a result

Worksheet 8: Soil Erosion

Here you can solve task 9.

Phrase Bank:

- firstly/ secondly...
- when/if...then...
- conditions for this effect are
- due to/ because of (this)
- A leads to B/ A triggers B
- consequently/ inevitably
- the effect is
- as a result

Phrase Bank:

- firstly/ secondly...
- when/if...then...
- conditions for this effect are
- due to/ because of (this)
- A leads to B/ A triggers B
- consequently/ inevitably
- the effect is
- as a result

Here you can solve task 10. You may add additional links.

cause

effect



Phrase Bank:

- firstly/ secondly...
- when/if...then...
- conditions for this effect are
- due to/ because of (this)
- A leads to B/ A triggers B
- consequently/ inevitably
- the effect is
- as a result

Worksheet 9: Soil Erosion

11. Explain how soil erosion occurs in the Great Plains and why the Great Plains are especially vulnerable to wind erosion. Use academic language.

Remember...how do you write academic language?

- use cause and effect schemes
- nominalize
- use terminology
- be precise
- use passiv voice

Phrase Bank

- firstly/ secondly...
- when/if...then...
- conditions for this effect are
- this occurs (only) if
- A leads to B/ A triggers B/ A reinforces B
- several causes lead to one effect
- the effect is
- due to/ because of (this)
- consequently/ inevitably
- as a consequence/ as a result

Worksheet 10: Soil Erosion

12. There are several conditions that increase the potential for soil erosion. Look at material M7 and name all conditions. Try to sum up each condition in a precise phrase or nominalization.
13. Create a scheme that shows how these conditions influence the cause and effect scheme you created in task 3. You may use the given structures. Use academic language (see worksheet 11).
14. Explain in academic language how these conditions increase the potential for soil erosion (see worksheet 12).

Additional material for task 12.

What Affects Soil Erosion?

- 1 The potential for soil erosion increases if the soil has no or very little vegetative cover of plants and/or crop residues. Plant and residue cover protects the soil from the impact and splash of rain, tends to slow down the movement of runoff water and allows excess surface water to infiltrate.

There are some conditions that can accentuate surface water runoff and therefore soil erosion. For example, if

- 5 the land is sloped, there is a greater potential for soil erosion due to the simple fact that gravity pulls the water and soil materials down the slope. Also, water will have an easier time running across the surface, carrying topsoil with it, if the ground is already saturated due to heavy rains or there is a lack of vegetation to keep the soil in place.

The greater the intensity and duration of a rainstorm or windstorm is, the higher the erosion potential. Lighter

- 10 aggregate materials such as very fine sand, silt, clay and organic matter are easily removed by the splash from raindrops and runoff water; greater raindrop energy or runoff amounts are required to move larger sand and gravel particles.

Surface water runoff occurs whenever there is excess water on a slope that

- 15 cannot be absorbed into the soil or is trapped on the surface. The amount of runoff can be increased if infiltration is reduced due to soil compaction, crusting or freezing.

Word Bank

splash = Spritzer

runoff = Abfluss

excess = überschüssig

sloped = schräg

saturated = durchtränkt

silt = Schlamm

clay = Ton

gravel = Kiesel

trapped = eingeschlossen

M7: What Affects Soil Erosion? (Sources: omafra.gov.on.ca, edited; education-portal.com, edited; envirothon.org, edited)

Here you can solve task 12.

