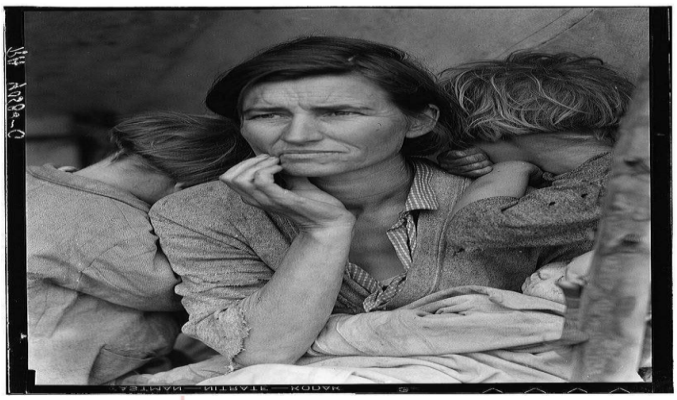
# Part 4 Soil Conservation

Name:

Part 4 Soil Conservation

Please tell me about this "mystery" photograph below with some accurate information. Feel free to discuss the, its causes, hardships, and what came out of it. Go Investigate!



Name of the Photo?

What was happening at this time in the U.S.?

What's her name?

When and where was this?

Who took the picture?

Use the space below to describe the Dust Bowl and make some headlines on the blank newspaper.

Article about the Dust Bowl and questions.
Choose 3 of the questions to answer in your journal. Be specific and use information from the article.

1.) In a short paragraph, please describe the conditions of the Dust Bowl?
2.) Describe farming in the late 1920's compared to the early 1930's / Dust Bowl Period.
3) Name four types of weather events that made farming difficult for the farmers during the Dust Bowl?
4) What's a "Snuster?"
5) What were some positive things that came out of the Dust Bowl?
6) Write a letter to a friend that lives far away that describes your life (pretend) on the farm during the Dust Bowl.
7) Write a short poem about your life during the Dust Bowl.

*Excerpts from "The Dust Bowl, Men, Dirt and Depression" by Paul Bonnifield.*

**The 1930's Dust Bowl**

"Dust Bowl" was a term born in the hard times from the people who lived in the drought-stricken region during the great depression. The term was first used in a dispatch from Robert Geiger, an AP correspondent in Guymon, and within a few short hours the term was used all over the nation. The "Dust Bowl Days", also known as the "Dirty Thirties", took its toll on Cimarron County. The decade was full of extremes: blizzards, tornadoes, floods, droughts, and dirt storms.

**Farming in the Panhandle**

Wheat was a real good thing. The world needed it and was paying a good price for it. Wheat farmers with tractors, one way plows and combines purchased by most farmers after the phenomenal crop of 1926, began plowing and planting wheat as never before. The lands were planted to wheat year after year without a thought as to the damage that was being done. Grasslands that should have never been plowed were plowed up. Millions of acres of farm land in the great plains were broken.

1930 was dry but most of the farmers made a wheat crop. In 1931 the wheat crop was considered a bumper crop with over twelve million bushels of wheat. Wheat was everywhere, in the elevators, on the ground and in the road. The wheat supply forced the price down from sixty-eight cents/bushel in July 1930 to twenty-five cents/bushel in July 1931. Many farmers went broke and others abandoned their fields.

"I don't know, we just made it." The people of the region made it because they knew how to take the everyday practical things which had been used for years and adapt them to meet the crisis. Finding a way to make do or do differently was a way of life for the pioneers who had come to the region only a short time earlier. When they arrived there were no houses, wells, cars, telephones or fields. Times were hard when the land was settled, and the people knew how to live and grow in difficult periods.

**The Storms**

**I**n 1934 to 1936, three record drought years were marked for the nation. In 1936, a more severe storm spread out of the plains and across most of the nation. The drought years were accompanied with record breaking heavy rains, blizzards, tornadoes and floods. In September 1930, it rained over five inches in a very short time in the Oklahoma Panhandle.

In late January 1933, the region was blasted by a magnificent dirt storm which killed much of the wheat. In early February, the thermometer dropped seventy four degrees in eighteen hours to a record low at Boise City. The mercury stayed below freezing for

several days until another dirt storm scourged the land. Before the year was over, locals counted 139 dirty days in 1933.

On Sunday April 14, 1935, the sun came up in a clear sky. The day was warm and pleasant, a gentle breeze whimpered out of the southwest. Suddenly a cloud appeared on the horizon. Birds flew swiftly ahead of it, but not swift enough for the cloud traveling at sixty miles per hour. This day, which many people of the area readily remember, was named "Black Sunday".

By May, it seemed like the wind and dirt had been blowing for an eternity. Rain was an event occurring only in dreams. It was a year of intensive dirt storms, gales, rollers and floods mixed with economic depression, sickness and disaster. It was a year of extreme hardship, but surprisingly the vast majority of the people stayed. By 1935, the unusual had become the usual, the extreme became the normal, the exception became the routine.

During 1936, the number of dirt storms increased and the temperature broke the 1934 record high by soaring above 120 degrees. On one pleasant June day in 1936, the ground began to tremble. A sharp earthquake shook the land from Kenton to Perryton and from Liberal to Stratford. By the fall of 1936, the rains began to return and the heat wave was broken. The following year, 1937 was another year of unprecedented dirt storms. Day after day, Dust Bowl farmers unwillingly traded farms as the land moved back and forth between Texas and Kansas. And of course there were the usual floods. 1938 was the year of the "snuster". The snuster was a mixture of dirt and snow reaching blizzard proportions. The storm caused a tremendous amount of damage and suffering.

