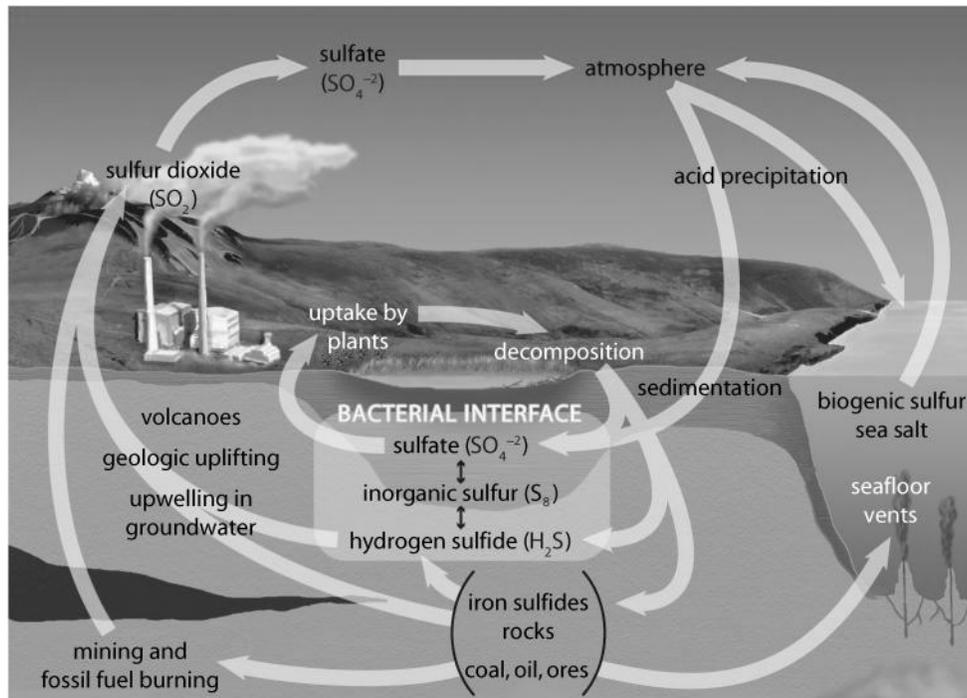


The Sulfur Cycle Activity

Answer Key

1.



2. Air, soil, and water.

3. Decomposers, including bacteria, quickly return sulfur to the soil or air as hydrogen sulfide (H_2S). Some types of soil bacteria use sulfur-containing compounds in photosynthesis or types of cellular respiration, playing an essential role in the sulfur cycle as they convert one form of sulfur to another. Further, some bacteria convert sulfur to forms that are layered down as sediments, eventually becoming part of rocks. Thus, bacteria play a major role in transferring sulfur from the rapid sulfur cycle to the slow sulfur cycle.

4. Acid deposition removes sulfur from the atmosphere and returns it to the soil and water. Fossil fuel deposits, such as oil, coal, and natural gas contain sulfur. When fossil fuels are burnt, sulfur (as sulfur dioxide) is released into the atmosphere. Weathering and volcanic activity also release some of the trapped sulfur into the atmosphere as sulfur dioxide (SO_2). The production of sour gas (natural gas that contains hydrogen sulfide), such as that found in the foothills of the Rocky Mountains in Alberta, is another significant source of sulfur dioxide emissions. Sulfur dioxide then reacts with oxygen and water vapour in the atmosphere to form sulfurous acid (H_2SO_3) and sulfuric acid (H_2SO_4). These reactions result in acid deposition.