



The Power Plant

Teacher Information

Objectives

1.3 To identify and explain the function of the sub-systems of the power plant.

Blended Instruction and Learning

Students may complete the online activity alone or a teacher may use a projector to guide the lessons. Another option is to convert the information to an overhead.

The lesson resources can be printed out as a teacher resource, as handouts to students or to use in conjunction with the online activity.

Power Plant Subsystems Work Sheet

PART I

Complete the following explanation of the four stroke cycle of the internal combustion engine by filling in the missing words.

Combustion starts with the intake of a mixture of _____ and _____ in to the cylinder through the _____ port. While this is happening, the piston is being drawn down the cylinder by the rotation of the crank shaft. The piston is attached to the crank shaft by the _____ rod.

The second stroke of the four stroke cycle starts as the piston moves up the cylinder. This movement causes the combustible mixture to _____ to make the explosion inside the engine more powerful. The explosion inside the engine is initiated by the _____.

This explosion forces the piston back down the cylinder causing the _____ shaft to continue rotating. This rotating motion is what eventually rotates the wheels on your automobile.

Once the explosion is finished, there are gases left in the cylinder that are no longer needed. As the piston moves back up the cylinder, the _____ valve opens to let these gases leave the engine through the _____ port. To keep the engine running, the cycle starts all over again and will continue until you turn the engine off.

PART II

You are responsible for developing a working definition for **Four** of the six **Subsystems of the Power Plant**. Listed below are the subsystems as well as some guiding questions. Answer the questions using point form in the space provided.

1) **The Fuel System**

a) What is fuel stored in and how does it get to a carburetor or fuel injection system? b) What is the goal of a carburetor? c) What are the **three** main parts of the chainsaw carburetor and what are their jobs?

2) **The Lubrication System**

a) Briefly describe the path of oil through an engine. b) What does an engine use to keep engine fluids inside of the engine and prevent them from leaking out? c) What is the name of the oil filters that are used in modern cars and trucks? d) What does oil weight mean and what weight of oil do you use in your vehicle?

3) **The Cooling System**

a) Approximately what percent of the energy in gasoline is produced in to heat in the engine of an automobile? b) What is the mixture of fluid made of that is used to circulate through the engine to keep it cool? c) What does the engine use to circulate the coolant through the engine? d) List **five** components of the cooling system in an automobile?

4) The Exhaust System

a) What are the six parts of the exhaust system? b) What is the primary purpose of having a muffler on your vehicle? c) What are the three main emissions that catalytic converters are designed to reduce from engine exhaust?