**The Future**

The Dust Bowl taught farmers new farming methods and techniques. The 1930's fostered a whole new era of soil conservation. Perhaps the most valuable lesson learned form the Dust Bowl - take care of the land. The Dust Bowl's future is controlled almost exclusively by the weather. The prolonged drought combined with the meteorological phenomena of the 1930's was rare and never before tortured the Great Plains as it did. Droughts and winds still cause many problems, but most are averted and minimized with proper soil conservation. When times turn dry again, will the wind blow and history repeat itself? Only time will tell.

Erosion - Process of wearing or grinding something _____.

Deposition: The natural process of laying down a deposit of something. (Sediment)

Soil degradation is a real and serious problem.
Soil takes h_____ of years to form.
It takes very little time to d_____ it.

## Part 4 Lesson 2 Soil Conservation

Conservation: The _____ of something / planned_____.
- Hugh Hammond _____(Father of Soil Conservation) 1920's

Two key factors to conserve soil
Reduce e_____
Restore f_____ (nutrients)
-_____, _____, _____.

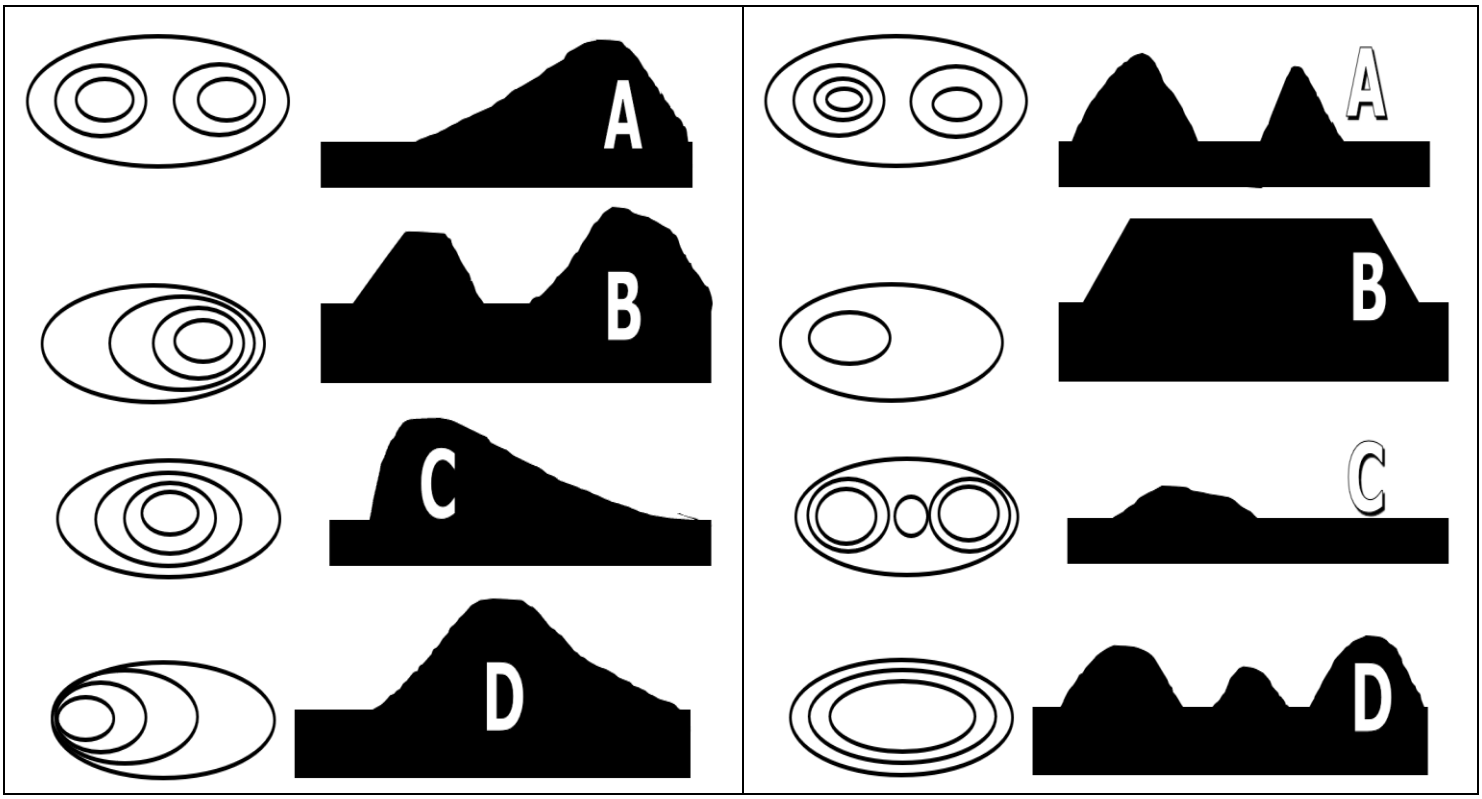
Soil Conservation Measures

Conservation Plowing: Disturbing the ground and plant cover as l_____ as possible.
-Use of a seed injector.
Terracing: Creating s_____ against water erosion.