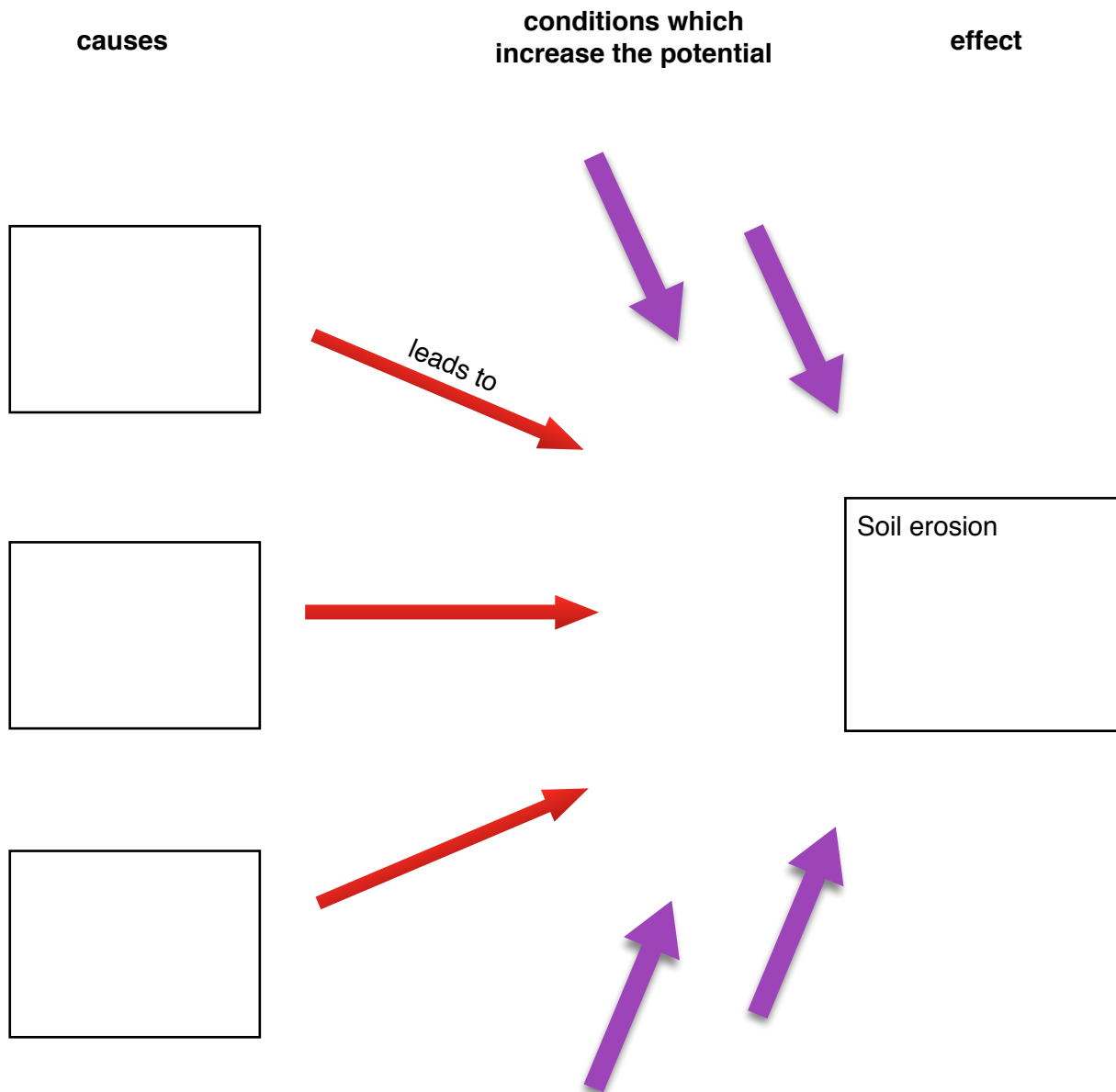
[illegible]

Worksheet 11: Soil Erosion

Here you can solve task 13:

Add arrows and colors to link or contrast the different components. Label the arrows.

Additional task: What role does time play? Indicate time using an arrow!



Phrase Bank

- multiple causes lead to
- this multiple cause structure shows
- the causes are affected by
- conditions for this effect are
- only if/ if... then
- A leads to B/ A reinforces B
- this occurs if
- consequently/ inevitably
- the result is/ this may lead to
- the reason for this is

Worksheet 12: Soil Erosion

Here you can solve task 14.

Remember...how do you write academic language?

- use cause and effect schemes
- nominalize
- use terminology
- be precise
- use passiv voice

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Phrase Bank

- firstly, secondly, finally
- if...then
- multiple causes lead to
- A leads to B/ A reinforces B
- conditions for this effect are
- some conditions increase the potential of
- A and B trigger C
- this, in turn, causes
- the effect only occurs if
- as a consequence

Worksheet 13: Soil Erosion

Unit Review

Create a cartoon that explains how soil erosion occurs and which conditions increase its potential. Explain in colloquial language how soil erosion occurs and what can be seen in the cartoon. The given frames might help you.

Firstly,...



Phrase Bank

- firstly, secondly, finally
- A leads to B
- due to
- only if/ if... then
- multiple causes lead to
- some conditions increase the potential of
- consequently/ inevitably
- the result is/ this may lead to
- this, in turn, causes
- the reason for this is
- the causes are affected by
- conditions for this effect are



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ENG

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The Council of Europe is the continent's leading human rights organisation. It includes 47 member states, 28 of which are members of the European Union.

All Council of Europe member states have signed up to the European Convention on Human Rights, a treaty designed to protect human rights, democracy and the rule of law. The European Court of Human Rights oversees the implementation of the Convention in the member states.

