Power Indicators
Grade 7 - Science

Earth and Space Sciences
7.1.1 Explain the biogeochemical cycles which move materials between the lithosphere (land), hydrosphere (water), and atmosphere (air).
7.1.2 Explain that Earth's capacity to absorb and recycle materials naturally (i.e., smoke, smog, sewage) can change the environmental quality depending on the length of time involved (i.e., global warming).
7.1.3 Describe the water cycle and explain the transfer of energy between the atmosphere and hydrosphere.
7.1.4 Analyze data on the availability of fresh water that is essential for life and for most industrial and agricultural processes. Describe how rivers, lakes, and groundwater can be depleted or polluted, becoming less hospitable to life and even becoming unavailable or unsuitable for life.

Life Sciences
7.2.2 Investigate how organisms or populations may interact with one another through symbiotic relationships and how some species have become so adapted to each other that either could survive without the other.
7.2.3 Explain how the number of organisms an ecosystem can support depends on adequate biotic (living resources (e.g., plants, animals) and abiotic (non-living) resources (e.g., light, water, soil).
7.2.4 Investigate how overpopulation impacts an ecosystem.
7.2.5 Explain that some environmental changes occur slowly while others occur rapidly (e.g., forest and pond succession, fires, and decomposition).
7.2.6 Explain that photosynthetic cells convert solar energy into chemical energy that is used to carry on life functions or is transferred to consumers and used on their life functions.
7.2.8 Investigate the great diversity among organisms.

Physical Sciences
7.3.1 Investigate how matter can change forms but the total amount of matter remains constant.
7.3.2 Describe how an object can have potential energy due to its position or chemical composition and can have kinetic energy due to its motion.
7.3.3 Identify different forms of energy (e.g., electrical, mechanical, chemical, thermal, nuclear, radiant, and acoustic).
7.3.4 Explain how energy can change forms but the total amount of energy remains constant.
7.3.5 Trace energy transformation in a simple closed system.

Science and Technology
7.4.2 Describe how decisions to develop and use technologies often put environmental and economic concerns in direct competition with each other.
7.4.3 Recognize that science can only answer some questions and technology can only solve some human problems.

Scientific Inquiry
7.5.1 Explain that variables and controls can affect the results of an investigation and that ideally one variable should be tested at a time; however it is not always possible to control all variables.
7.5.2 Identify simple independent and dependent variables.
7.5.3 Formulate and identify questions to guide scientific investigations that connect to science concepts and can be answered through scientific investigations.
7.5.4 Choose the appropriate tools and instruments and use relevant safety procedures to complete scientific investigations.
7.5.5 Analyze alternative scientific explanations and predictions and recognize that there may be more than one good way to interpret a given set of data.
7.5.7 Use graphs, tables, and charts to study physical phenomena and infer mathematical relationships between variables (e.g., speed, density).

Scientific Ways of Knowing
7.6.2 Describe how repetition of an experiment may reduce bias.
7.6.3 Describe how the work of science requires a variety of human abilities and qualities that are helpful in daily life (e.g., reasoning, creativity, skepticism, openness).