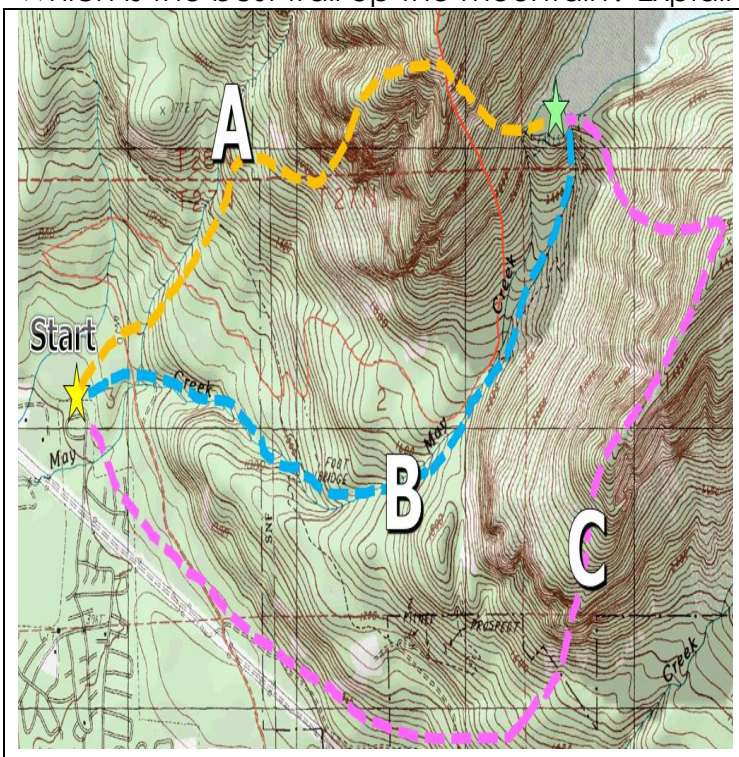
Contour plowing: A practice of s_____ water run-off by planting across a hills contours.
Cover Crop: A plant that grows first and p_____ the cash crop.

## Part 4 Lesson 3 Topographic Mapping Sidebar.

Topographic map: A map showing topographic features, usually by means of _____ _____.
The thin brown lines snaking around a topographic map are called contour lines. All points along the same contour line are at the same elevation above sea level.
-If contours are close together it's steep, spread out its more gradual.



Which is the best trail up the mountain? Explain on the right.




## Part 4 Lesson 4 Farming Practices

Strip Cropping: A_____ the type of plant on each row to control water and nutrient uptake.

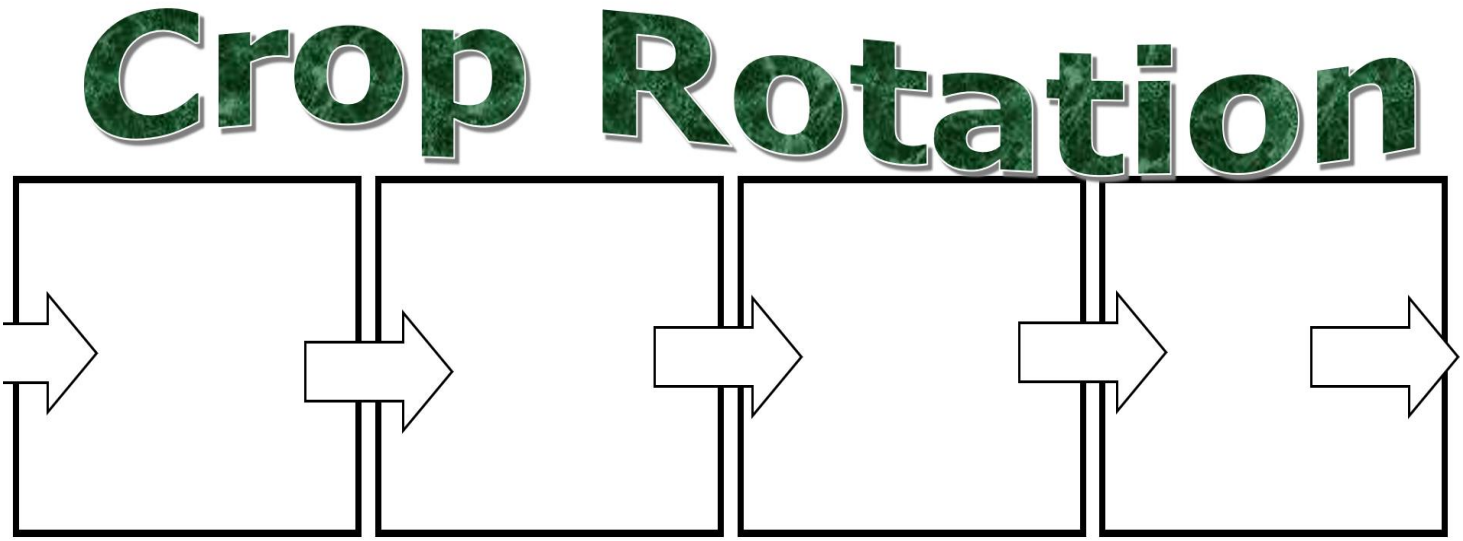
Alley Cropping: Plant t_____ in between ground crops Provides shade, wind break, and prevents water loss.

Cover Crop: A plant that grows first and protects the cash crop.

Which one uses a cover crop?

Crop Rotation: Planting d_____ crops each year.
Changes nutrient uptake (increased soil fertility over a long period)

Use the four boxes below to rotate some crops.




Gully Reclamation: Dam gullies to trap silt. Plant ground v_____ to stabilize slopes.

Take some measure to dam this Gully / Prevent Erosion.

