





# **NAVAJO NATION ENVIRONMENTAL PROTECTION AGENCY**

**SURFACE AND GROUND WATER PROTECTION DEPARTMENT**

**WATER QUALITY /NPDES PROGRAM**

**FRED JOHNSON  
ENVIRONMENTAL SPECIALIST**

# **WATER QUALITY PROGRAM**

**Received authorization from  
USEPA in 1993 under Section 106  
and 518 of the Clean Water Act  
to implement a Water Pollution  
Control Program**

# Clean Water Act

(CWA) 33 U.S.C. 1251 - 1387

## objective:

“restore and maintain the chemical, physical and biological integrity of the Nation’s waters”

## goals:

“Elimination of the discharge of pollution into surface waters; and

achievement of a level of water quality which provide for the protection and propagation of fish, shellfish and for recreation in and on water.”

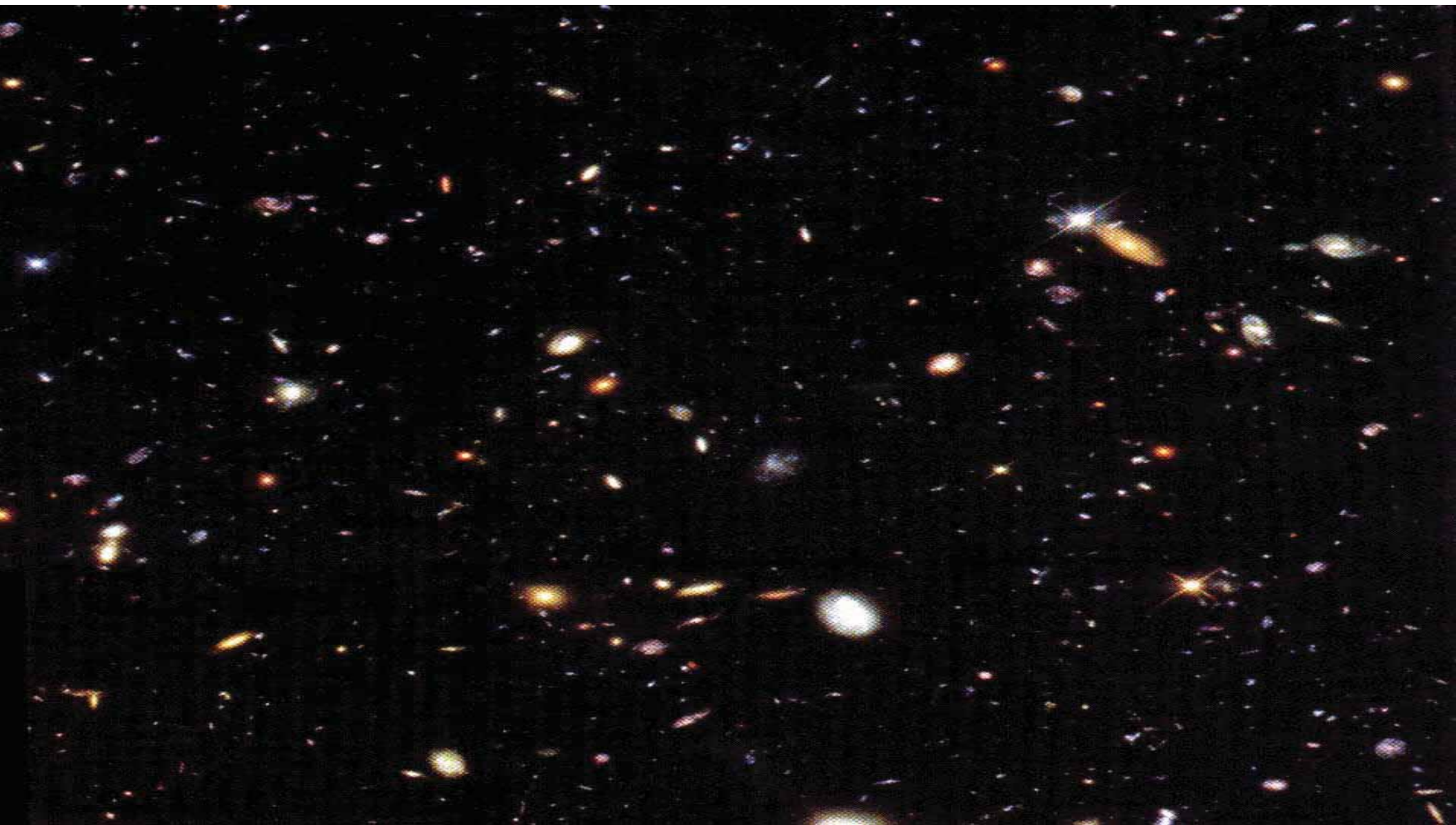
# **Navajo Nation Clean Water Act**

**Gives us authority to regulate discharges into waters of the Navajo Nation**

**Gives us authority to implement a National Pollutant Discharge Elimination Program**

**Gives us authority to implement a Clean Lakes Program**

**Allows for implementation of Water Quality Standards**



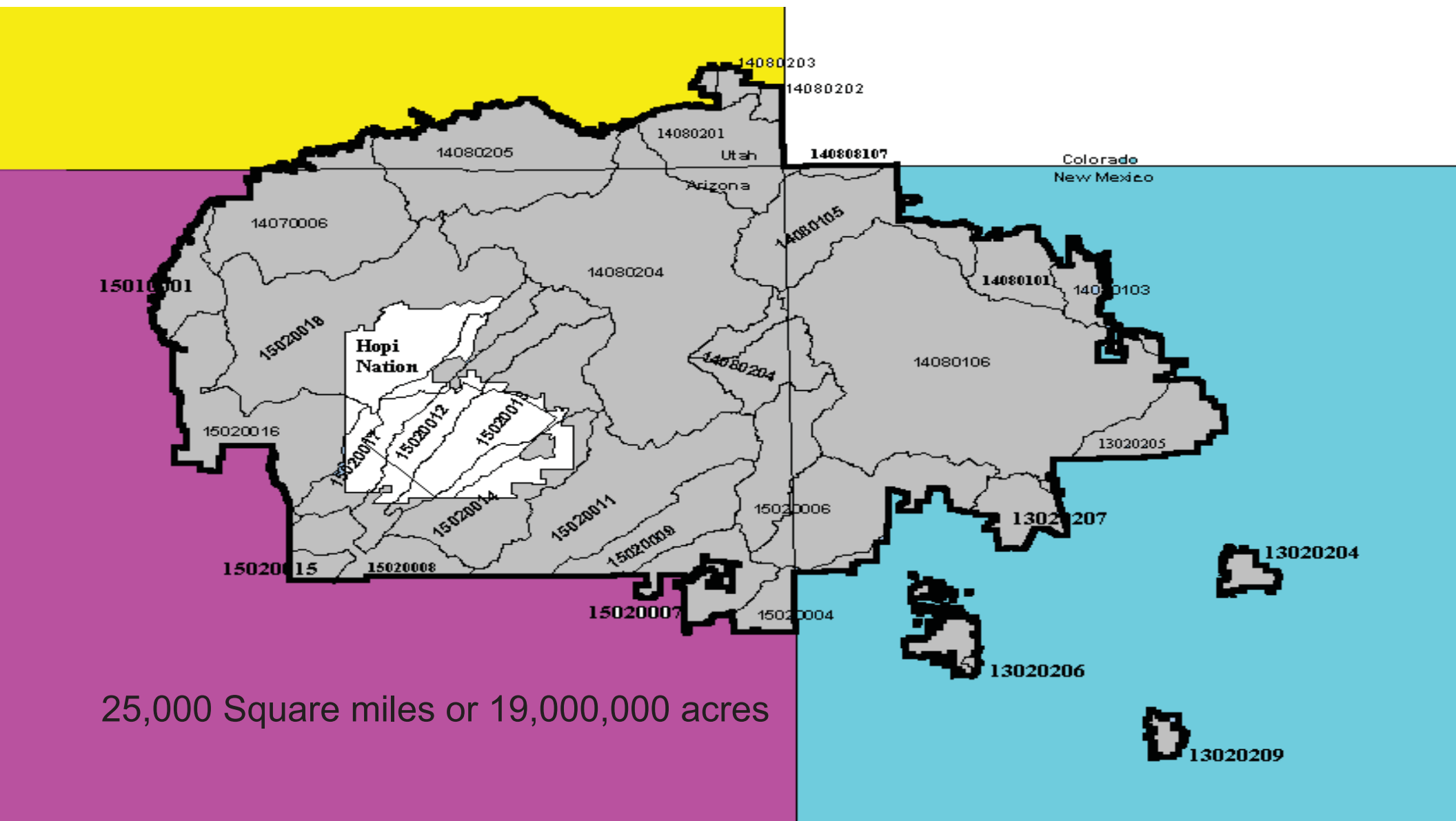


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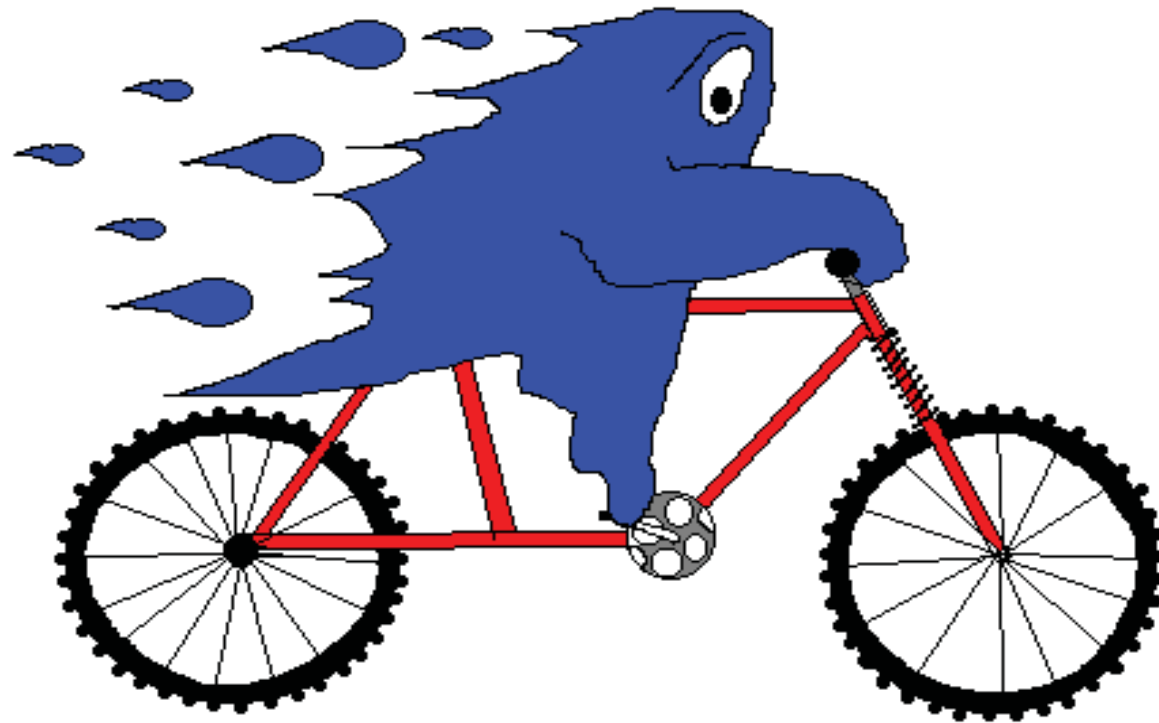
Our Mother Earth

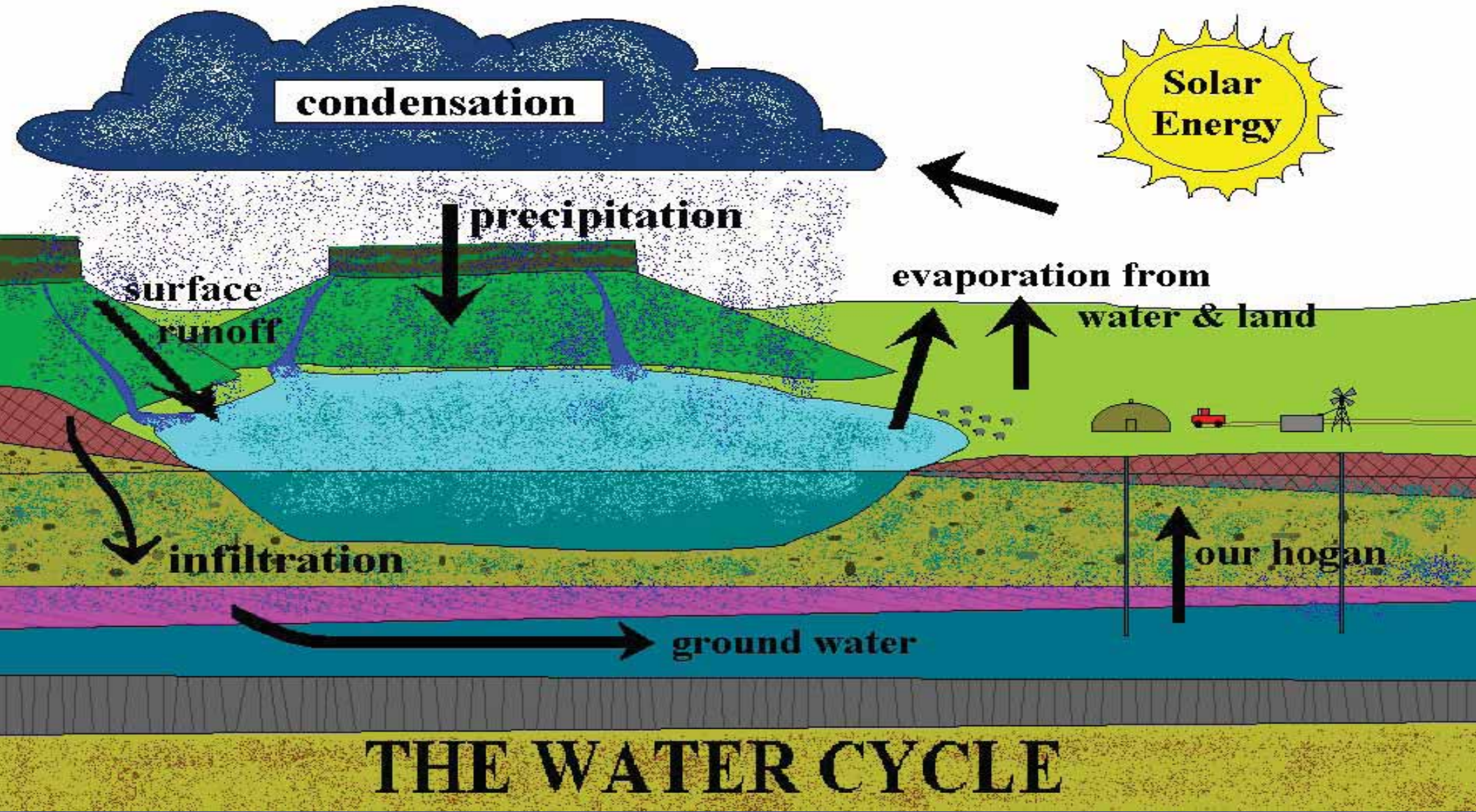




25,000 Square miles or 19,000,000 acres

# Water Cycle

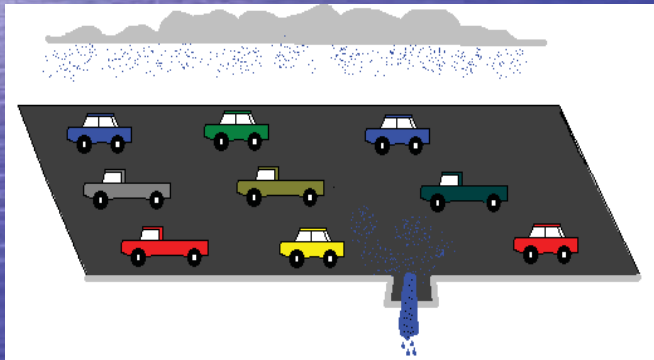






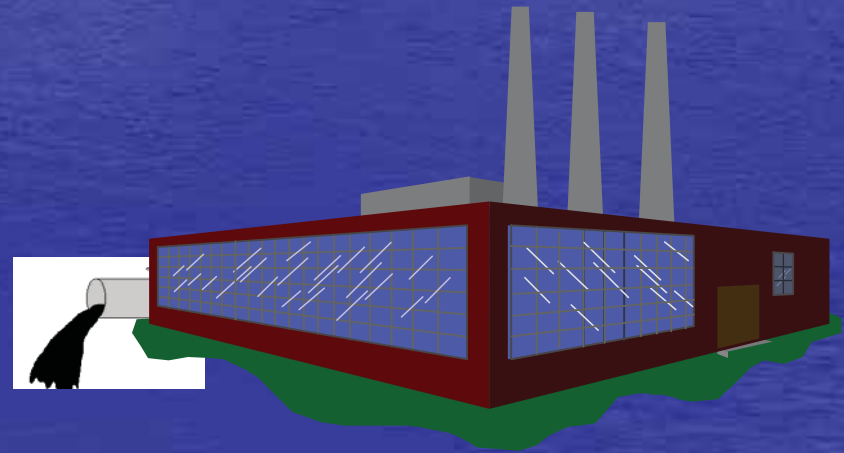
## Non-Point Source Pollution

Water pollution that cannot be traced to a specific point, because it comes from many individual places or a widespread area.



## Point Source Pollution

Pollution that can be traced to a single point source, such as a pipe or culvert.

















