

# Wind, Water, and Glacier Ice Erosion (page 29)

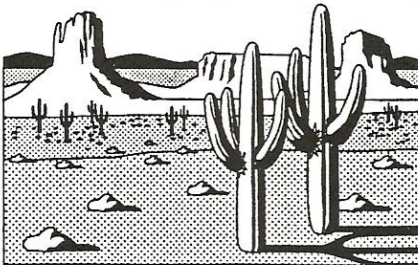
Erosion is the removal of small, broken pieces of rocks and minerals. These small pieces, called sediments, are carried away by wind, water, or the movement of Glacier Ice.

## Wind Erosion

**What is wind erosion?**  
Wind erosion occurs when strong winds blow away tiny rock fragments from the earth's surface. Wind blowing across areas with little vegetation picks up more material than areas with a lot of vegetation.

**What areas are most affected?**  
Wind erosion is most active in areas that lack vegetation like deserts. The wind removes the tiny pieces, leaving behind large boulders and pebbles that are too heavy to be moved by the wind. During the 1930s areas in southern Saskatchewan had one metre of the best soil removed by wind. This caused vegetation to die, exposing more soil to be eroded by the wind.

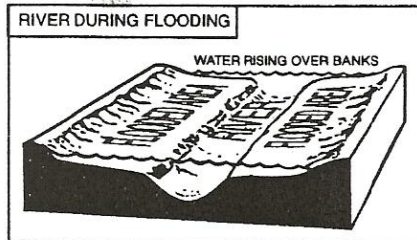
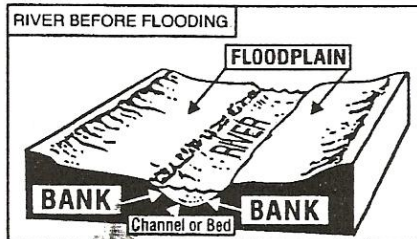
### Effects of Wind Erosion



## Water Erosion

**What is water erosion?**  
Water erosion occurs when a river removes small rock fragments from its sides and bottom. Fast flowing water removes more rock fragments than slow moving rivers.

**What areas are most affected?**  
Water erosion is most active during rainstorms that last for many days. The rivers cannot keep the water within its channel (see diagrams below). A flood occurs when the water flows over its banks and spills onto the land. Flood waters can destroy farmers' crops by removing both the vegetation and soil. The Mississippi River is a famous river that floods yearly. The river has destroyed crops, and damaged homes and offices as the water invaded cities.

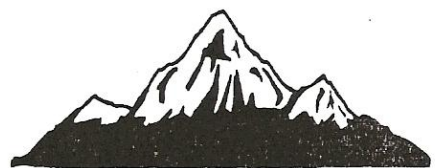


## Glacier Ice Erosion

**What is Glacier Ice erosion?**  
Glacier Ice erosion occurs when huge blocks of ice move downhill removing large rock fragments from the mountain. Glacier Ice sliding down steep slopes removes more rocks than Glacier Ice on flat land.

**What areas are most affected?**  
Glacier Ice erosion is most active on the steepest slopes of tall mountains. In these areas of high elevation the snow remains all year. When the snow is about 50 metres thick, the top layers press down and turn the bottom layers into glacial ice. The Glacier now begins to move downhill acting like a giant bulldozer scraping deep into the mountain. The Swiss Alps are a good example of Glacier Ice eroding mountains into sharp peaks.

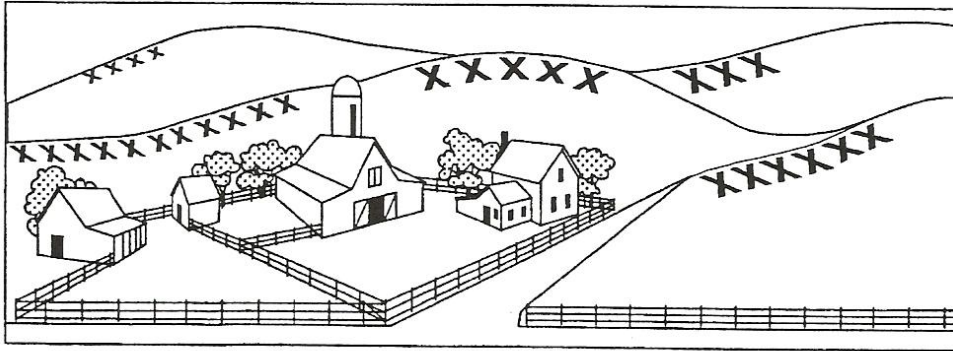
### Effects of Glacier Ice



As the Glacier moves down hill it carves the mountain into a sharp peak.