Plant Wind Breakers: _____ at edge of field to break the wind.

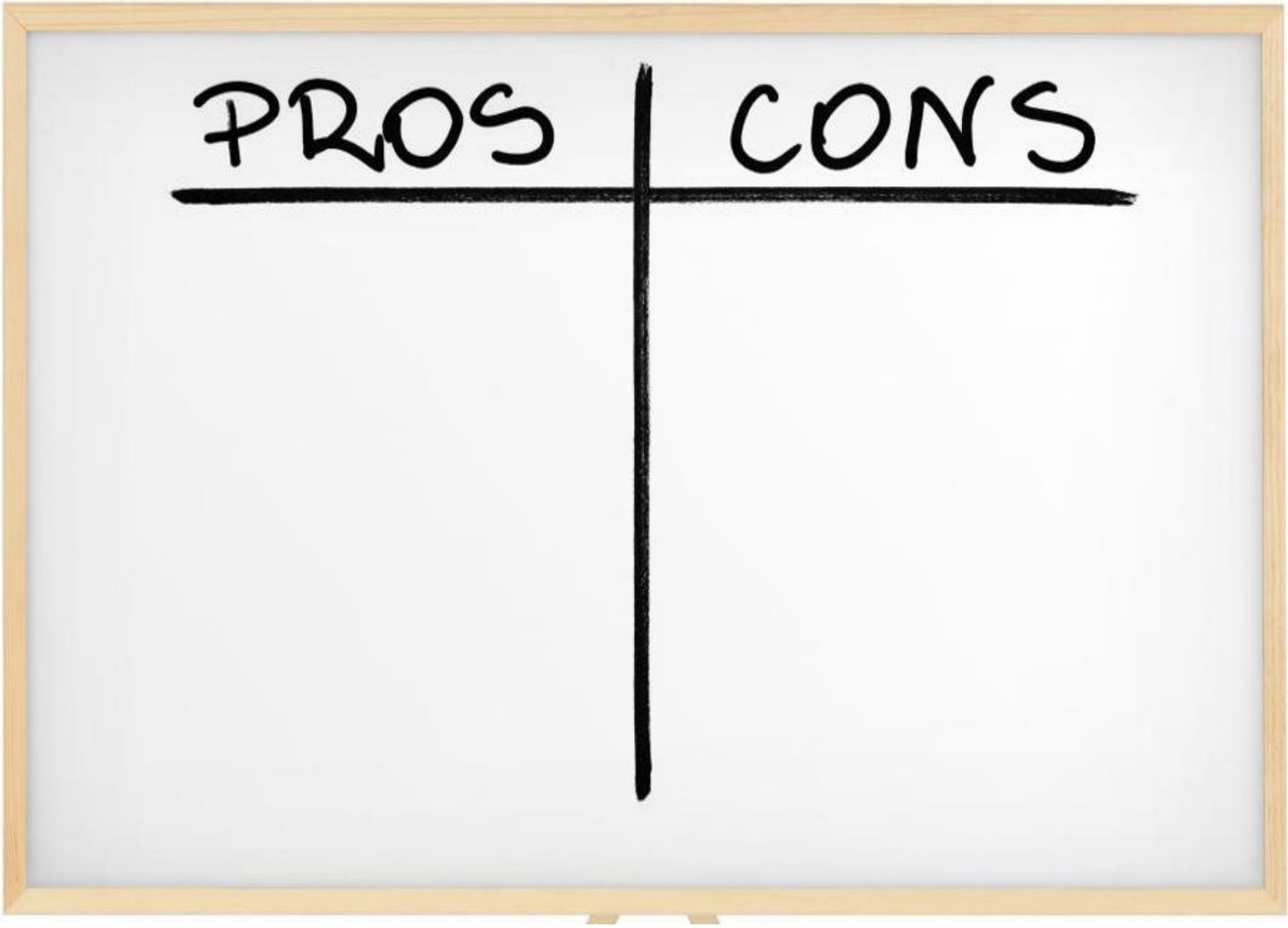
Increasing Fertility: Adding animal m_____ to plants for nutrients.


Green Manure: Add _____ to plants

Part 4 Lesson 5 Fertilizers, Review and Quiz

Is this truck exploding? Please let me know what's going on with a short paragraph.

Fertilizer: A _____ or natural substance added to soil or land to increase its fertility.



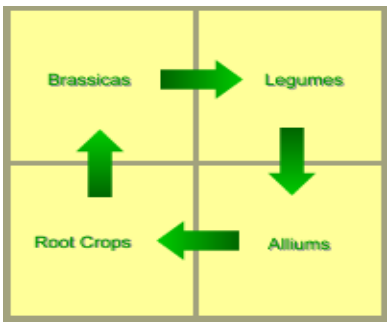

Quiz 1-10 Name the Soil Conservation Measure.

| | | |
|---|---|---|
| 1) | 2) | 3) |
| 4) | 5) | 6) |
| 7) | 8) | 9) |
| 10) | *11) | *12) |

Please name and then **describe** the correct soil conservation method beneath the pictures below.