# Stream Bugs You Might Find on the Navajo Nation

## Sensitive

Mayfly Nymph



Stonefly Nymph



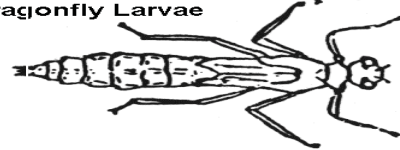
Need high quality water  
*(Sensitive to pollution)*

## Somewhat Tolerant

Damselfly Larvae



Dragonfly Larvae



Blackfly Larvae



Caddisfly Larvae

Need somewhat  
high quality water  
*(Somewhat tolerant  
to pollution)*

## Very Tolerant

Cranefly Larvae



Midge Larvae



Snails



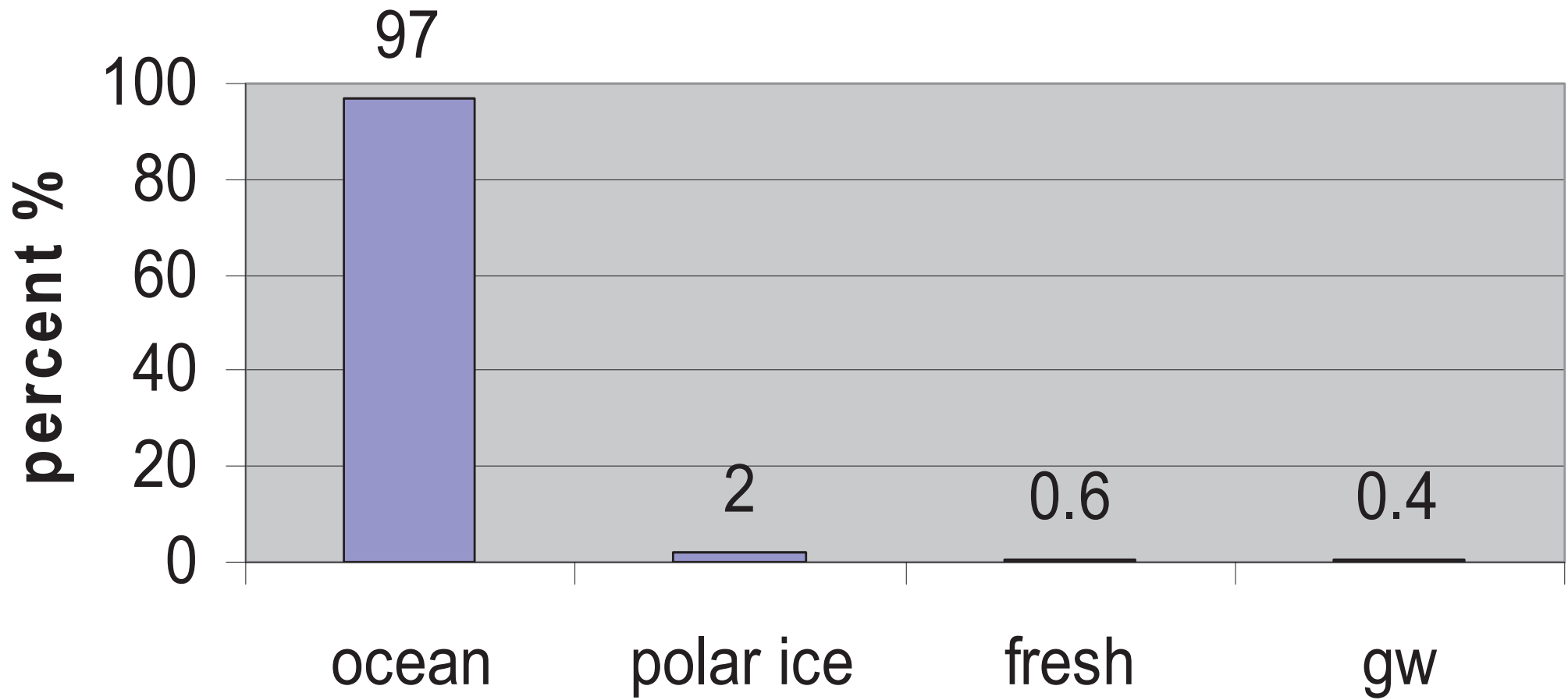
Aquatic Worms

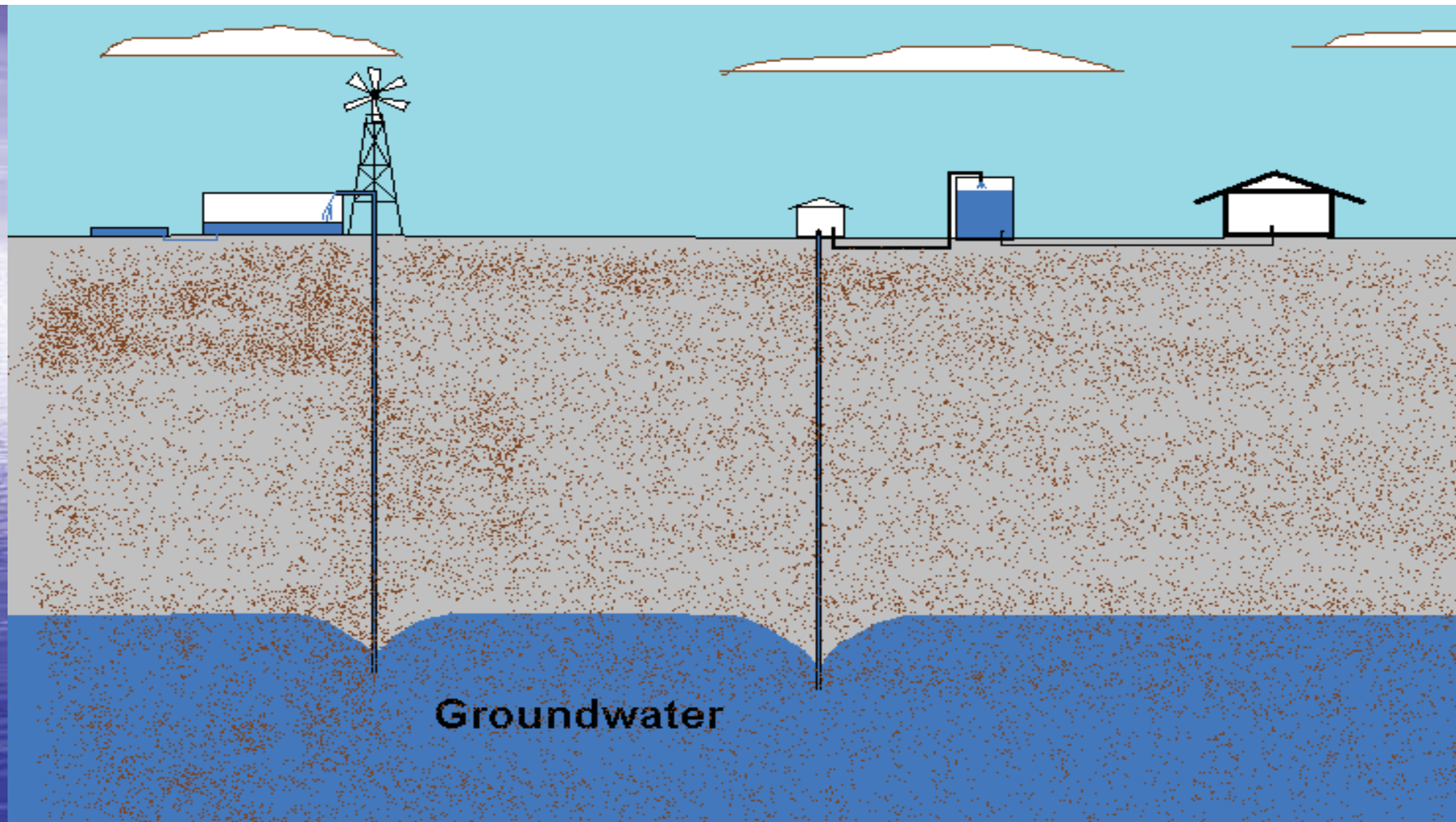
Leeches



Can live in low quality water  
*(Very tolerant to pollution)*

# Water on Earth





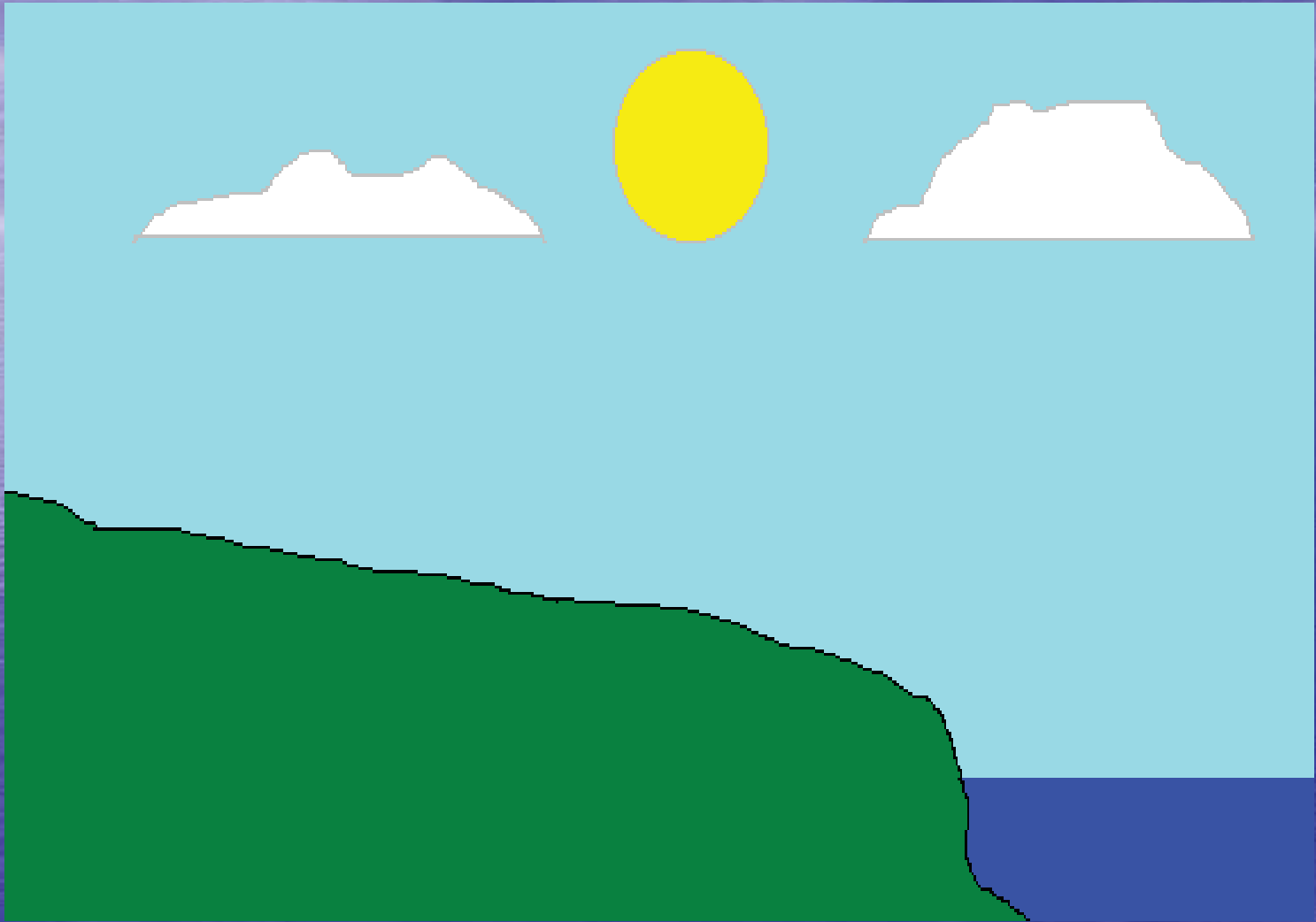
# Non-point source pollution generating activities on the Navajo Nation

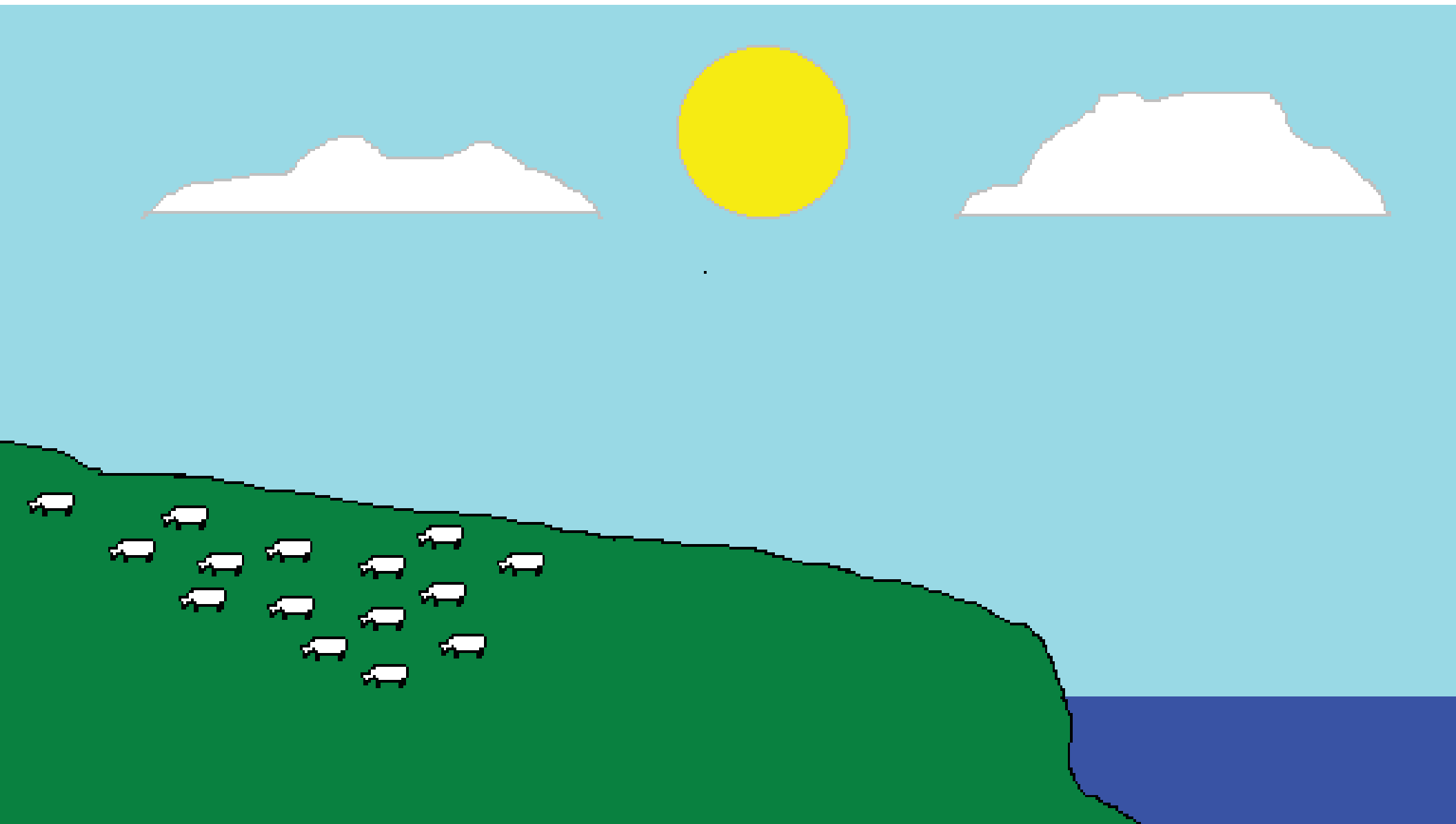
- *continuous grazing*
- *off-road travel*
- *construction activity*
- *irrigated agriculture*
- *illegal Trash dumping*

