[School Name]

Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subject: Science Topic: Matter and Energy (Grade 6)

Instructions: Answer the following questions to the best of your ability. Show your work for all calculations.

Short Answer (2 marks each):

1. Explain the difference between a solid, a liquid, and a gas in terms of the arrangement and movement of their particles.

2. What is the difference between a physical change and a chemical change? Give an example of each.

Long Answer (3 marks each):

1. Describe the law of conservation of energy and give two examples of how it applies in everyday life.

2. Explain how energy can be transferred through conduction, convection, and radiation. Give an example of each.

3. What are the different forms of energy? Explain how each form of energy can be transformed into another form.

Word Problems (4 marks each):

1. A hot air balloon is filled with 1000 cubic meters of hot air. The air inside the balloon has a temperature of 100°C. As the balloon rises, the air outside the balloon cools to 20°C. Explain how the air temperature affects the balloon's ability to rise.

2. A car engine uses the burning of gasoline to produce energy. The energy from the gasoline is used to move the car. Describe the energy transformations that occur in this process.

Bonus (2 marks):

Choose one of the long answer questions and create a simple diagram or illustration to support your answer.

This worksheet is intended to be used as a learning tool and may not cover all aspects of the Ontario curriculum. It is recommended that students consult their textbook and other resources for further information.