**What You Need to Know - Electricity and the Conservation of Energy**

**Scientific understanding of current electricity has resulted in technological developments designed to improve the efficiency in the generation and use of electricity.**

1. **Describe voltage, current and resistance in terms of energy applied, carried and dissipated.**
2. Describe the terms voltage, current and resistance and their units of measurement.
3. **Describe qualitatively the relationship between voltage, resistance and current**
4. perform a first-hand investigation to measure voltage and current in an electrical circuit.
5. describe qualitatively how voltage, current and resistance are related.
6. solve problems using Ohm’s Law.
7. **Compare the characteristics and applications of series and parallel electrical circuits**
8. draw and label a circuit using the correct symbols
9. outline the difference between closed and open circuits
10. distinguish between series and parallel circuits
11. perform a first-hand investigation to understand the characteristics and applications of series and parallel circuits

**Energy conservation in a system can be explained by describing energy transfers and transformations**

1. **Apply the law of conservation of energy to account for the total energy involved in energy transfers and transformations**
2. define the law of conservation of energy
3. describe energy transfers and transformations in an electrical circuit.
4. describe how, in energy transfers and transformations, a variety of processes can occur so that usable energy is reduced and the system is not 100% efficient.
5. **Discuss, using examples, how the values and needs of contemporary society can influence the focus of scientific research in the area of increasing the efficiency of the use of electricity by individuals and society**
6. Investigate the energy efficiency of appliances and new technologies to increase efficiency.
7. **Discuss viewpoints and choices that need to be considered in making decisions about the use of non-renewable energy resources**
8. describe how electricity is generated
9. discuss the use of renewable and non-renewable resources.
10. **Outline, using recent examples, where scientific or technological developments have involved specialist teams from different branches of science, engineering and technology.**