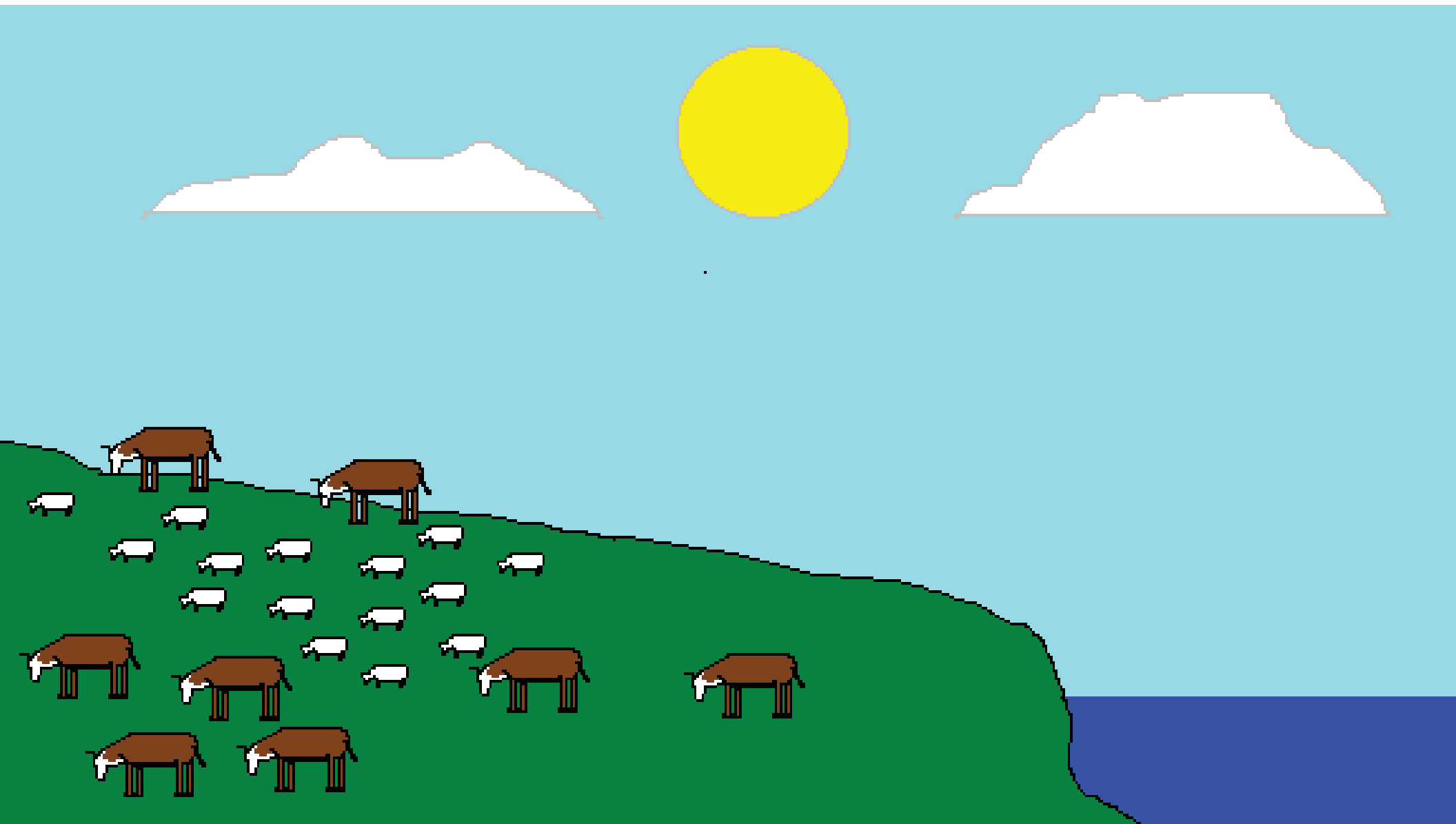


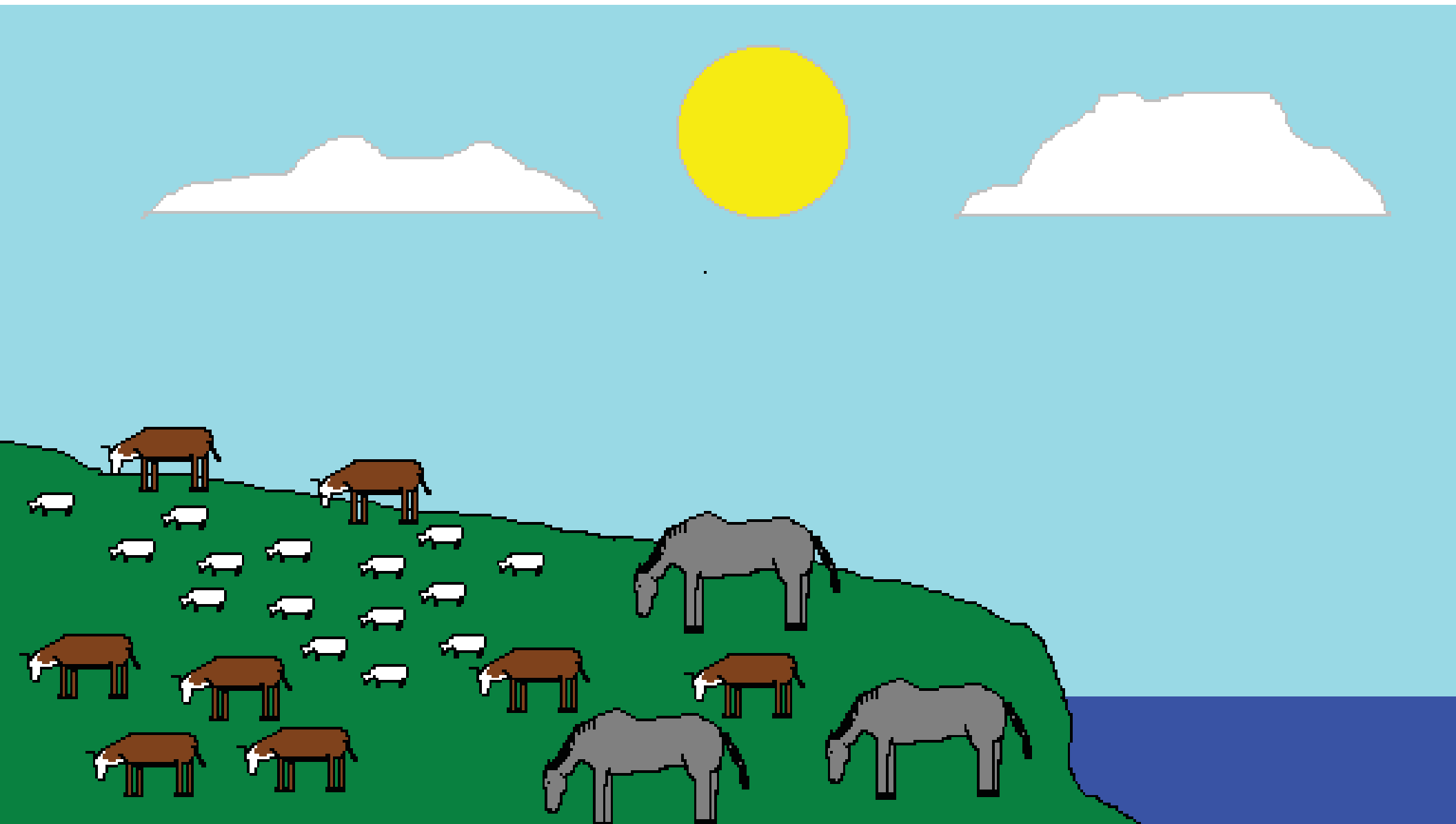
**Continuous grazing**

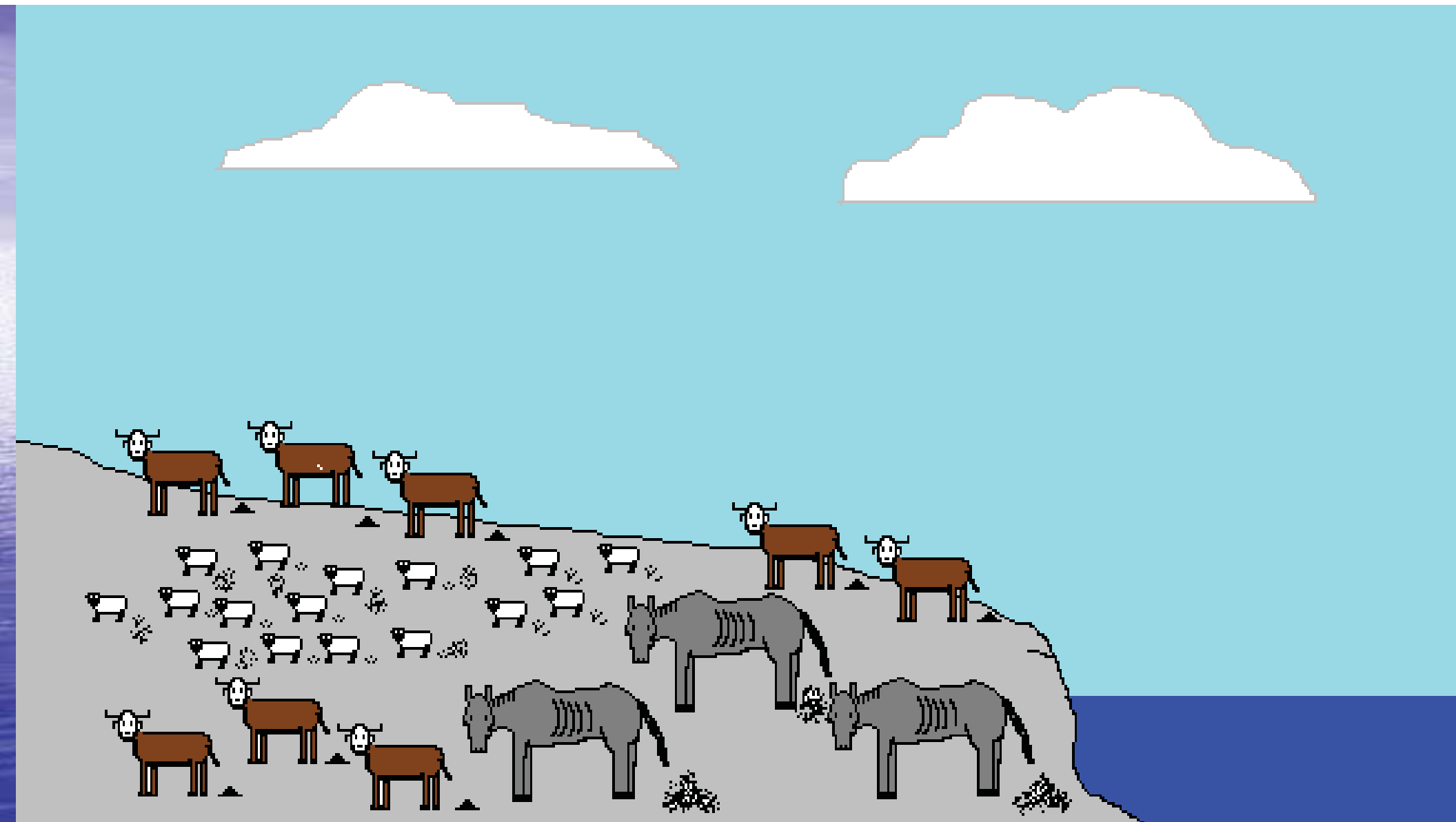


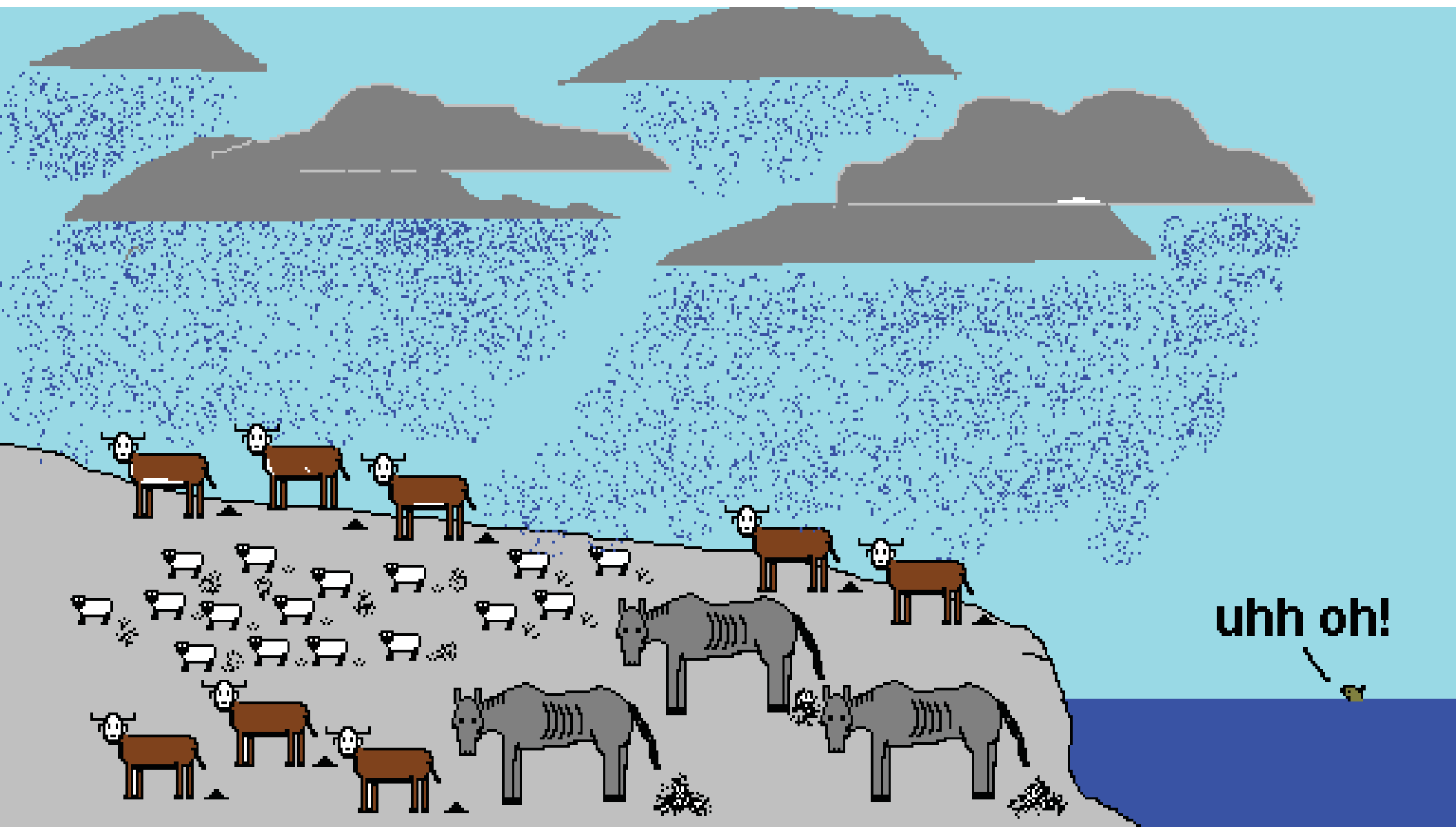












uhh oh!

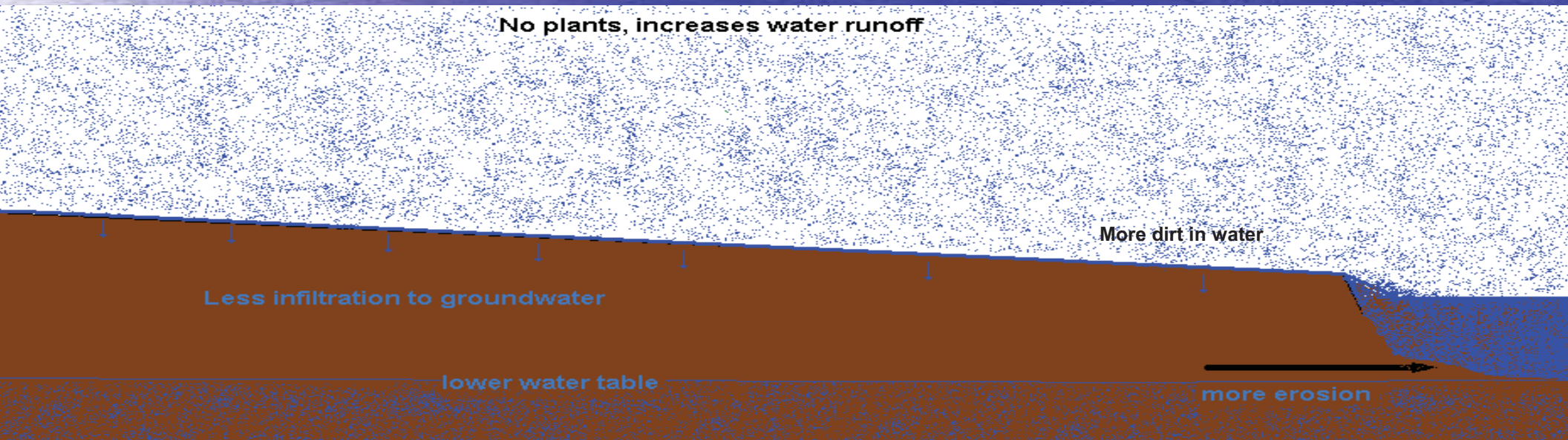
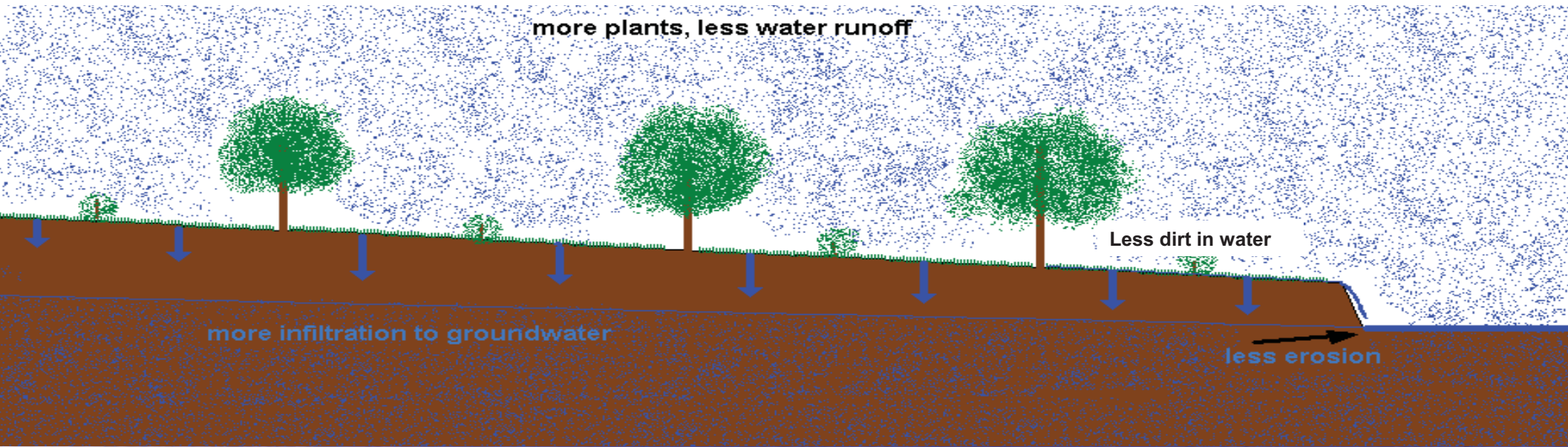




