Glaciers & Glacial Lakes

Glacial Processes and Land Forms

1. Glaciers Intro
   1. What is a Glacier?
      1. A glacier is simply the existence of year-round \_\_\_\_\_\_\_\_ on the landscape.
      2. There are two broad types:
         1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_
         2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. How do glaciers form?
      1. Glaciers form whenever \_\_\_\_\_\_\_\_\_\_\_\_\_ exceeds \_\_\_\_\_\_\_\_\_\_\_\_ year after year.
      2. The snow accumulates incrementally, \_\_\_\_\_\_\_\_\_\_\_\_\_ increases, and it is changed into névé and then ice by this pressure.
2. Erosion by Glaciers
   1. Volume and \_\_\_\_\_\_\_\_\_\_ determines  
      amount of erosion
   2. Erodes slightly more effectively  
       than water
   3. \_\_\_\_\_\_\_\_\_\_\_ and abrasion (rock-tipped blade).
   4. polishing and striations
   5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ glaciers remove  
      all soil, plants, and small hills.
   6. \_\_\_\_\_\_\_\_\_\_\_ glaciers change V-shaped valleys to U-shaped.
3. Deposition by Glaciers
   1. \_\_\_\_\_\_\_\_\_\_\_\_ is any material deposited by glaciers or their meltwater.
   2. \_\_\_\_\_\_\_\_\_\_\_ is that unsorted material that is deposited directly by ice.
   3. \_\_\_\_\_\_\_\_\_\_\_\_\_ are linear features deposited at bottom or along sides of glaciers.
   4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are enormous boulders transported and deposited by glaciers, often far from their source region.
   5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ are mounds or ridges of till left behind by a retreating glacier.
4. Glaciers in Minnesota
   1. GLACIAL TILL
      1. Glacial sediments were deposited relatively recently, within the last \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, when ice repeatedly covered the state.
   2. Glacial Lake Agassiz
      1. The largest of the glacial lakes, Glacial Lake Agassiz, resided in parts of northwest Minnesota, northeast North Dakota, Ontario, and Manitoba.
      2. Formed about \_\_\_\_\_\_\_\_\_\_\_\_ years ago
      3. It was \_\_\_\_\_\_\_ miles long and \_\_\_\_\_\_ miles wide
   3. What lived in the lake?
      1. Lake Agassiz's approximately 4000-year lifespan coincided with the existence of such now-extinct animals as the:
         1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_
         2. woolly \_\_\_\_\_\_\_\_\_\_\_\_
         3. mastodon
         4. giant short-faced bear
         5. giant ground sloth
      2. Fossil remains of only \_\_\_\_\_\_\_\_ fish species have been found in the former lake bed
      3. The ever-changing lake used several outlets to drain the high volume of water including the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – where the present-day Minnesota River flows
      4. In some Minnesota River Valley areas, Glacial River Warren carved a stream bed nearly eight kilometers wide and \_\_\_\_\_\_\_\_ meters deep.
   4. Driftless Area
      1. The only areas of Minnesota that escaped the most recent glaciations were the extreme \_\_\_\_\_\_\_\_\_\_\_\_\_ and southwest corners of the state.
      2. The southeast corner of the state is home to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_