1. **Chemical Reactions and Equations:**
   a. Write balanced chemical equations for the following reactions:
      - Combustion of methane (CH_4)
      - Decomposition of hydrogen peroxide (H_2O_2)
      - Displacement reaction of zinc with copper sulfate ($Zn + CuSO_4$)
   b. Classify each reaction as a combination, decomposition, displacement, or double displacement reaction.
   c. Explain how chemical reactions follow the law of conservation of mass.

2. **Acids, Bases, and Salts:**
   a. Conduct a pH experiment using common household substances (lemon juice, baking soda, soap, etc.). Record the pH values and classify each substance as acidic, basic, or neutral.
   b. Write chemical equations for the reactions between:
      - Hydrochloric acid (HCl) and sodium hydroxide (NaOH)
      - Sulfuric acid (H_2SO_4) and calcium hydroxide ($Ca(OH)_2$)
   c. Discuss the role of acids and bases in everyday life and industrial processes.

3. **Life Processes:**
   a. Investigate the process of photosynthesis in plants. Describe the reactants, products, and importance of this process.
   b. Explore the different modes of nutrition in animals. Provide examples of animals with various nutritional modes.
   c. Explain the significance of respiration in living organisms.

4. **Control and Coordination:**
   a. Research and create a presentation on the nervous system in humans. Include the structure of neurons, types of nerves, and their functions.
   b. Identify and explain the role of hormones in the growth and development of plants.
   c. Discuss the importance of coordination in maintaining homeostasis in the human body.

5. **Reflection of Light:**
   a. Perform an experiment to demonstrate the laws of reflection using a plane mirror.
   b. Create a labeled diagram illustrating the formation of an image by a concave mirror.
   c. Explain how light behaves when it passes from one medium to another with different refractive indices.

6. **Electricity:**
   a. Build a simple electric circuit using a battery, switch, and bulb. Measure the current and voltage at different points in the circuit.
   b. Investigate the factors affecting the resistance of a wire.
   c. Describe the difference between series and parallel circuits.

7. **Natural Resources:**
   a. Research and present a case study on the sustainable use of a specific non-conventional source of energy (solar, wind, hydro, etc.).

b. Discuss the environmental impact of conventional sources of energy and propose alternative solutions.

c. Explain the concept of biodiversity and its importance in maintaining ecological balance.

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