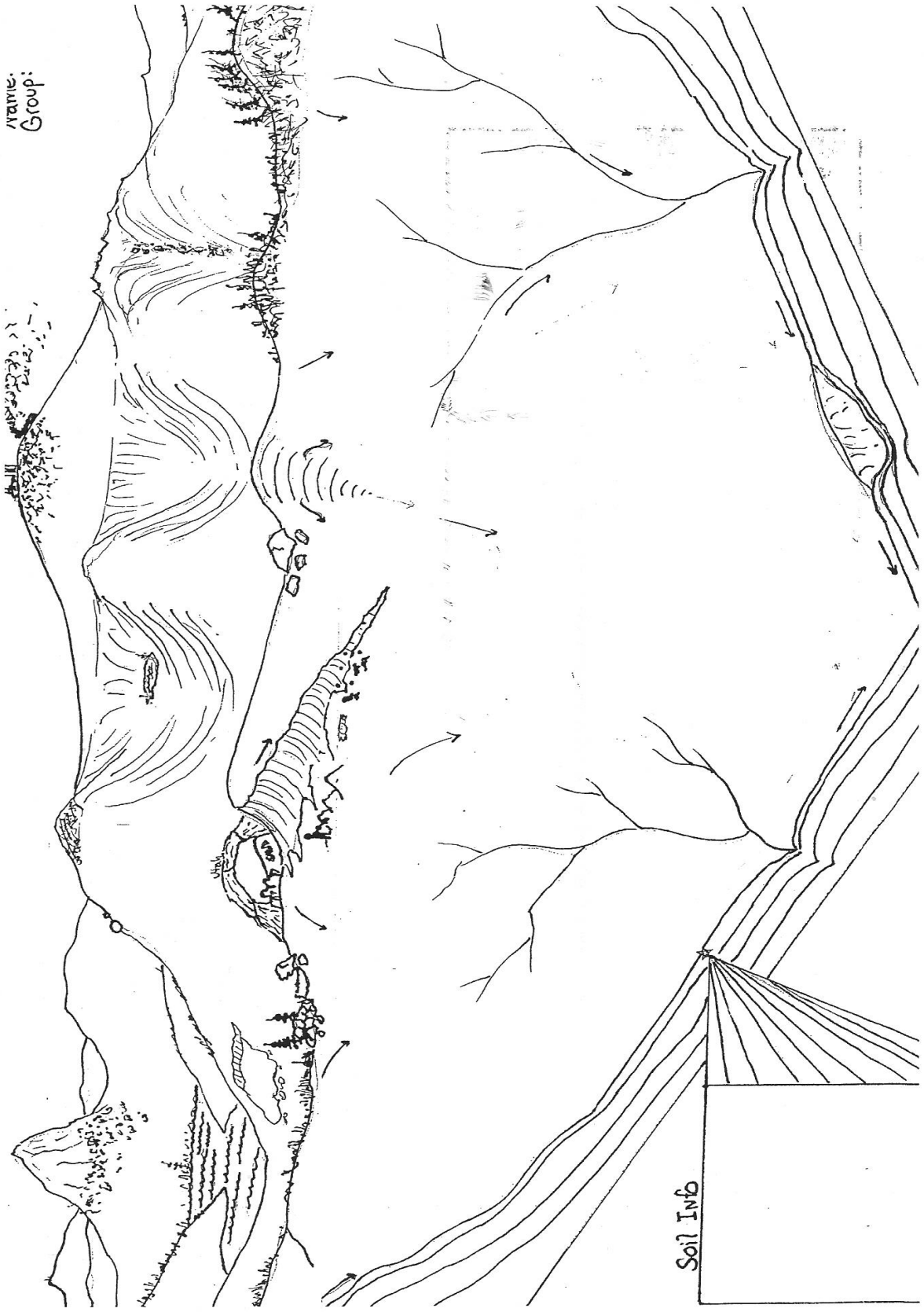
Can you name any conversation practice below.

