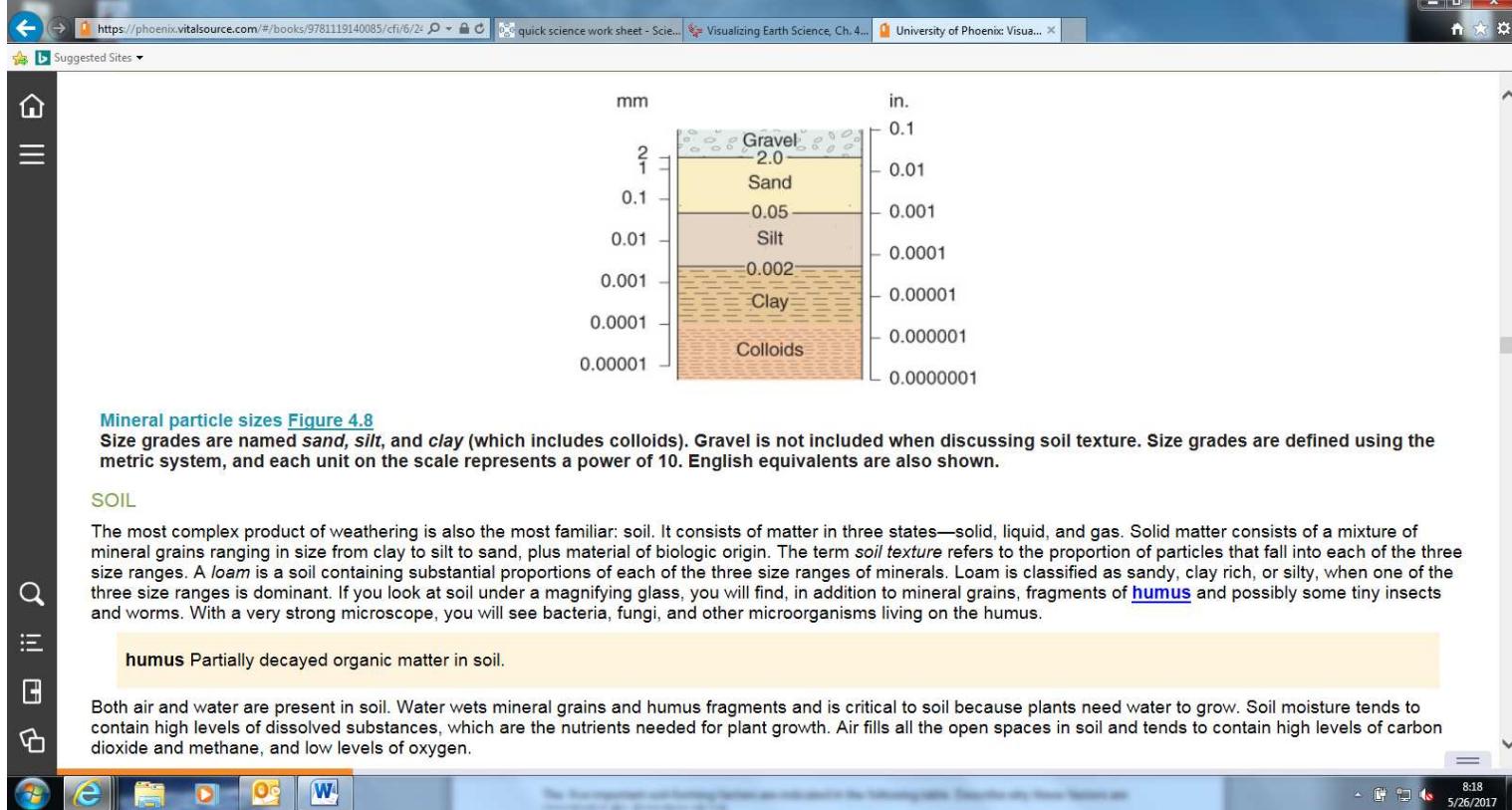




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Mineral particle sizes Figure 4.8

Size grades are named *sand*, *silt*, and *clay* (which includes colloids). *Gravel* is not included when discussing soil texture. Size grades are defined using the metric system, and each unit on the scale represents a power of 10. English equivalents are also shown.

SOIL

The most complex product of weathering is also the most familiar: soil. It consists of matter in three states—solid, liquid, and gas. Solid matter consists of a mixture of mineral grains ranging in size from clay to silt to sand, plus material of biologic origin. The term *soil texture* refers to the proportion of particles that fall into each of the three size ranges. A *loam* is a soil containing substantial proportions of each of the three size ranges of minerals. Loam is classified as sandy, clay rich, or silty, when one of the three size ranges is dominant. If you look at soil under a magnifying glass, you will find, in addition to mineral grains, fragments of [humus](#) and possibly some tiny insects and worms. With a very strong microscope, you will see bacteria, fungi, and other microorganisms living on the humus.

humus Partially decayed organic matter in soil.

Both air and water are present in soil. Water wets mineral grains and humus fragments and is critical to soil because plants need water to grow. Soil moisture tends to contain high levels of dissolved substances, which are the nutrients needed for plant growth. Air fills all the open spaces in soil and tends to contain high levels of carbon dioxide and methane, and low levels of oxygen.



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