



**A**

**Figure 10**

**A** The Channeled Scablands formed when Lake Missoula drained catastrophically. **B** These channels were formed by the floodwaters.



**B**

**Catastrophic Floods** During Earth's long history, many catastrophic floods have dramatically changed the face of the surrounding area. One catastrophic flood formed the Channeled Scablands in eastern Washington State, shown here in **Figure 10**. A vast lake named Lake Missoula covered much of western Montana. A natural dam of ice formed this lake. As the dam melted or was eroded away, tremendous amounts of water suddenly escaped through what is now the state of Idaho into Washington. In a short period of time, the floodwater removed overlying soil and carved channels into the underlying rock, some as deep as 50 m. Flooding occurred several more times as the lake refilled with water and the dam broke loose again. Scientists say the last such flood occurred about 13,000 years ago.

## Deposition by Surface Water

You know how hard it is to carry a heavy object for a long time without putting it down. As water moves throughout a river system, it loses some of its energy of motion. The water can no longer carry some of its sediment. As a result, it drops, or is deposited, to the bottom of the stream.

Some stream sediment is carried only a short distance. In fact, sediment often is deposited within the stream channel itself. Other stream sediment is carried great distances before being deposited. Sediment picked up when rill and gully erosion occur are examples of this. Water usually has a lot of energy as it moves down a steep slope. When water begins flowing on a level surface, it slows, loses energy, and deposits its sediment. Water also loses energy and deposits sediment when it empties into an ocean or lake.

## Mini LAB

### Observing Runoff Collection

#### Procedure

1. Put a plastic rain gauge into a narrow drinking glass and place the glass in the sink.
2. Fill a plastic sprinkling can with water.
3. Hold the sprinkling can one-half meter above the sink for 30 s.
4. Record the amount of water in the rain gauge.
5. After emptying the rain gauge, place a plastic funnel into the rain gauge and sprinkle again for 30 s.
6. Record the amount of water in the gauge.

#### Analysis

Explain how a small amount of rain falling on a drainage basin can have a big effect on a river or stream.