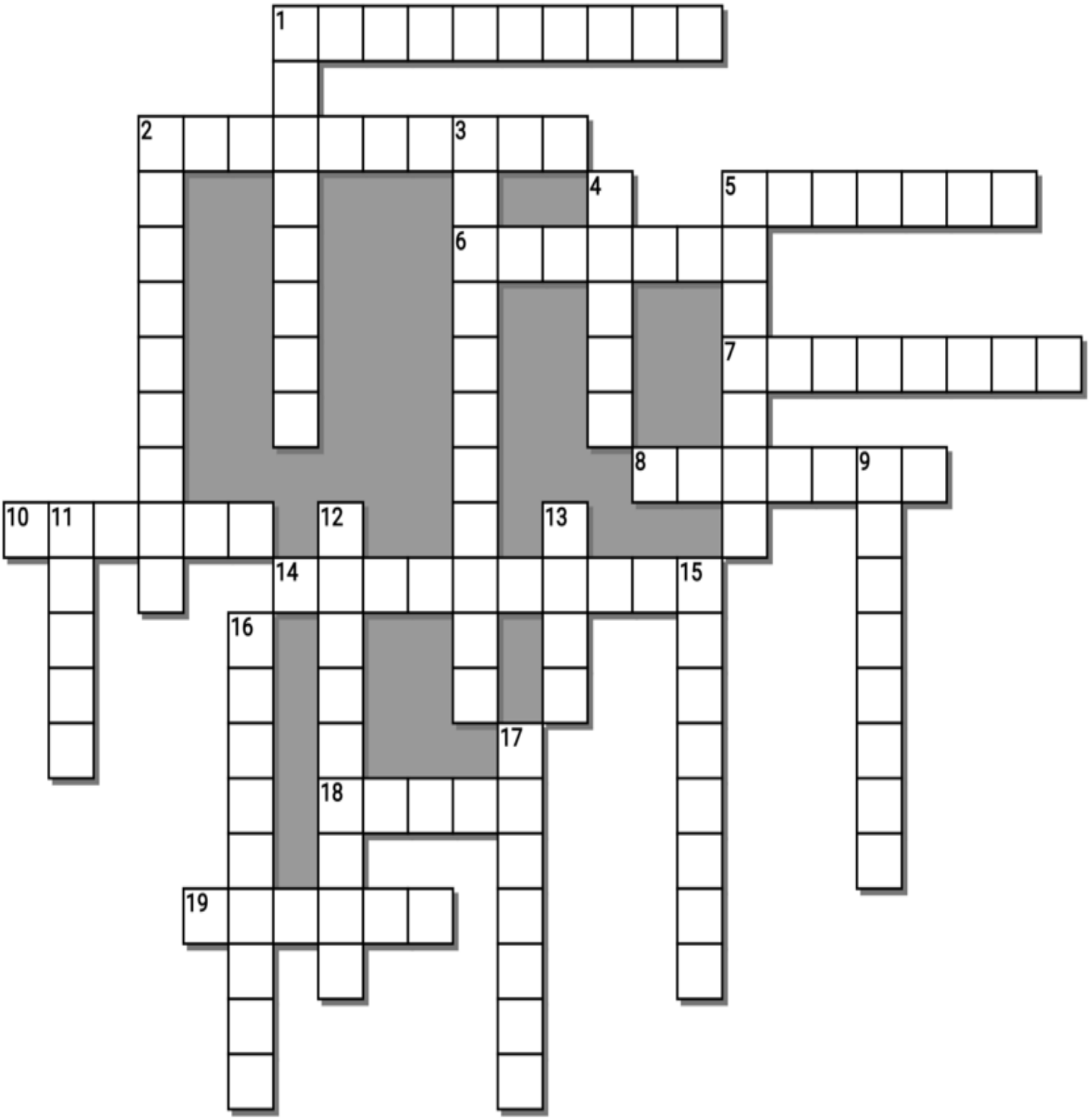
Please describe the correct soil conservation method beneath the pictures below.




Can you name any conversation practice below.

Why is it so important to protect soil?


Name:
Group:
Soil Info



--teacher can remove this word bank to make the puzzle more challenging----

**Possible Answers**

ALLEY, CONTOUR, COVER, DEPOSITION, DUSTBOWL, EROSION, EROSION, FERTILITY, FERTILIZER, MANURE, NITROGEN, PHOSPHORUS, PLANTS, PLOWING, POTASSIUM, RECLAMATION, ROTATION, SEDIMENT, STRIP, TERRACING, WIND, ORGANIC

## Across

1. The natural process of laying down a deposit of something.
2. Plants need Nitrogen, Potassium, and _____ for healthy roots, foliage,, and growth
5. Process of wearing or grinding something down.
6. _____ plowing: A practice of slowing water run-off by planting across a hills contours.
7. Solid material that is moved and deposited in a new location
8. Conservation _____: Disturbing the ground and plant cover as little as possible.
10. A natural fertilizer produced from animals.
14. A chemical or natural substance added to soil or land to increase its fertility.
18. _____ Crop: A plant that grows first and protects the cash crop.
19. Green Manure: Add _____ to plants

## Down

1. A period of severe dust storms causing major ecological and agricultural damage to American and Canadian prairie lands from 1930 to 1936
2. Plants need Nitrogen, _____, and Phosphorus for healthy roots, foliage,, and growth
3. Gully _____ : Dam gullies to trap silt Plant ground vegetation to stabilize slopes.
4. _____ Cropping: Alternating the type of plant on each row to control water and nutrient uptake
5. Two key factors to conserve soil -Reduce _____ -Restore fertility (nutrients)
9. Plants need _____ Potassium, and Phosphorus for healthy roots, foliage,, and growth.
11. _____ Cropping: Plant trees in between ground crops Provides shade, wind break, and prevents water loss.
12. Creating stairs against water erosion.
13. Plant _____ Breakers: Trees at edge of field to break the wind.
15. Crop _____: Planting different crops each year. Changes nutrient uptake (increased soil fertility over a long period)
16. Two key factors to conserve soil -Reduce erosion -Restore _____ (nutrients)
17. Soil degradation is the physical, chemical and biological decline in soil quality. It can be the loss of _____ matter, decline in soil fertility, and structural condition, erosion, adverse changes in salinity, acidity or alkalinity, and the effects of toxic chemicals, pollutants or excessive flooding.

# Part 4 Soil Conservation

Name:

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Why is it so important to protect soil?

Answer=
Soil is incredibly important to protect because we can grow plants in healthy soil. Plants and healthy soil is critical to the food production in our county. Healthy soil takes hundreds of years to form and can be destroyed in seconds through erosion.

Erosion - Process of wearing or grinding something down.

Deposition: The natural process of laying down a deposit of something. (Sediment)

Soil degradation is a real and serious problem.

- Soil takes hundreds of years to form.
- It takes very little time to destroy it.

Two key factors to conserve soil

- - Reduce erosion
- - Restore fertility (nutrients)
  -Nitrogen, Phosphorus, Potassium

Soil Conservation Measures

-Conservation Plowing: Disturbing the ground and plant cover as little as possible.
-Use of a seed injector.

- Terracing: Creating stairs against water erosion.

- Contour plowing: A practice of slowing water run-off by planting across a hills contours.

Cover Crop: A plant that grows first and protects the cash crop.