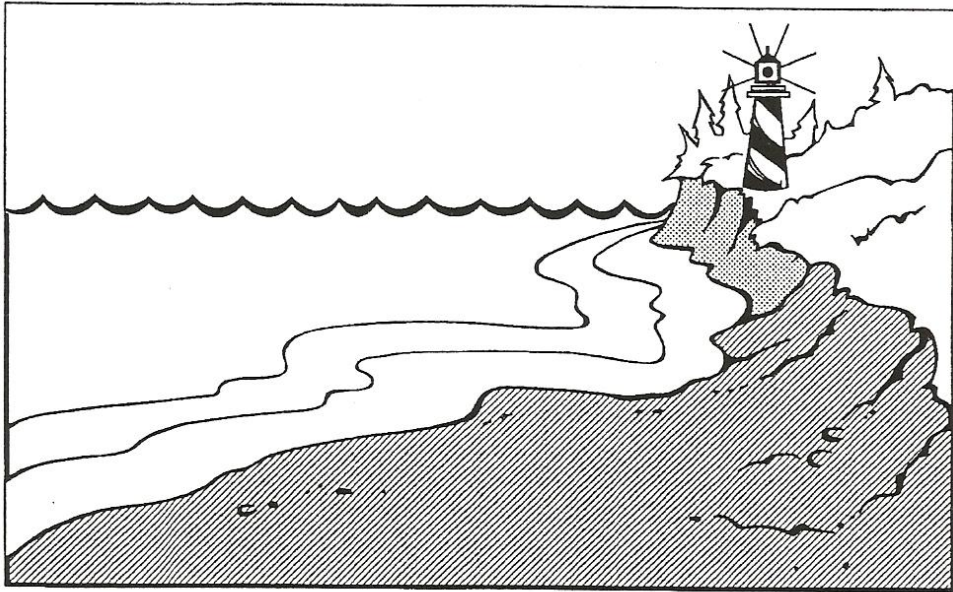
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**Part A: Farmer's Field**

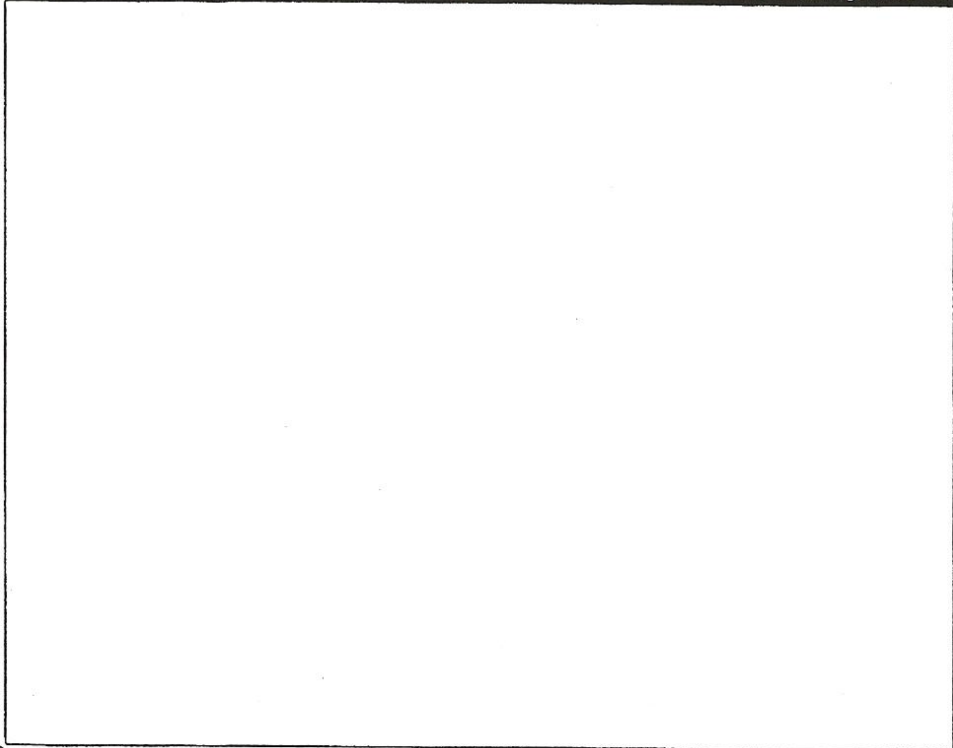
The areas marked with an 'X' are losing soil from wind erosion. Your task is to create a plan to reduce soil erosion in the farmer's field. Draw your solution on the diagram.



**Part B: Lighthouse**

The lighthouse in this diagram is about to fall into the sea. The waves continually smash into the shoreline, eroding the sand banks. Your task is to create a plan to reduce this shoreline erosion caused by wave action. Draw your solution on the diagram.

**Control the effects of soil erosion in the schoolyard**



**Part C: Schoolyard Erosion**

In your school yard locate an area where the soil is being eroded. Your task is to design, build, and test a system to control the effects of soil erosion. Make a sketch of the schoolyard area affected by erosion. Draw your solution on the diagram.