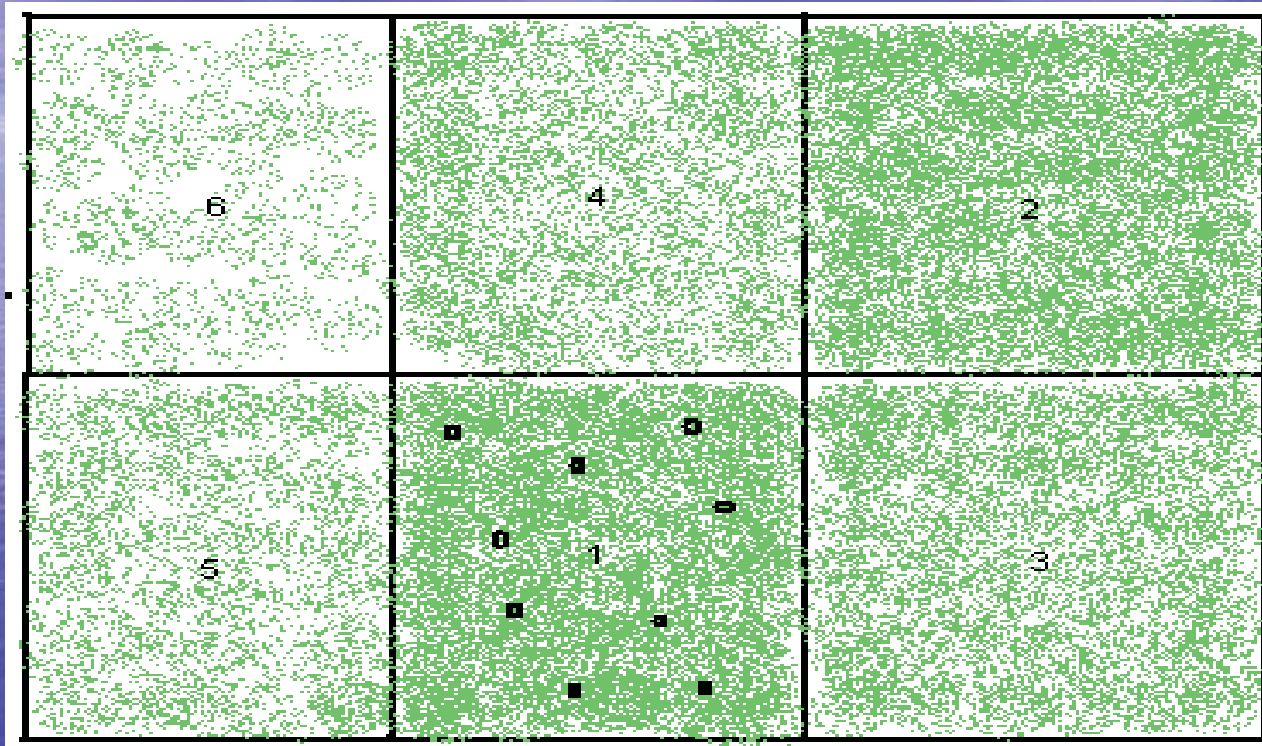




**Continuous grazing causes  
water quality problems**



# Rotation Grazing



Allows grazed cell time to get some growth or even regeneration.

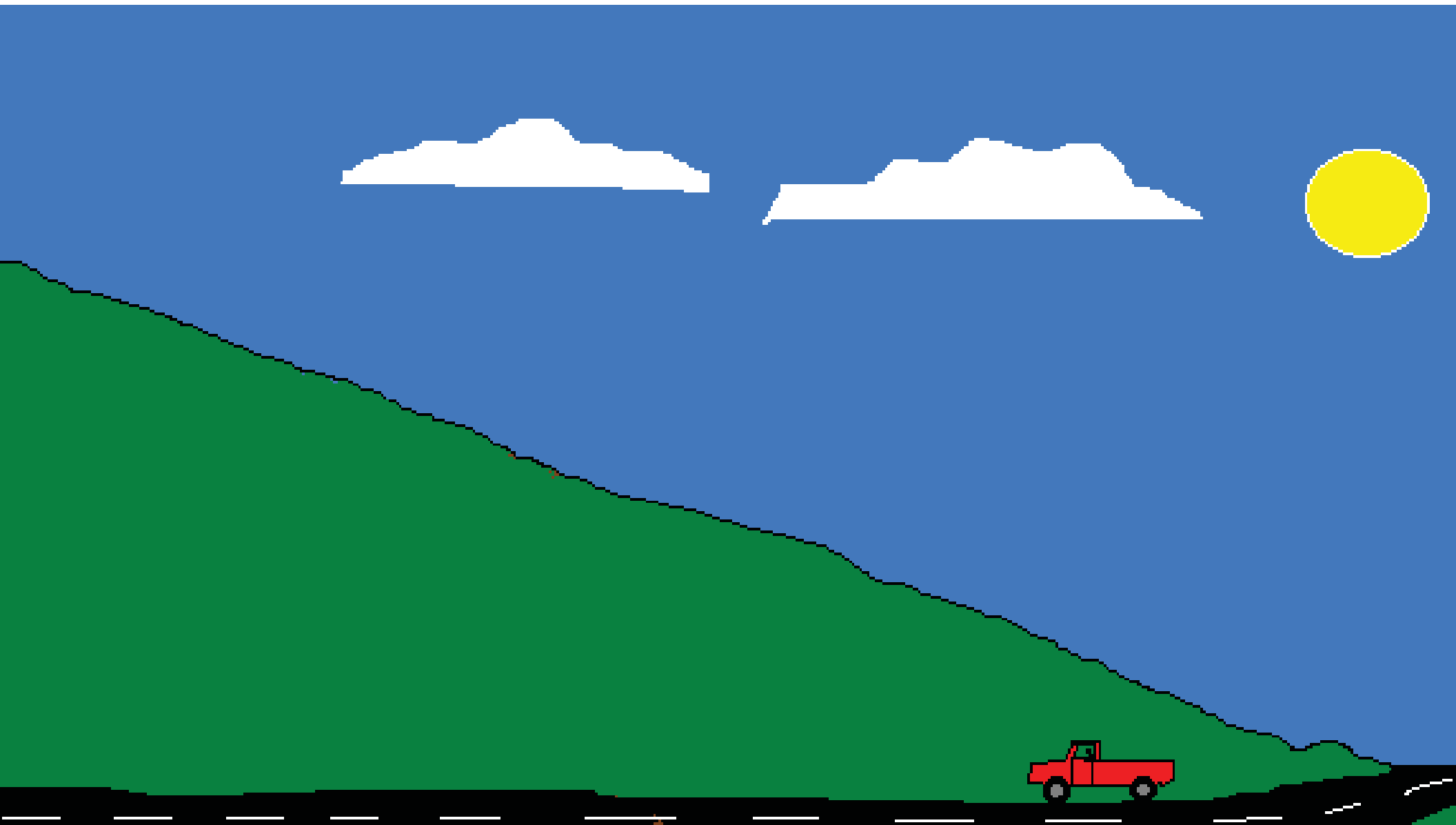




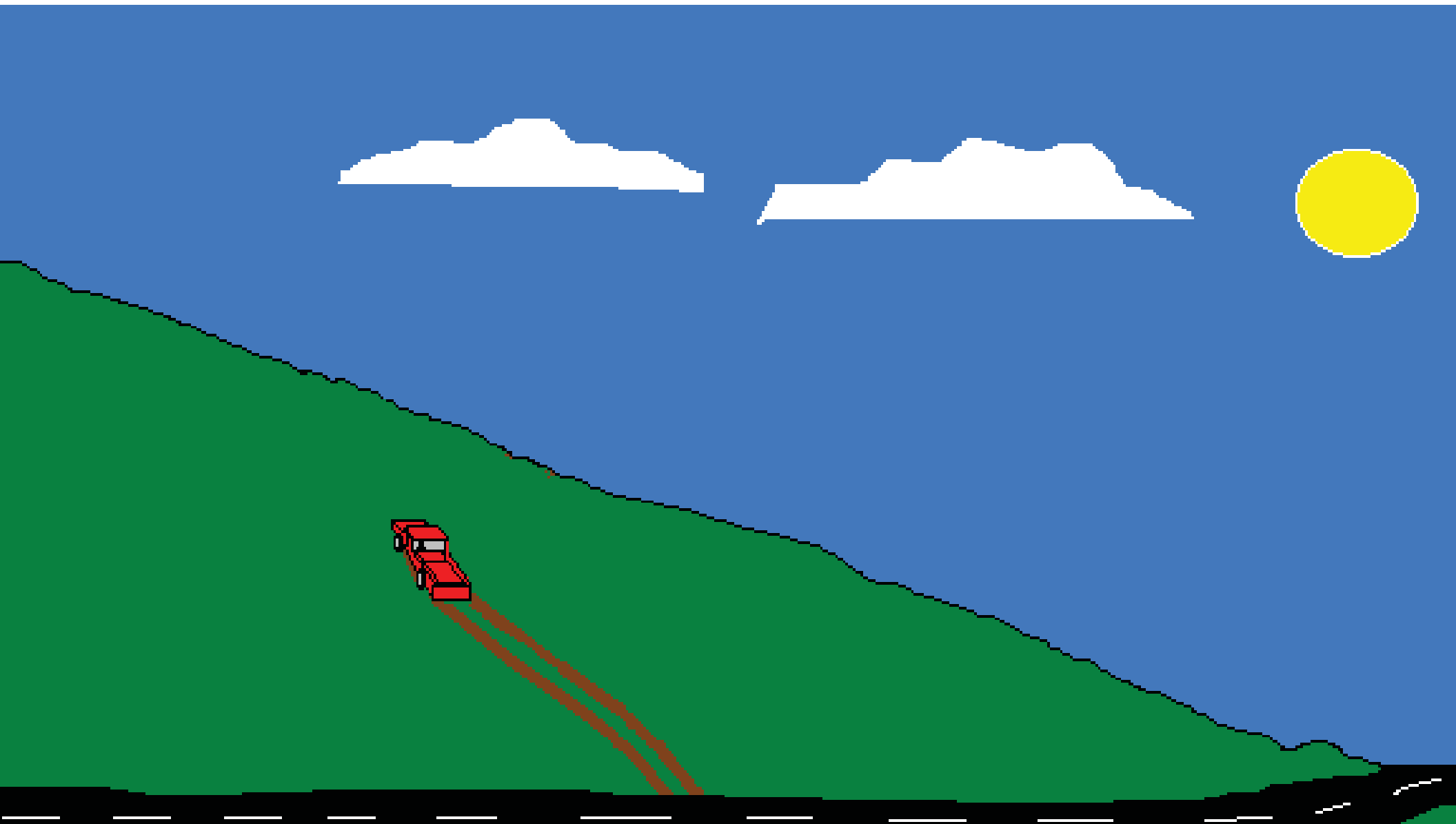


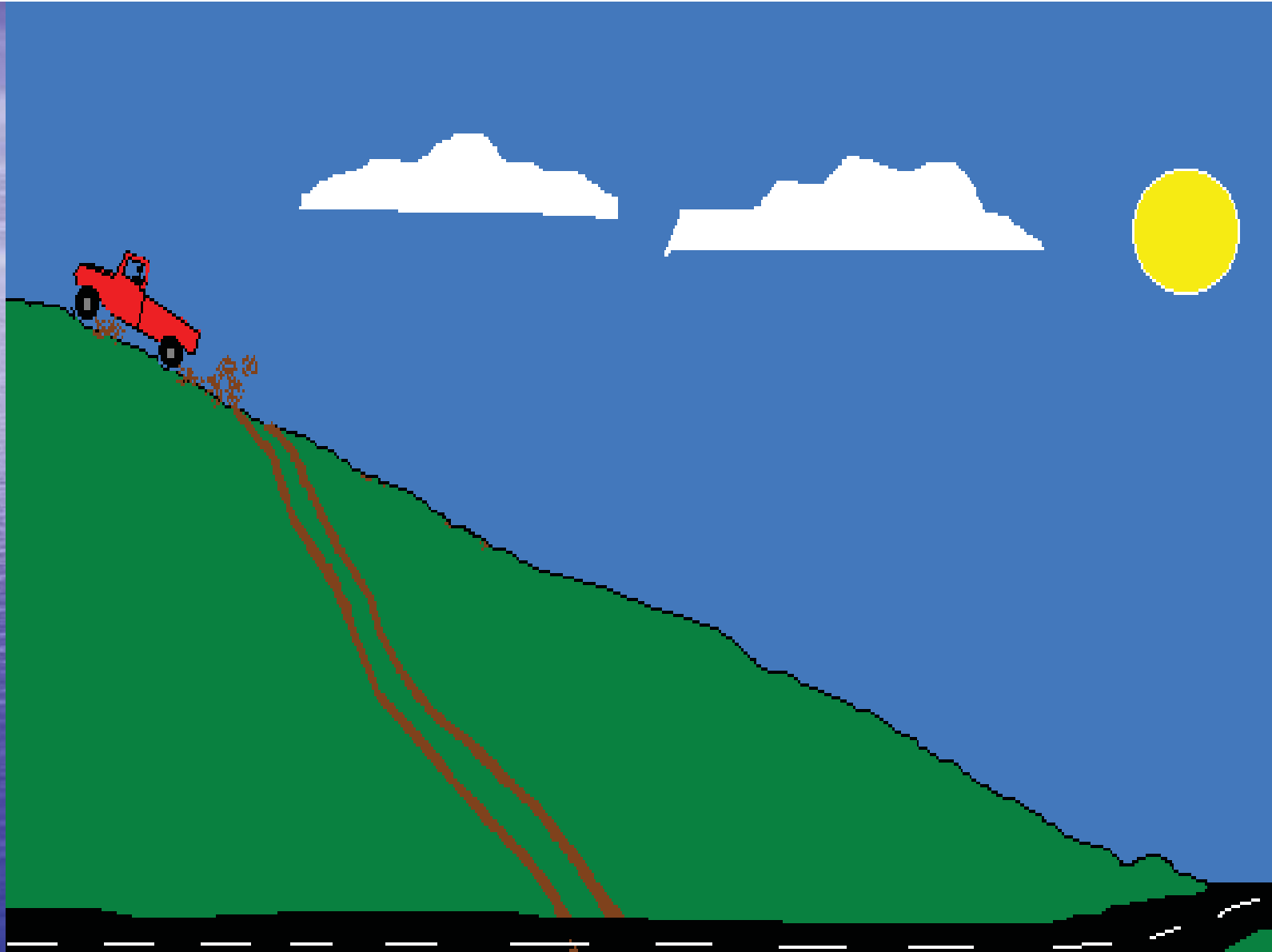


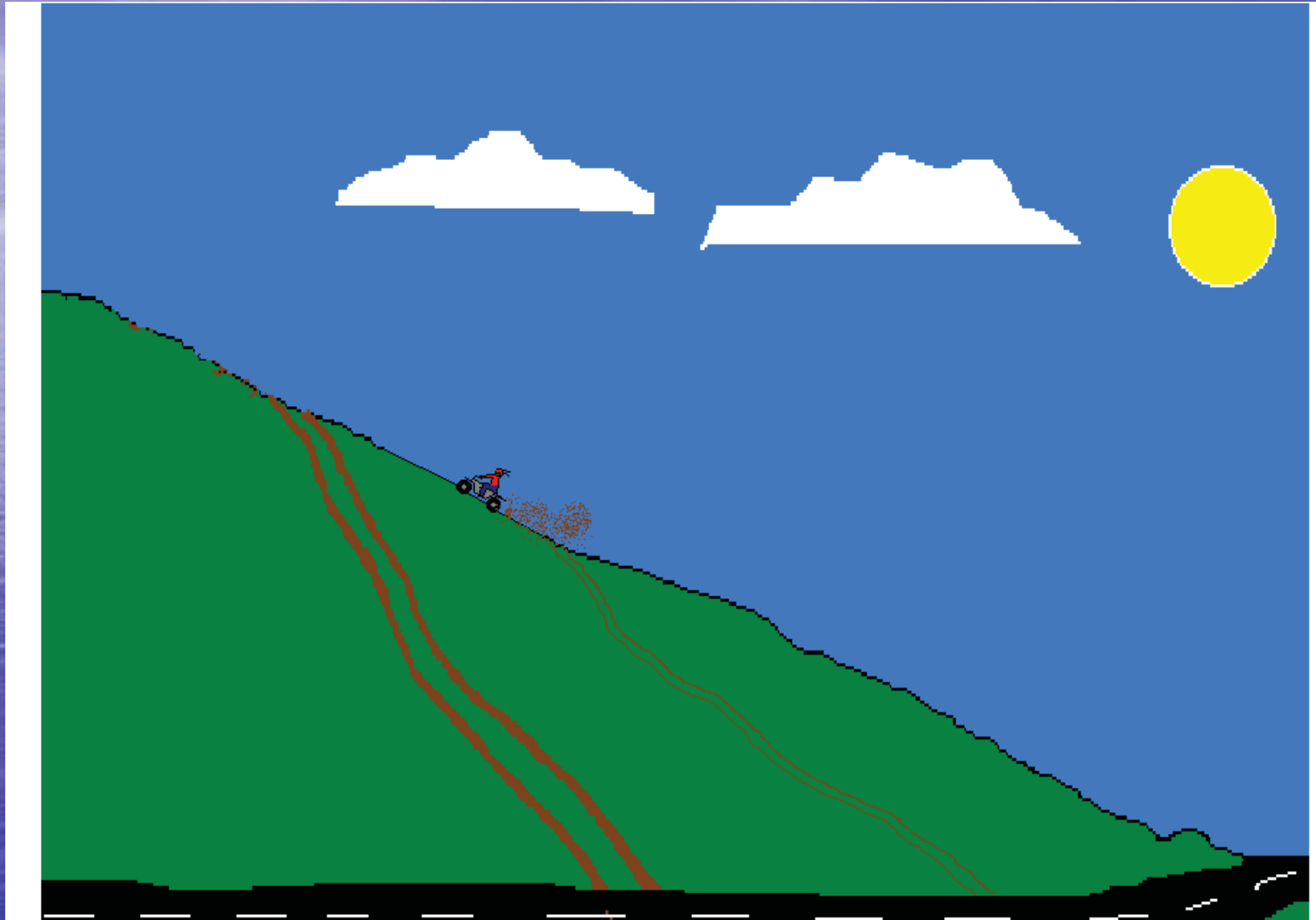
**Off-road travel:  
Creating dirt roads with  
vehicles and ATVs**

