

## main points

---

- Civilization is based on soil, clay, and metals which have been utilized in agriculture, housing, tools, and weapons made from these materials of the Earth.
- Metals are seldom found uncombined in the Earth, but rather must be purified by chemical reactions from compounds of these elements. These reactions are all reduction reactions.
- Some metals are easily identified in nature and are easily reduced by technology available thousands of years ago, while others are difficult to identify and even more difficult to reduce from their compounds.
- Soil is a terrifically complex mixture. Different compositions of soil are good for different uses.
- Many compounds are classified as clays, but they are all based on silicon and oxygen.
- Coal and oil are called fossil fuels because they are the result of transformed plants buried millions of years ago. The most widely known use of these substances is as fuels, but they are also the basis of a great deal of organic chemistry.