1. How do people use energy?
   1. Energy is the capacity to do work.
   2. People use energy to heat and cool their homes, provide light, manufacture goods, produce and prepare food, and move vehicles.
2. What are sources of energy?
   1. The sun is Earth’s main source of energy. When it reaches Earth, the sun’s energy can be stored in different ways.
   2. Useful chemical energy is sometimes stored in minerals. Earth’s internal heat, or geothermal energy, is another energy source.
   3. An *energy source* is an available source of stored energy that humans can use.
   4. A **renewable resource** is an energy source that can be easily reproduced or replaced by nature.
   5. Renewable resources are replaced at a rate equal to or greater than the rate at which they are used.
   6. Some examples of renewable resources are sunlight, wind, trees, and crops.
   7. A **nonrenewable resource** is an energy source that cannot be produced, grown, or restored as fast as it is used.
   8. For example, minerals such as uranium are nonrenewable because they can no longer be formed.
   9. Other examples of nonrenewable resources are coal, petroleum, and natural gas. They formed over millions of years below Earth’s surface.
3. What are some fossil fuels?
   1. **Fossil fuels** are energy resources made from carbon-rich plant and animal remains.
   2. Fossil fuels are nonrenewable because they take millions of years to form.
   3. Burning fossil fuels produces carbon dioxide, a greenhouse gas, as well as harmful acids and other forms of pollution.
   4. Coal is a sedimentary rock formed from the remains of dead plants at the bottom of ancient swamps.
   5. Coal mining can involve removing soil and rocks or creating deep mines.
   6. These processes can destroy landscapes and pollute water supplies.
   7. Some fossil fuels are gases that became trapped in rock formations.
   8. Methane is the main component of natural gas.
   9. Natural gas burns more cleanly than other fossil fuels. However, it does produce carbon dioxide upon burning, and leaks can be dangerous.
   10. *Petroleum* means “rock oil.” It formed from the remains of single-celled aquatic organisms that lived long ago.
   11. After petroleum is mined, it is separated into fuels such as gasoline, diesel, and jet fuel.
   12. Transporting oil can result in spills that pollute the environment and harm wildlife. Burning petroleum produces pollutants.
   13. Natural gas and petroleum are formed from buried organic matter.  
       
4. What transformations do fossil fuels undergo?
   1. First, raw fossil fuels are obtained by drilling or mining.
   2. Then, they are transported, converted into useful forms, stored, and burned for energy.
   3. Each transformation can potentially affect the environment in negative ways.
5. What are some alternative sources of energy?
   1. An alternative energy sourceis a resource that can be used in place of fossil fuels.
   2. Solar energy is renewable energy from the sun that can be converted into electrical energy. Solar energy is free and clean.
   3. However, the technologies for solar energy aren’t widely used. Also, sunlight does not fall evenly over Earth.
   4. Splitting the nuclei of a kilogram of uranium atoms releases thousands of times more energy than burning the same mass of coal releases.
   5. Nuclear energy is nonrenewable because minerals in Earth’s crust cannot be replaced.
   6. Nuclear power plants do not produce carbon dioxide, but they produce harmful radioactive wastes that must be safely stored.
   7. Hydroelectric energy is energy from fast-moving rivers or water flowing downhill through dams.
   8. Hydroelectric energy is powered by the water cycle, so it is a renewable resource.
   9. However, flooding the land to produce reservoirs can destroy habitats, and dams can disrupt migratory paths of fish and lead to erosion.
   10. Wind energy is a renewable resource generated when the blades of wind turbines turn.
   11. Wind energy doesn’t produce any pollution.
   12. However, it depends on strong winds and can harm birds that fly too close to the blades.
   13. Geothermal energy is extracted from heat stored within Earth.
   14. It is available near hot springs, geysers, or active volcanoes.
   15. Geothermal energy is renewable, but it is found only in specific areas on Earth.
   16. Biomass is a renewable resource that includes living or recently dead organic material that can be used as a fuel.
   17. Examples of biomass are trees, crops, and decaying organic matter.
   18. However, burning biomass releases carbon dioxide.