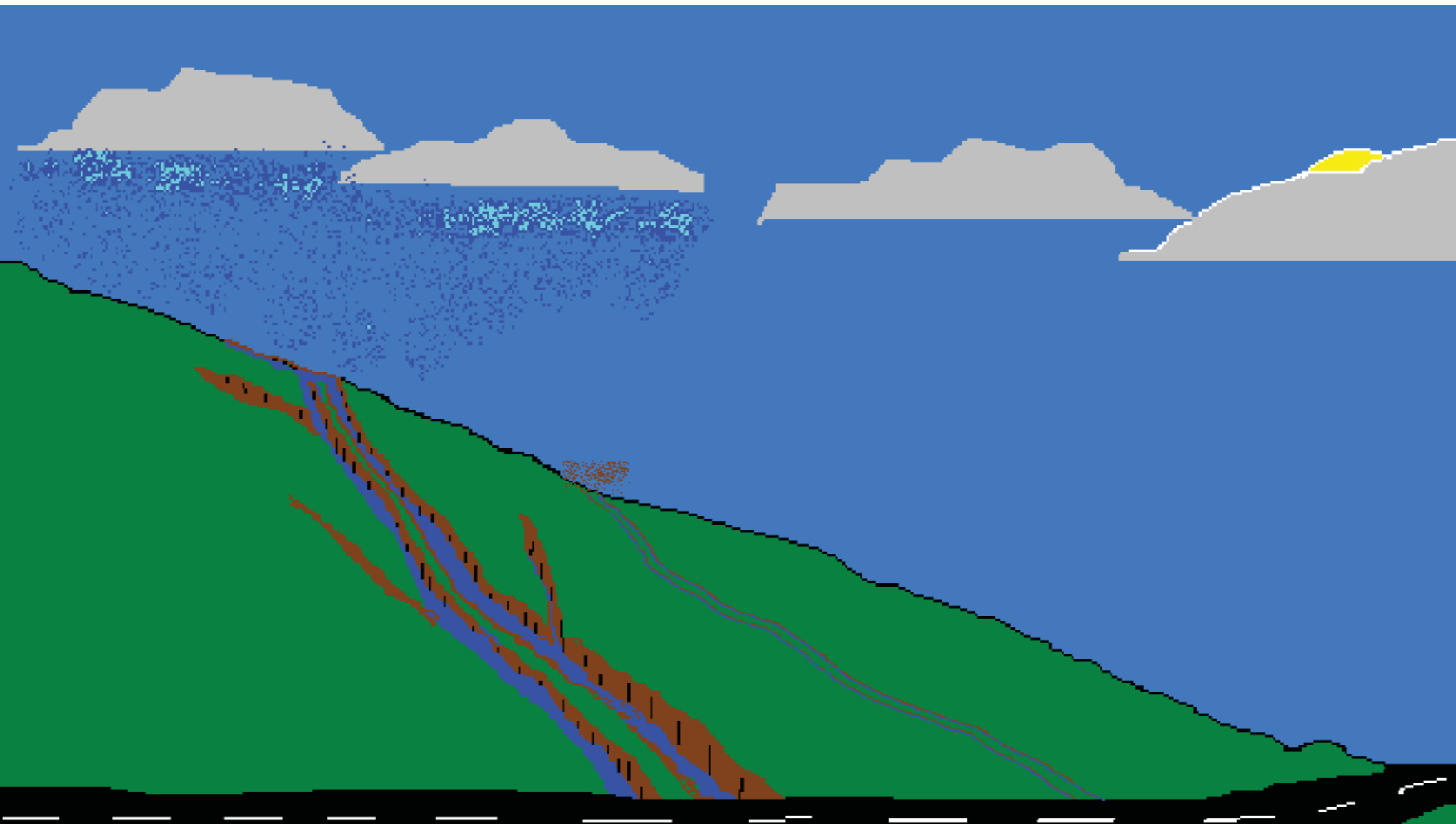




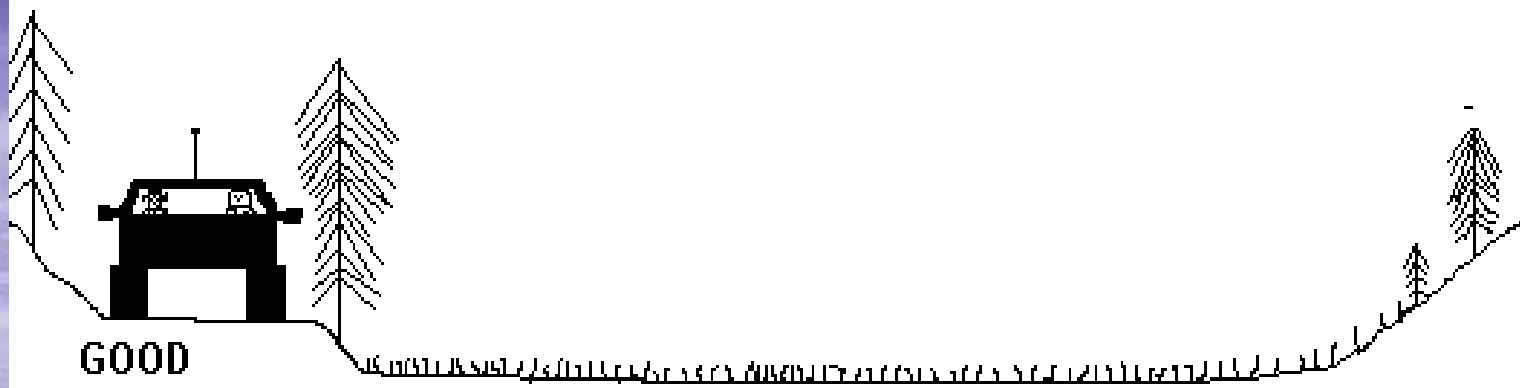












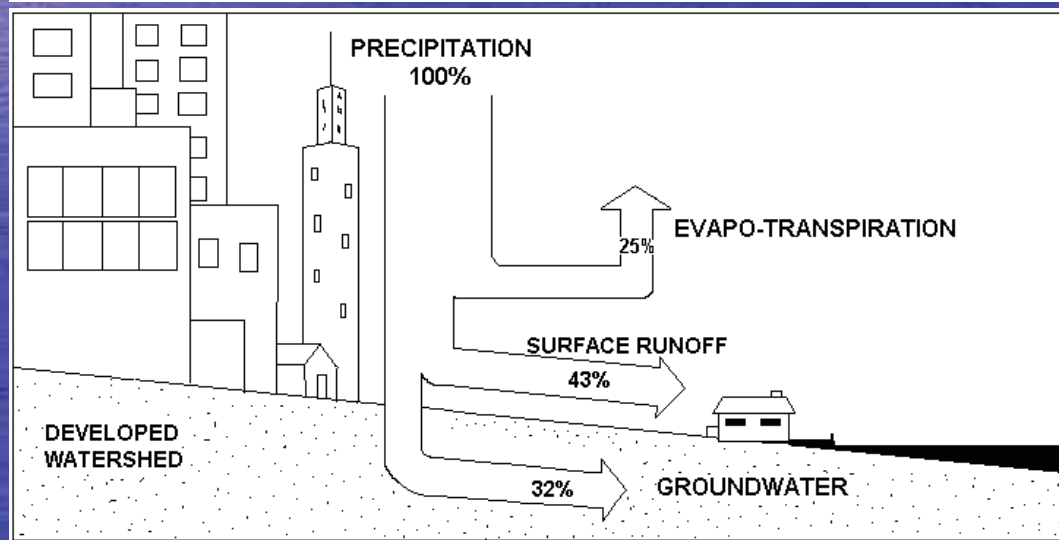
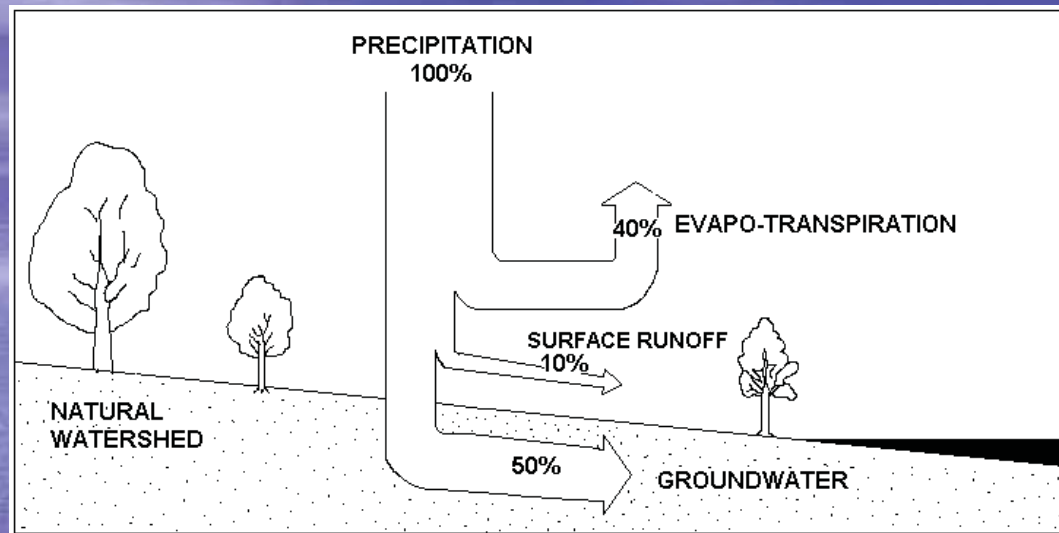
**Only build or use roads that go along the edges of meadows.**



**Build roads across the middle of meadows**



**When the first road gets to deep to drive in, move over and build a new one.**



L.B. LEOPOLD,  
USGS Circular 554,  
1968, cited in  
NYSDEC, 1992 Taken  
from USEPA 841-S-  
95-002 Sept 95