- Strip Cropping: Alternating the type of plant on each row to control water and nutrient uptake.

- Alley Cropping: Plant trees in between ground crops
Provides shade, wind break, and prevents water loss.

- Crop Rotation: Planting different crops each year.
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- Gully Reclamation: Dam gullies to trap silt
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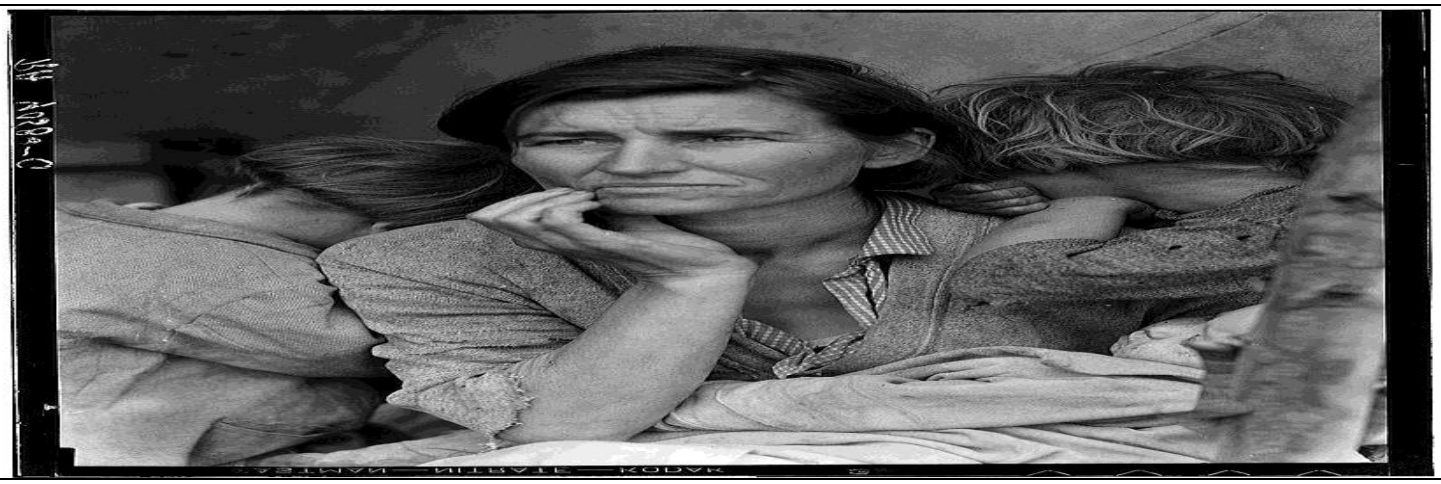
Increasing Fertility: Adding animal manure to plants for nutrients.

Green Manure: Add plants to plants

Fertilizer: A chemical or natural substance added to soil or land to increase its fertility.

Please tell me about this "mystery" photograph below with some accurate information. Feel free to discuss the DUST BOWL , its causes, hardships, and what came out of it.



The Dust Bowl was a period of severe dust storms causing major ecological and agricultural damage to American and Canadian prairie lands from 1930 to 1936 (in some areas until 1940). The phenomenon was caused by severe drought coupled with decades of extensive farming without crop rotation, fallow fields, cover crops or other techniques to prevent erosion.

The period was a difficult time for many people in the area as they had to leave their farms for survival. Simple tasks were difficult and it was also the Great Depression so economically the area was in rough shape. It would have been very difficult for everyone, but extremely difficult for families.

Florence Owens Thompson was born Florence Leona Christie on Sept. 1, 1903, in Indian Territor, Oklahoma. Her father, Jackson Christie, had abandoned her mother, Mary Jane Cobb, before Florence was born, and her mother remarried Charles Akman (of Choctaw descent) in spring, 1905. The family lived on a small farm in Indian Territory outside of Tahlequah, Oklahoma.[

17 year-old Florence married Cleo Owens (a 23 year-old farmer's son from Stone County, Mississippi) on February 14, 1921. They soon had their first daughter, Violet, followed by a second daughter, Viola, and a son, Leroy.[2] The family migrated west with other Owens' relatives to Oroville, California where they worked in the saw mills and on the farms of the Sacramento Valley. By 1931, Florence was pregnant with her sixth child when her husband Cleo died of tuberculosis. Florence subsequently worked in the fields and in restaurants to support her six children.[2] In 1933 Florence had another child, returned to Oklahoma for a time, and then was joined by her parents as they migrated to Shafter, California north of Bakersfield. There Florence met Jim Hill, with whom she had three more children. During the 1930s the family worked as migrant farm workers following the crops in California, and sometimes into Arizona. Florence would later recall times in which she would pick 400-500 pounds of cotton from first daylight until after it was too dark to work. She added, "I worked in hospitals. I tended bar. I cooked. I worked in the fields. I done a little bit of everything to make a living for my kids."[3]

The family settled in Modesto, California in 1945. Well after World War II, Florence met and married hospital administrator George Thompson, which, compared to the previous years of toil, brought more security.[2]

Please name and then **describe** the correct soil conservation method beneath the pictures below.