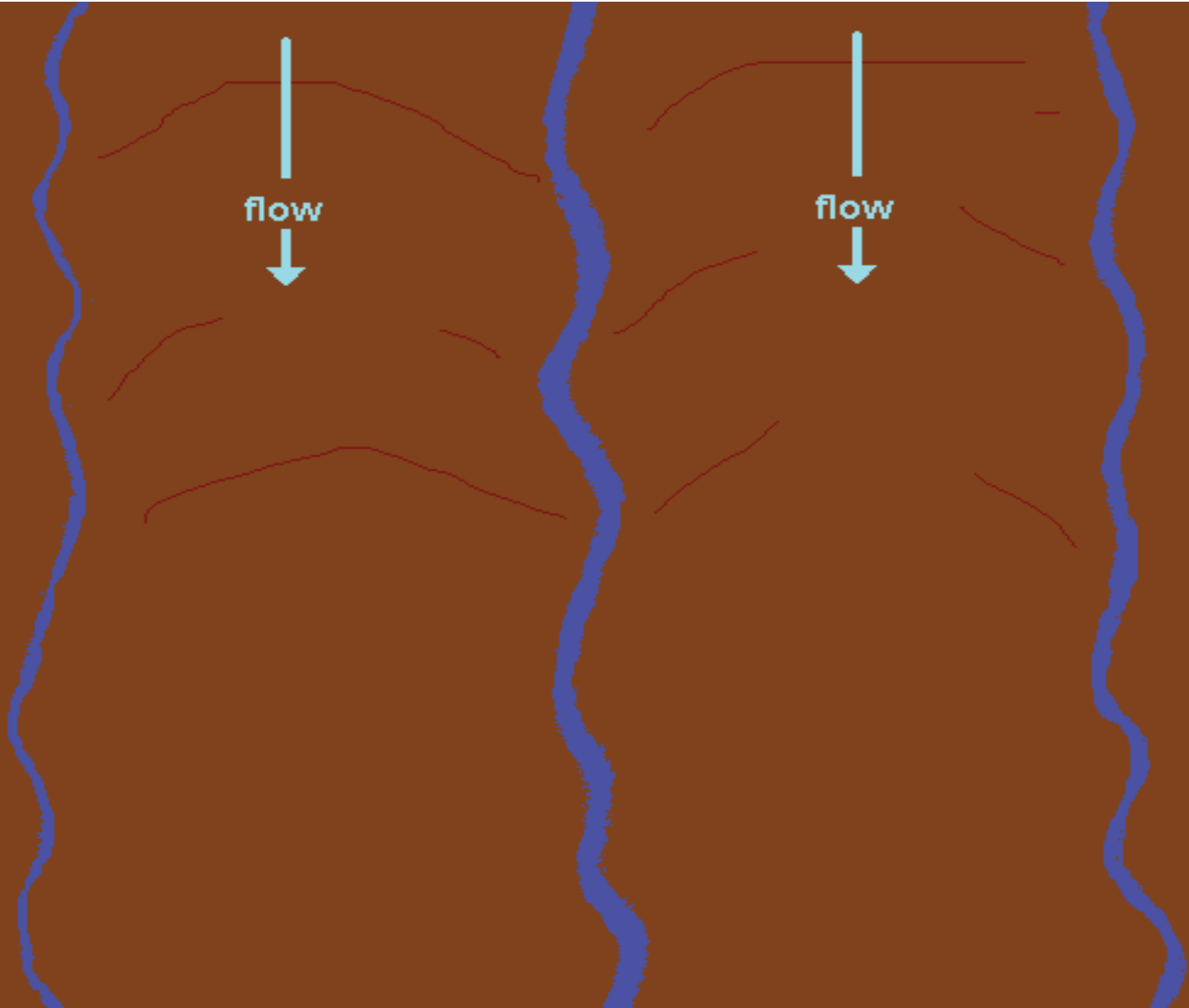


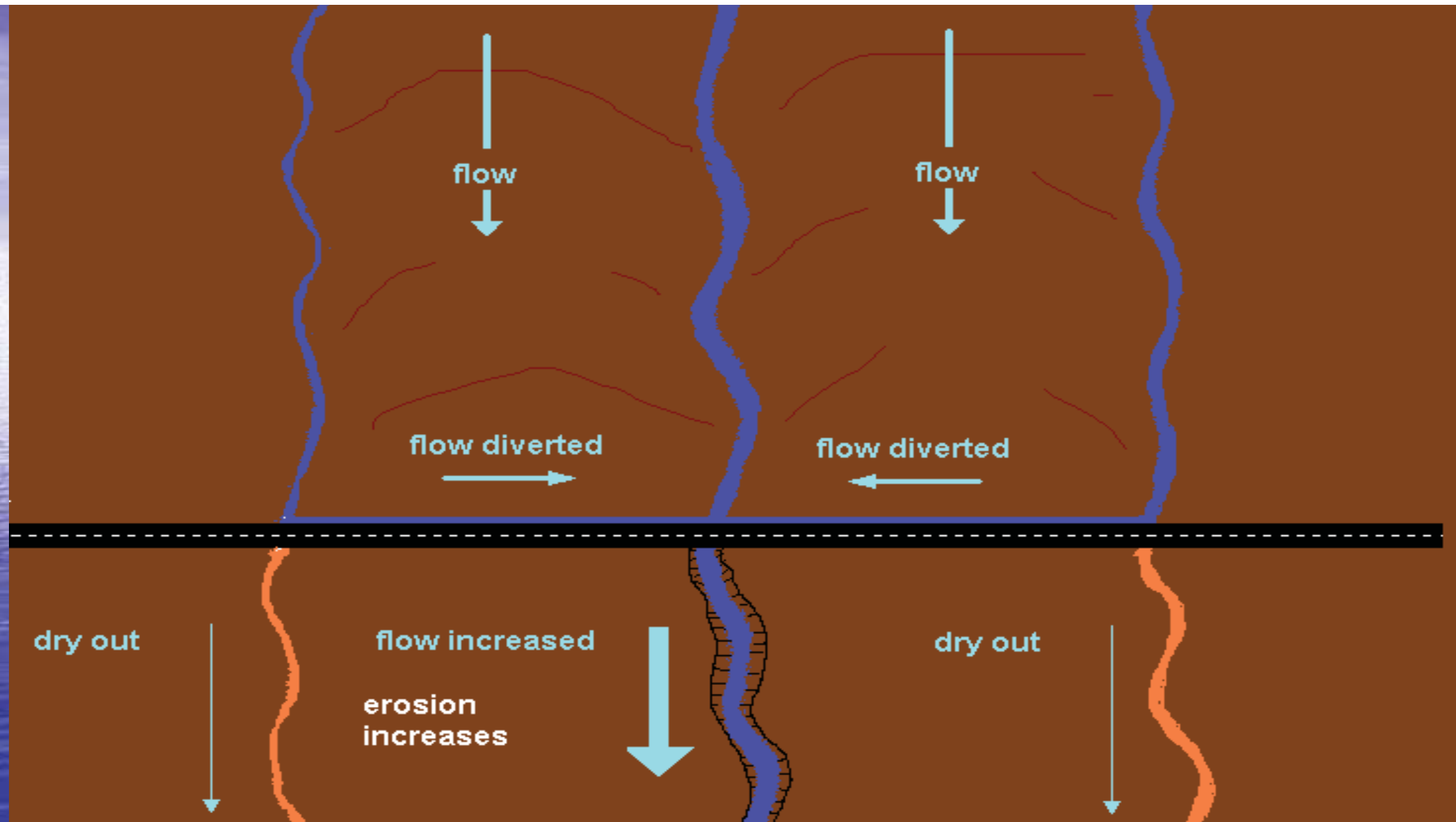
# **Improper Road Drainage Designs**



Natural  
Conditions

Three distinct  
drainages







**Culvert Inlet Elevation too low**

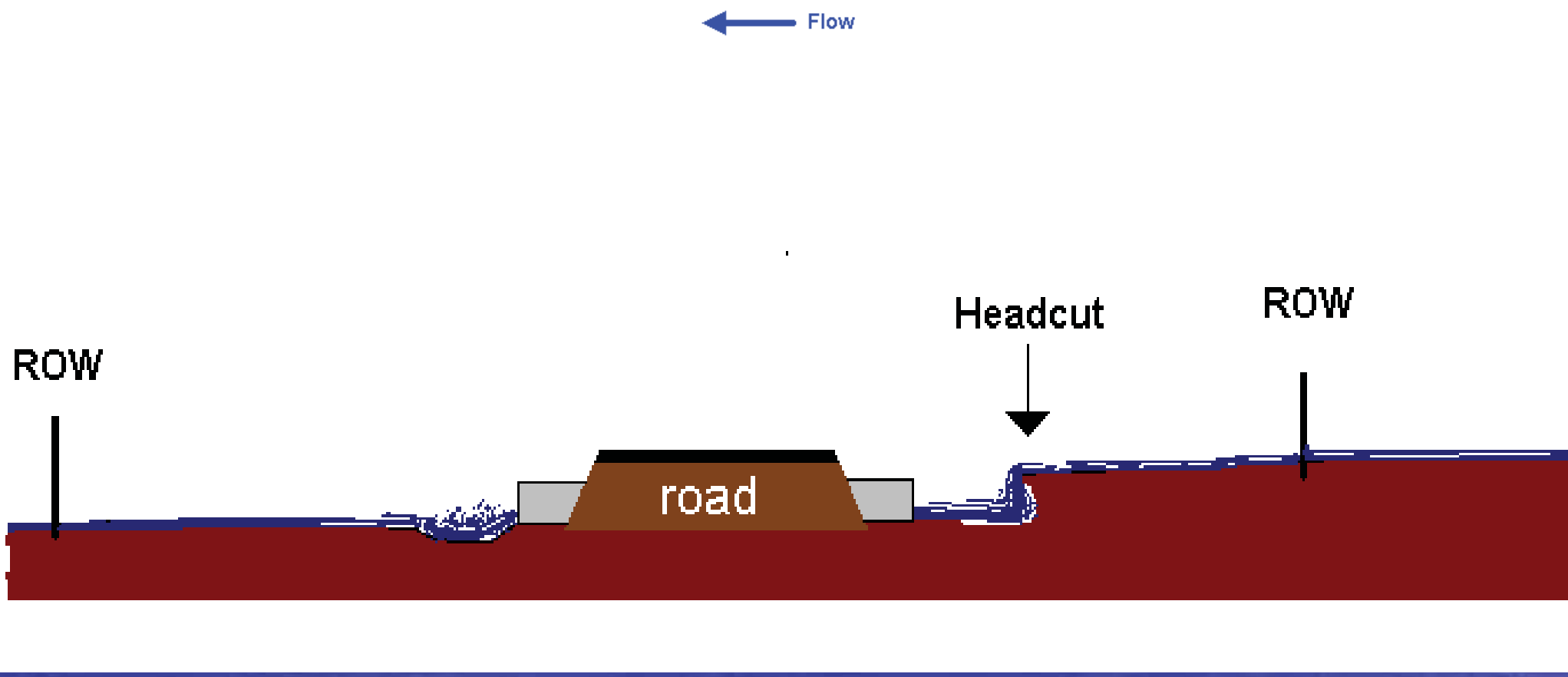
1/27/2000 12:07pm



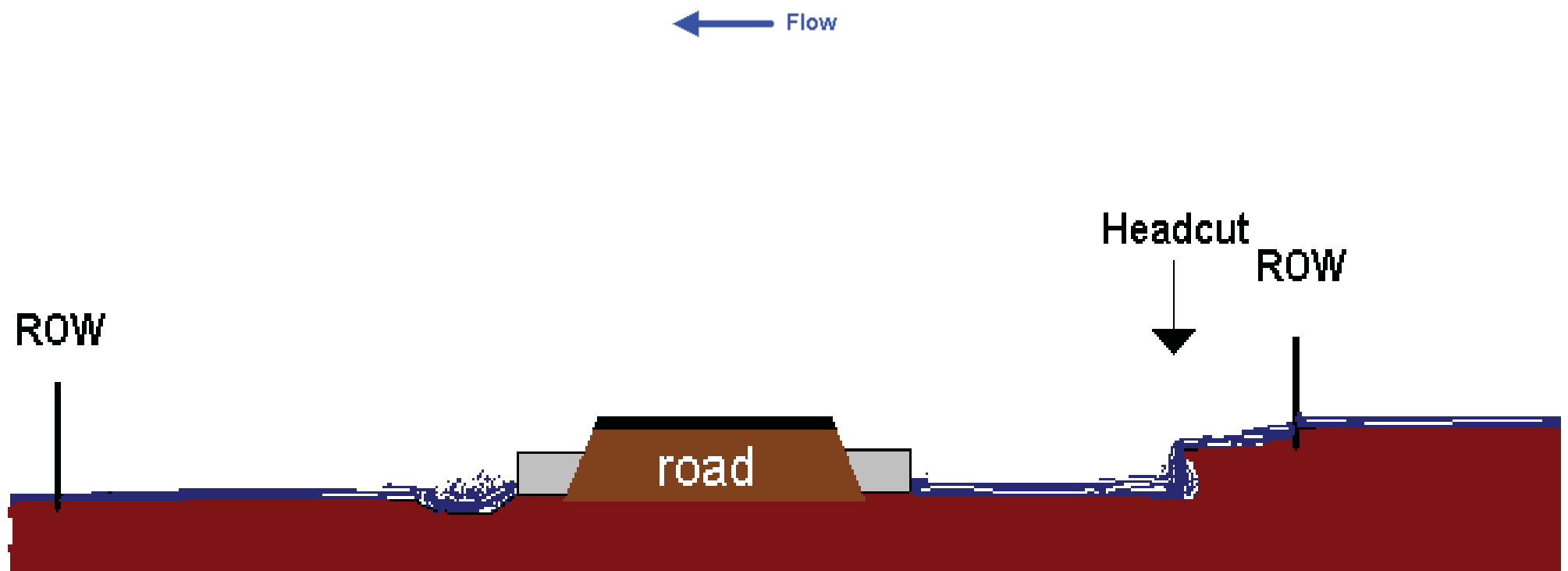
2

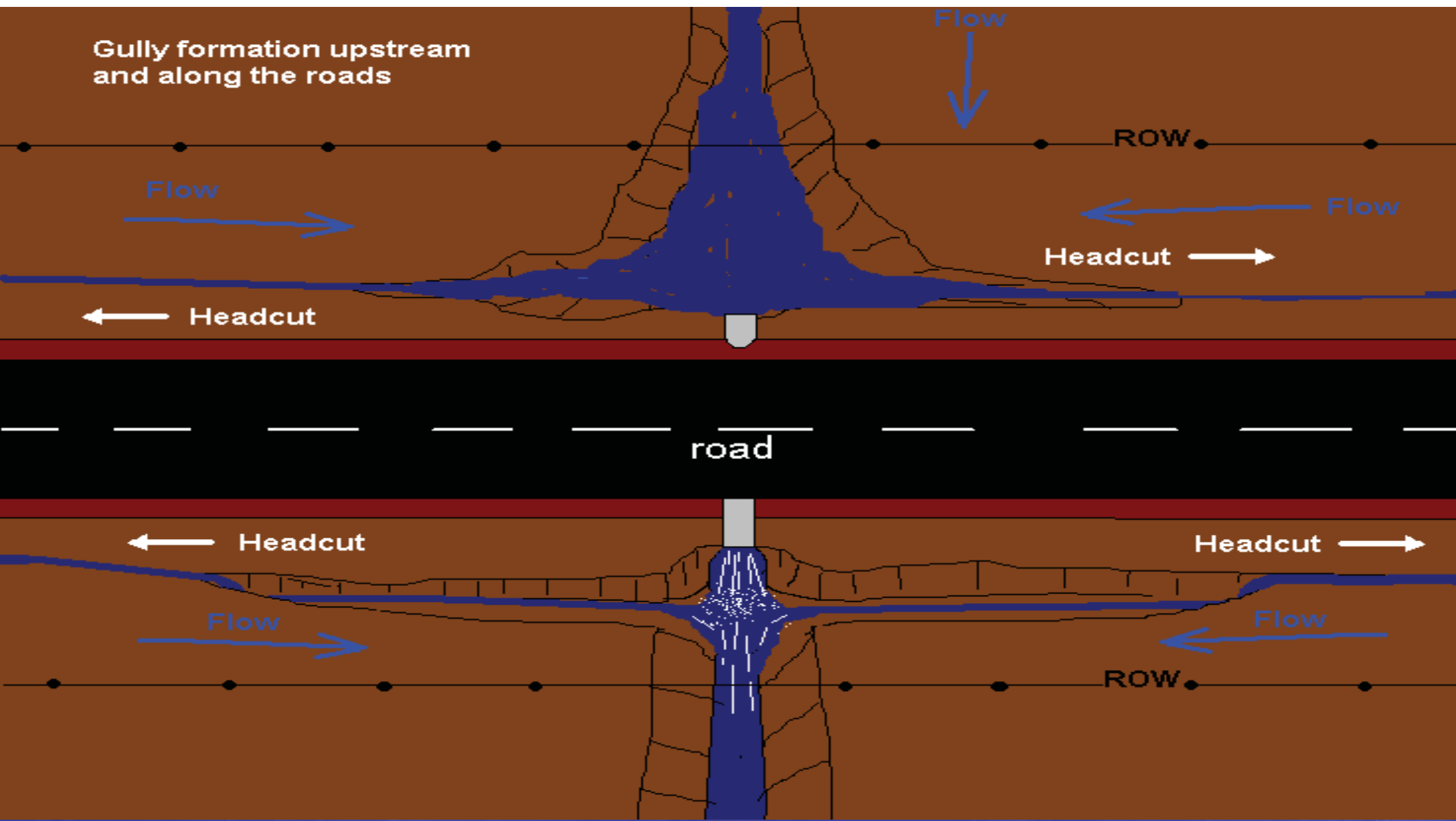
1/27/2000 2:07pm

## Gully formation from improper culvert elevation



## Gully formation from improper culvert elevation





Start of gully



1/27/2000 2:09pm





3

1/23/2000 11:16am



5

1/27/2000 2:29pm



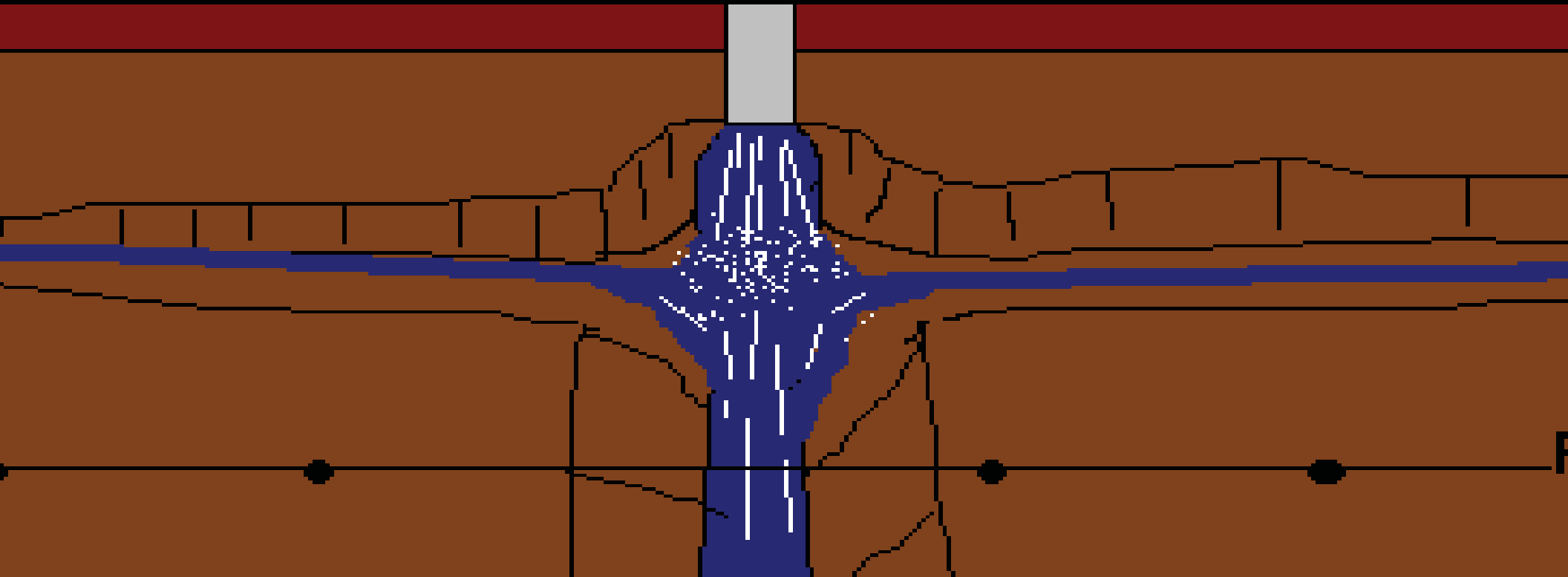


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Telephone cable □

Culvert outlets

road









AUG 26 2002





AUG 26 2002

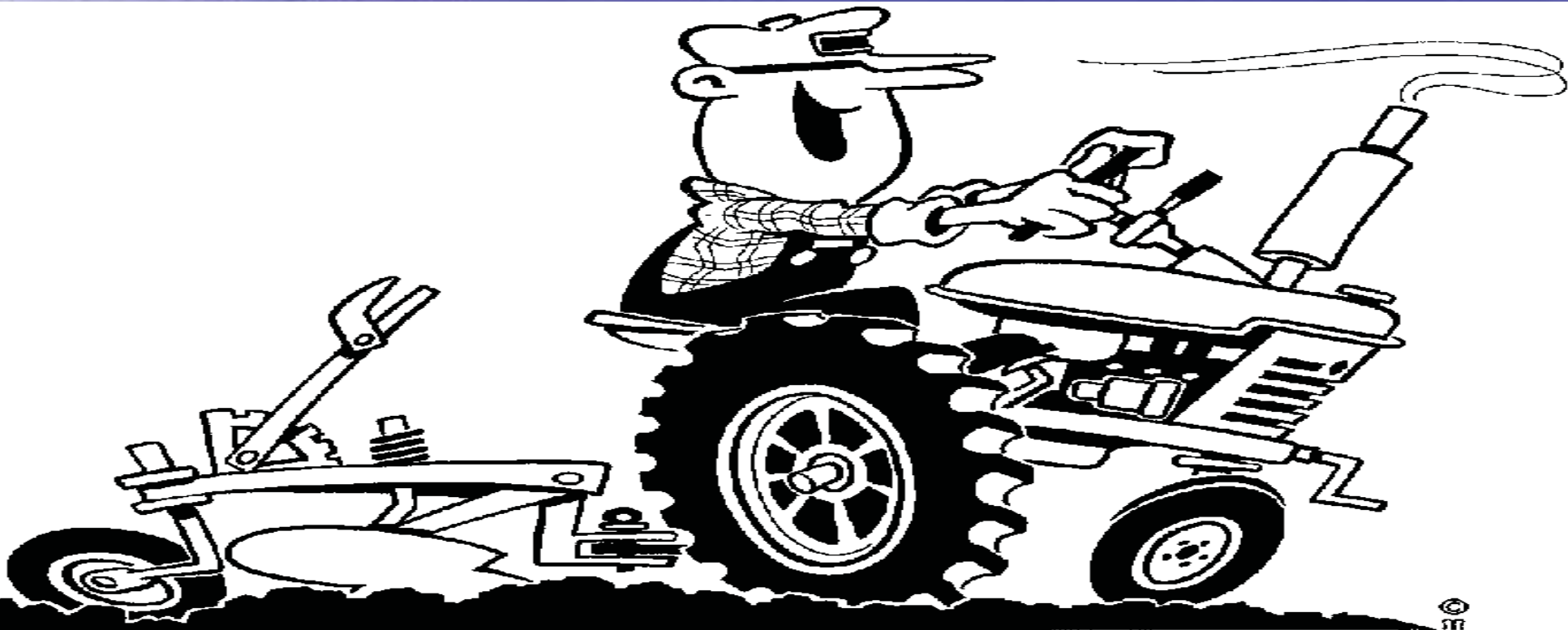


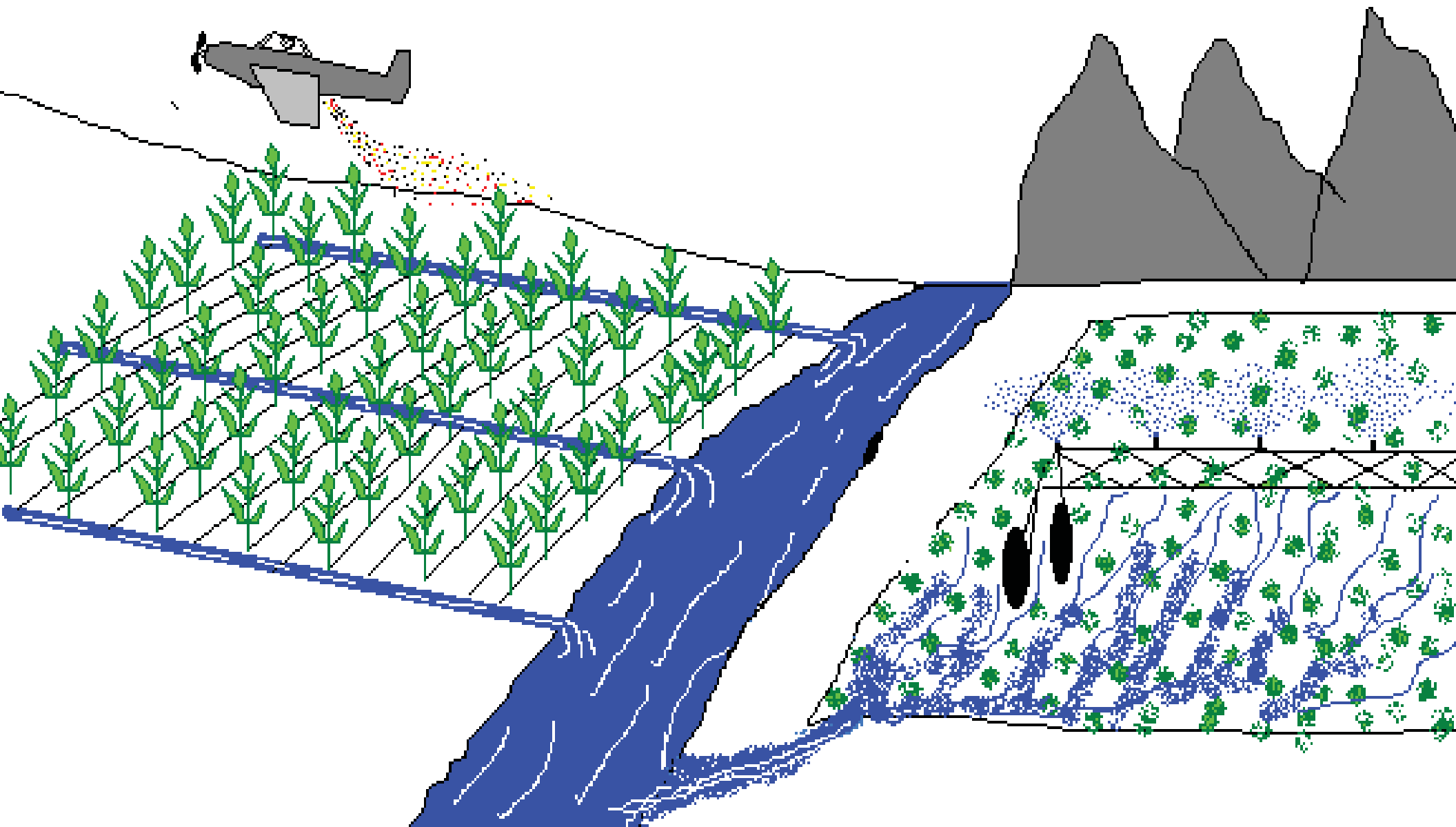


# Irrigated agriculture

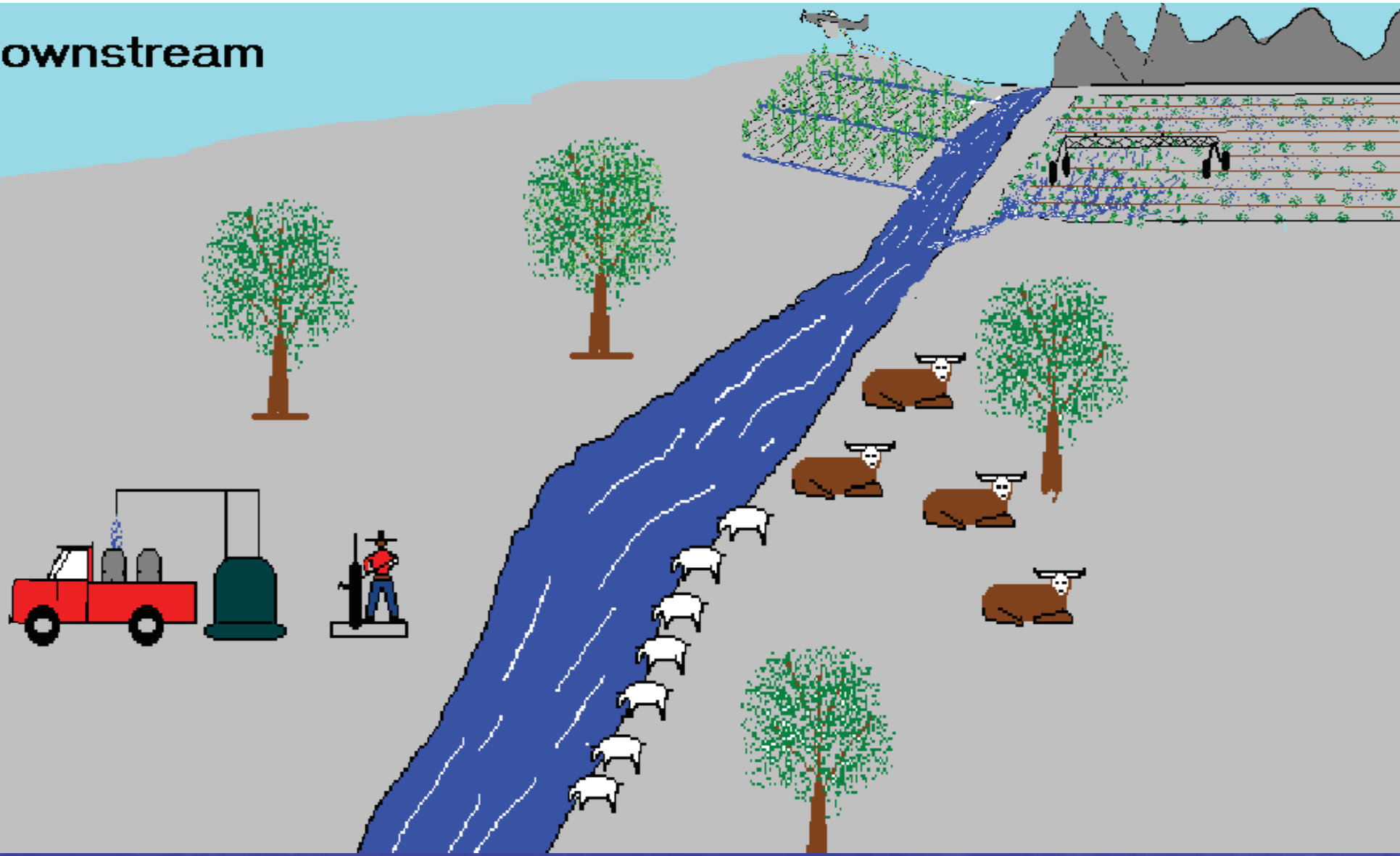
Fertilizer runoff  
Soil erosion

Herbicides  
Pesticides



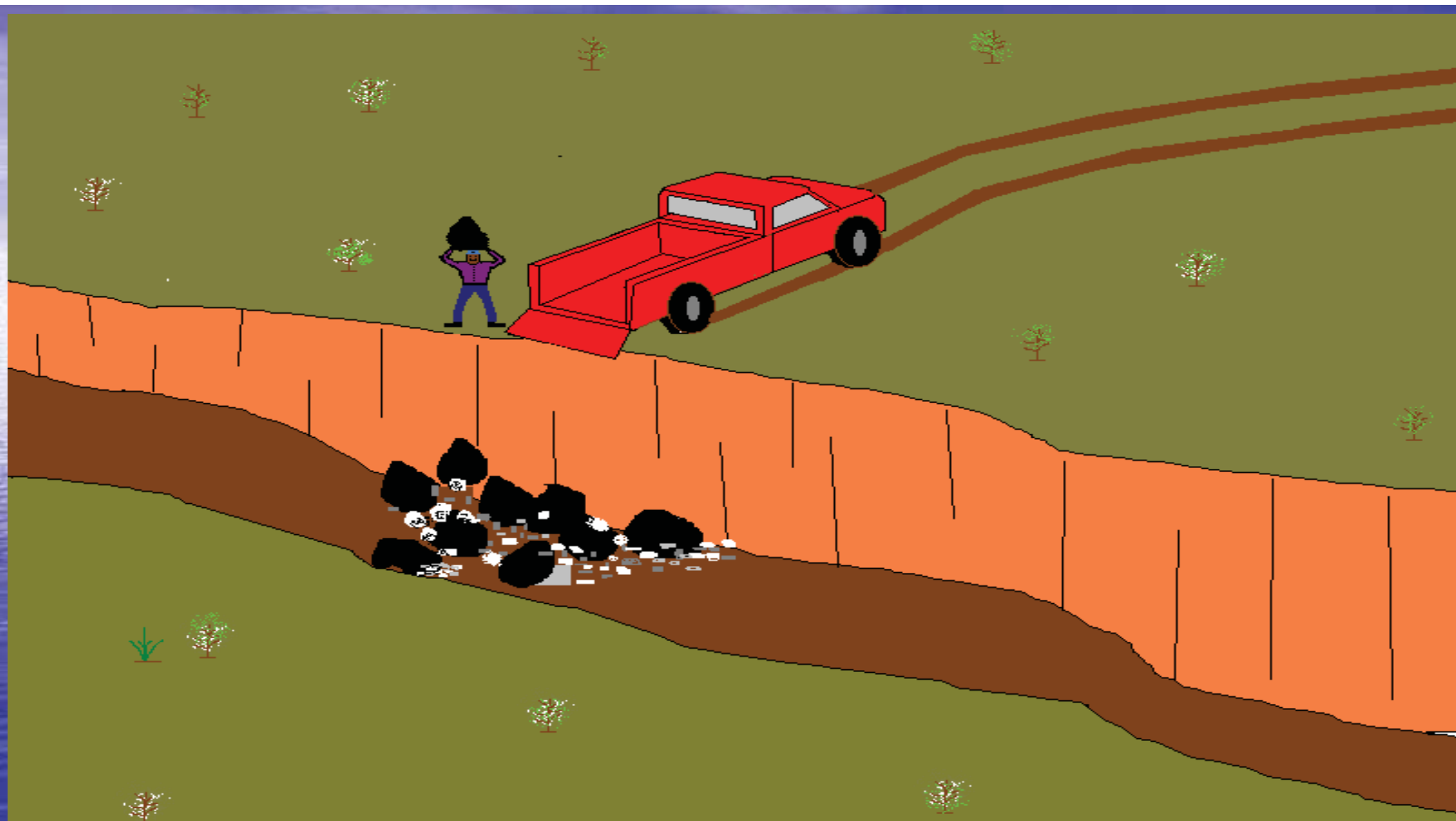


# Downstream



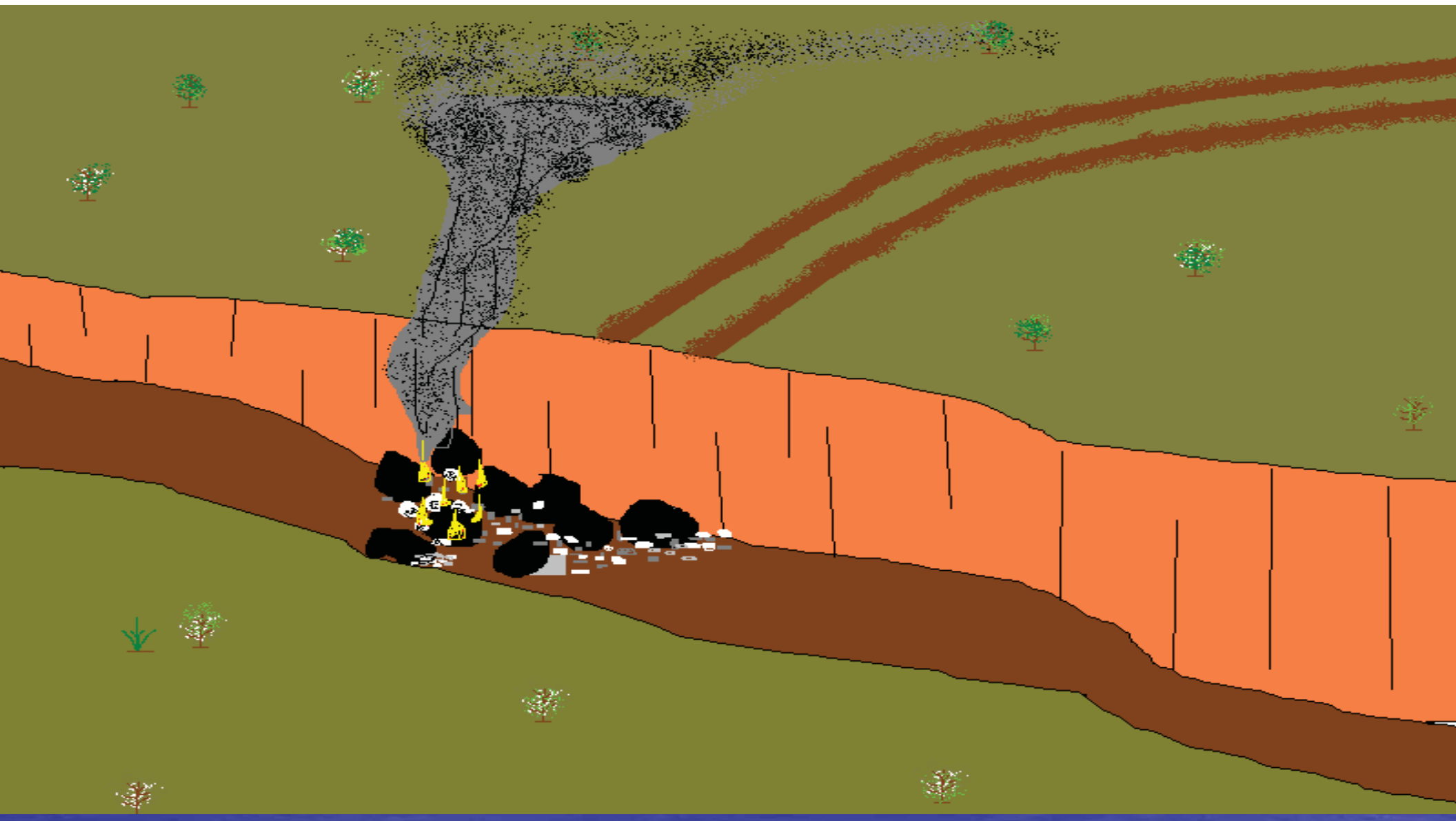
# Illegal Trash Dumping in Washes

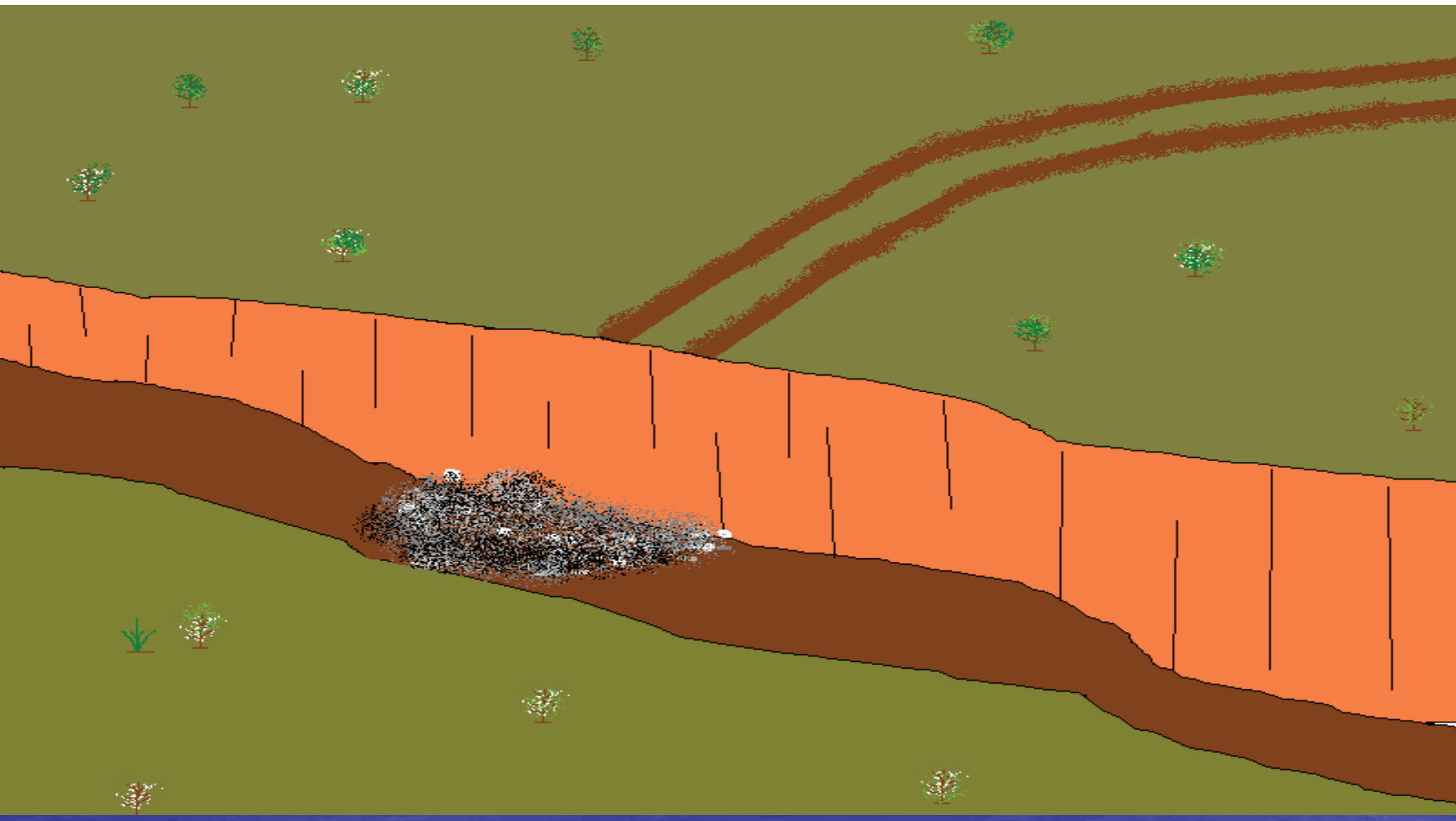


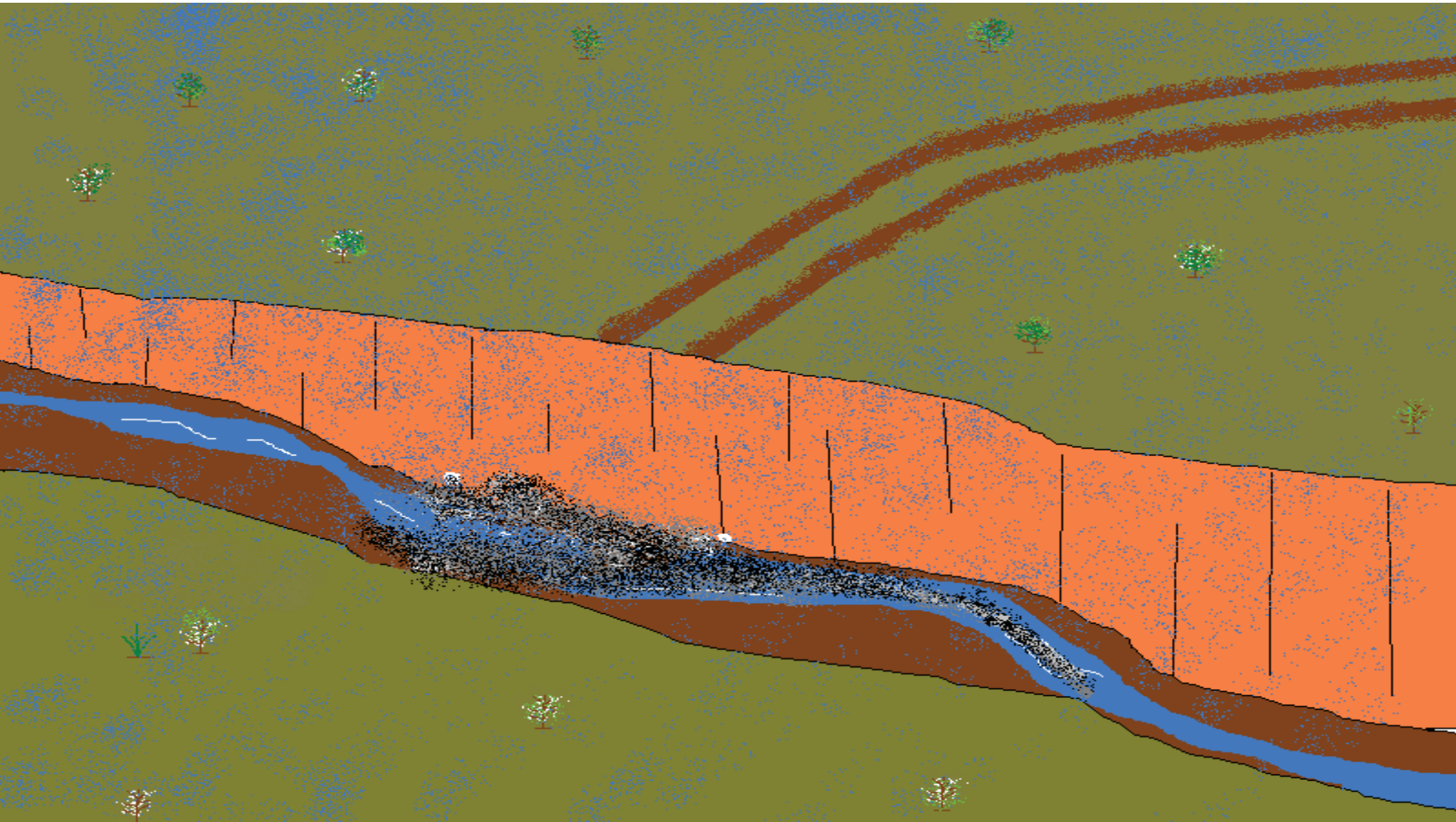


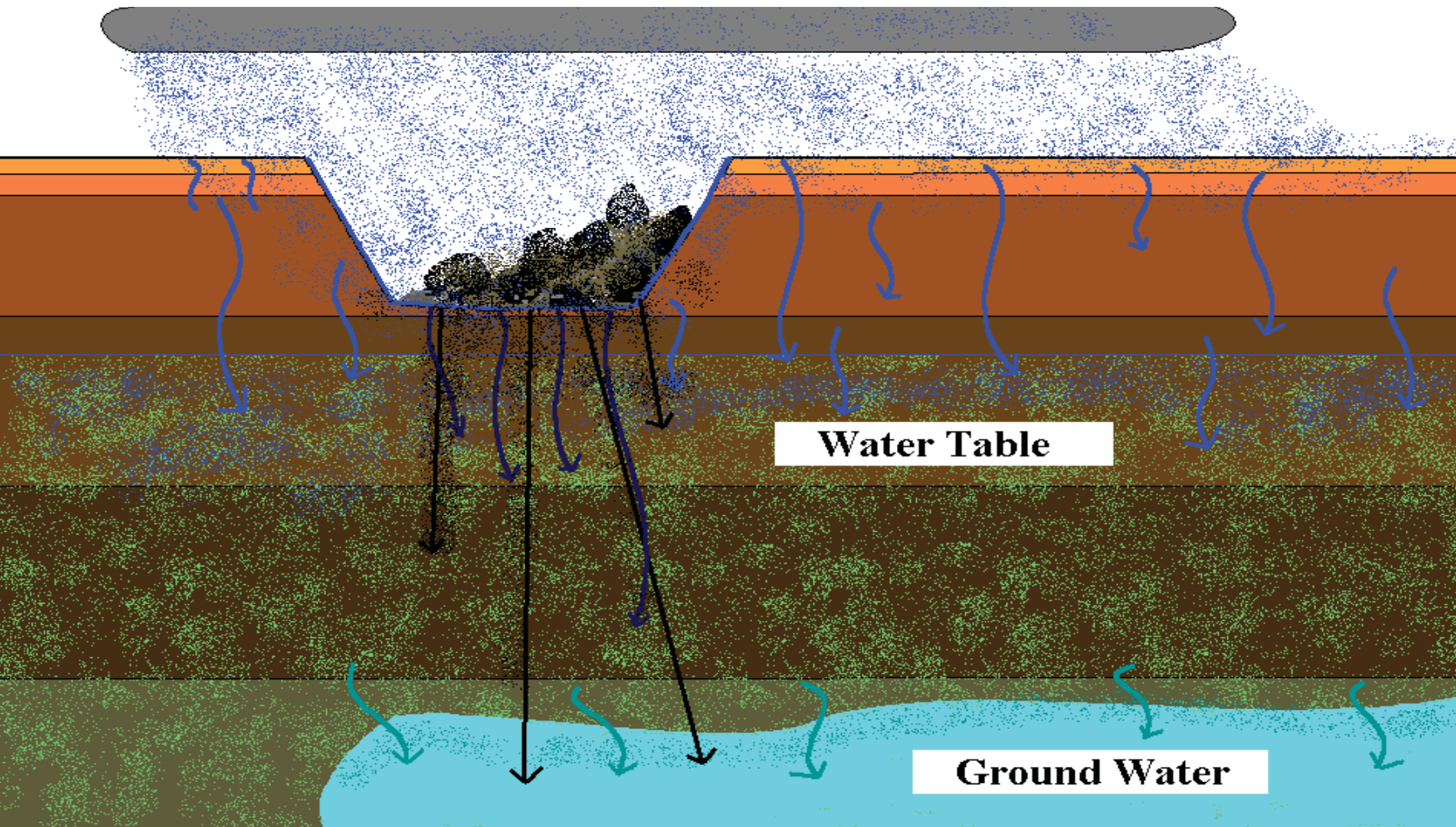






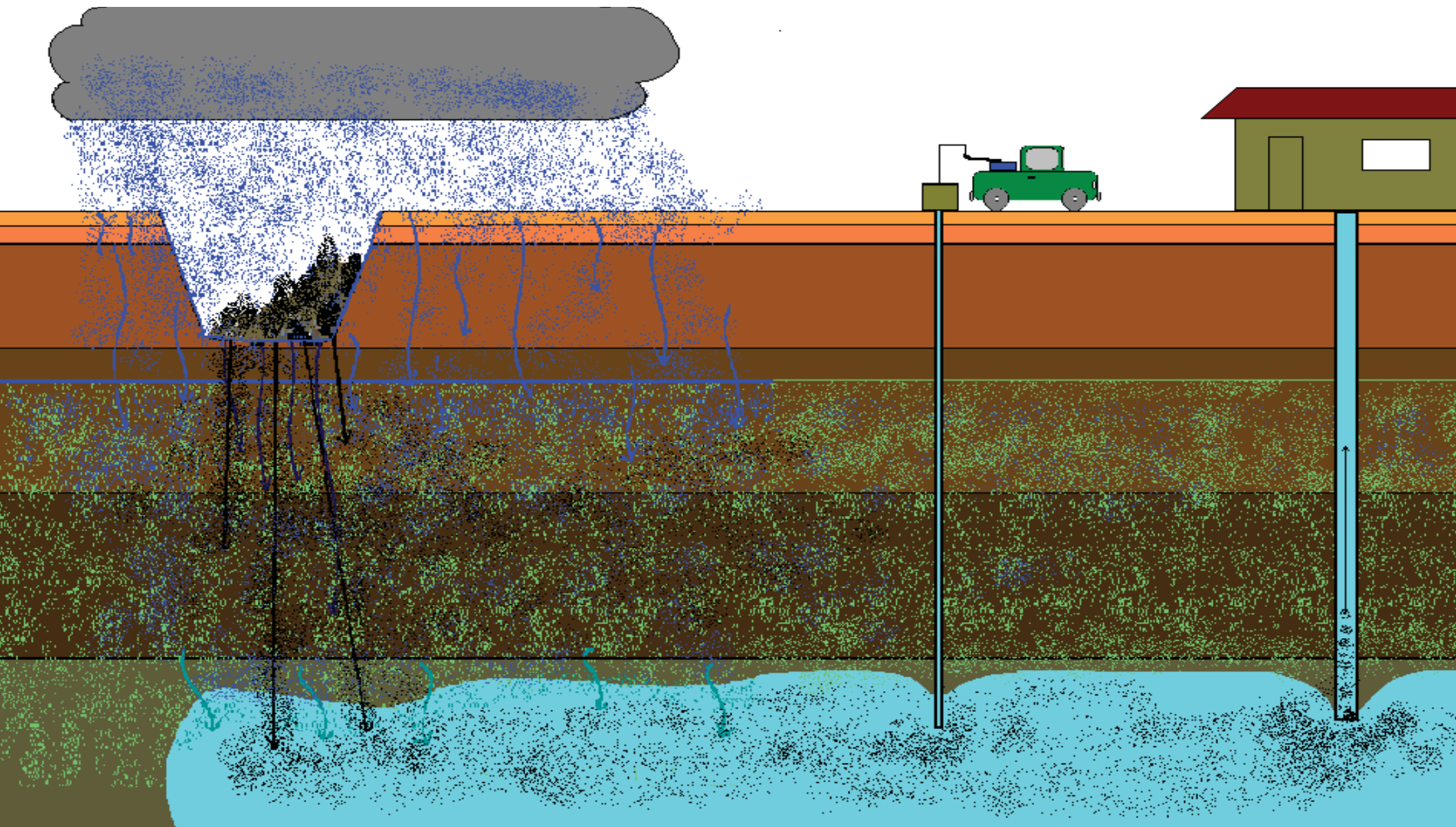






**Water Table**

**Ground Water**



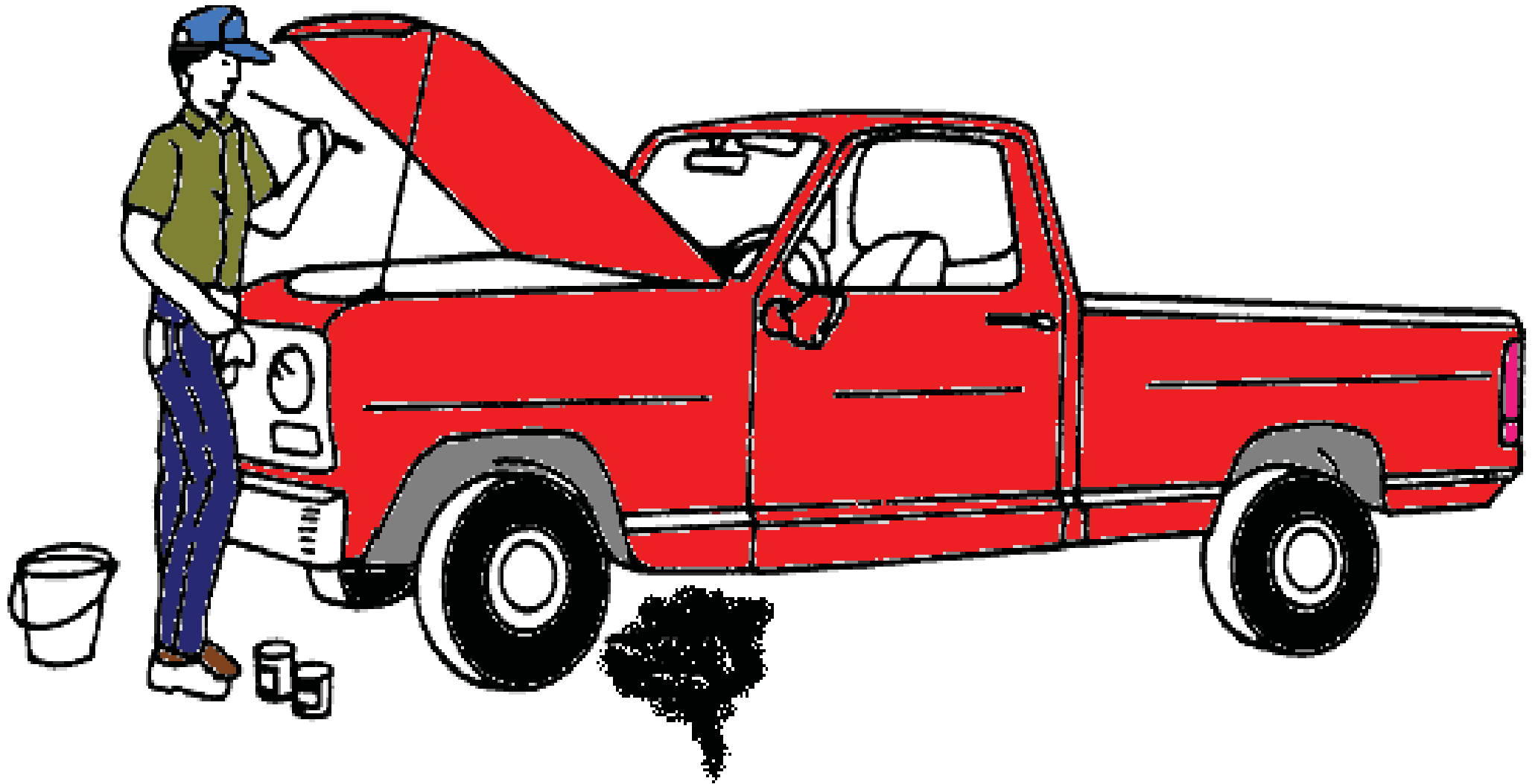










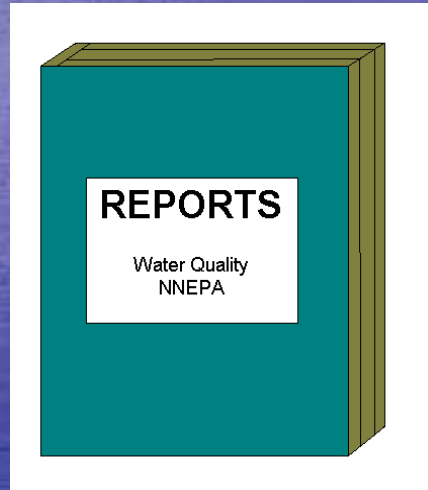


**1 gallon of oil will contaminate 1 million gallons of water**

**Everything is impacted by  
downstream run-off  
even when you can't see it**



## Reports under Clean Water Act




- **Water Quality Assessment**
- **Non-point Source Assessment and Management Plan**
- **Clean Water Action Plan Unified Watershed Assessment and Restoration Strategy**

# Results

**86% of impairment in  
Tribal Lakes is due to  
nonpoint sources**

# **Results**

**95% of impairment  
identified in the rivers & streams  
of the Navajo Nation  
is due to nonpoint sources**



**Please help us  
protect and preserve  
the waters of our Mother Earth  
for ourselves  
and the future generation  
to use and enjoy.**



A landscape photograph showing silhouettes of hills and trees against a sunset sky. The sky transitions from a pale blue at the top to a warm orange near the horizon. The foreground is dark, with the silhouettes of several hills and a few trees on the right side.

**Thank you and have safe drive home!**

*Remember  
To' be'e i'i' na*

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