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| | | |
|---|---|---|
|  Alley Cropping: Plant trees in between ground crops. Provides shade, wind break, and prevents water loss. |  Strip Cropping: Alternate the type of plant on each row to control water and nutrient uptake. |  Wind Breakers: Trees at edge of field to break the wind. |

| | | |
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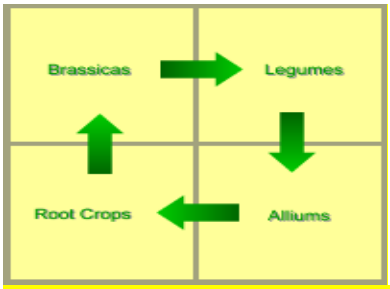
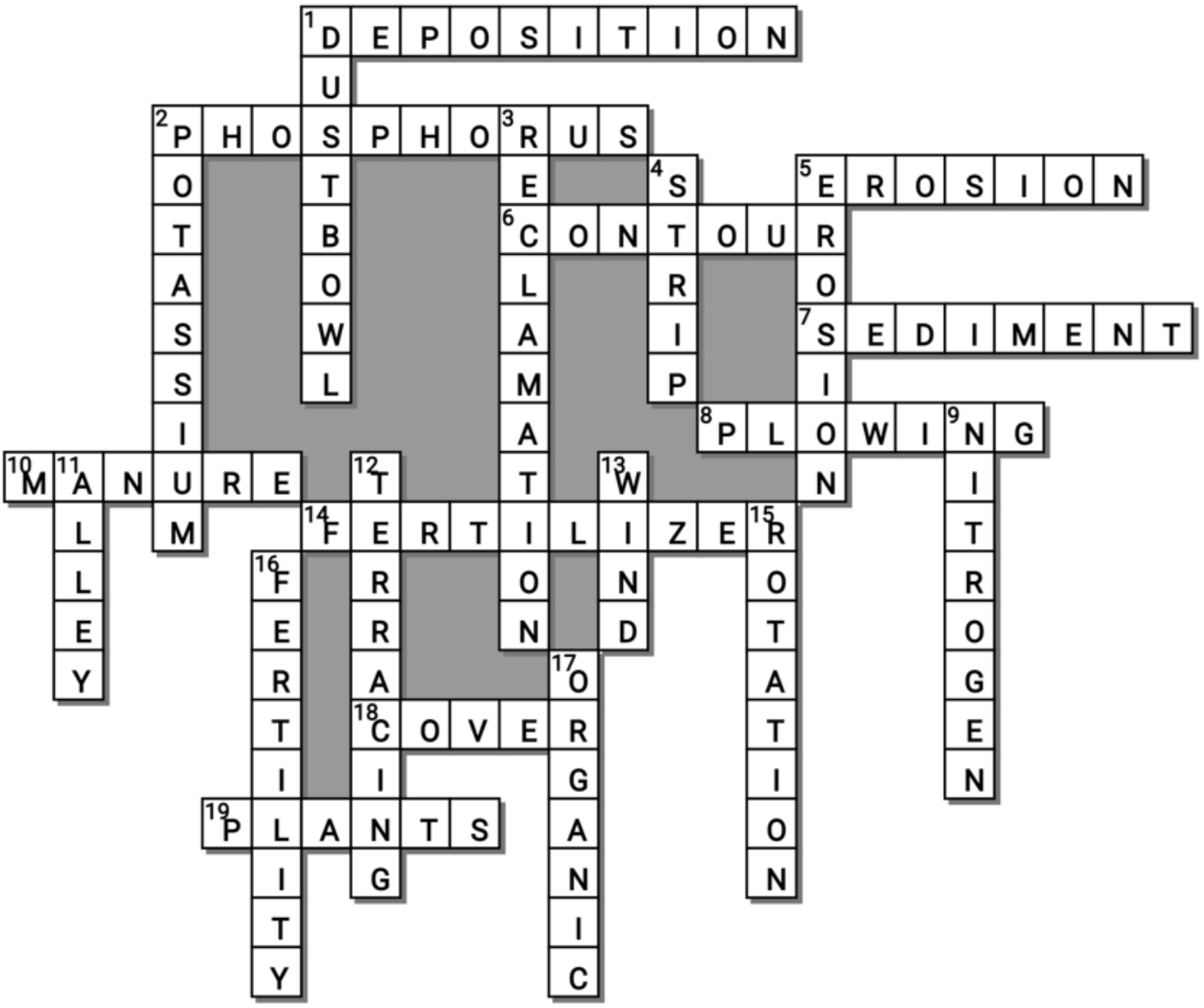
|   Crop Rotation: Planting different crops each year. Changes nutrient uptake (increased soil fertility over a long period) |  Increasing Fertility: Adding animal manure to plants for nutrients. |  Terracing: Creating steps against water erosion. |

Is this truck exploding? Please let me know what's going on with a short paragraph.

This truck is spreading manure on the field. This manure is a natural fertilizer produced from animals. This waste is being spread on the field to provide vital nutrients to the soil. Plants can use these chemicals to grow. Although this is a good way to add nutrients to a field and restore fertility it needs to be done properly.

What are some pros and cons of fertilizers? Cons would be examples of mismanagement.

| PROS | CONS |
| --- | --- |
| -Keeps soil fertile for plant / food growth on a crowded planet.<br>-Helps keep soil microorganisms healthy<br>-Prevents soil erosion by creating better and stronger roots systems.<br>-Holds water in soil better<br>-More productive land means that less land has to be cleared into farms.<br>-Biodiversity increases | Contamination of drinking water / human health problems<br>Air quality concerns / (smog) human health (breathing ailments) and climate change.<br>Some weeds and invasive plants grow better with fertilizers<br>Nutrient Pollution (algae blooms and dead zones)<br>Imbalance of Nutrients in the soil if not managed well. |

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