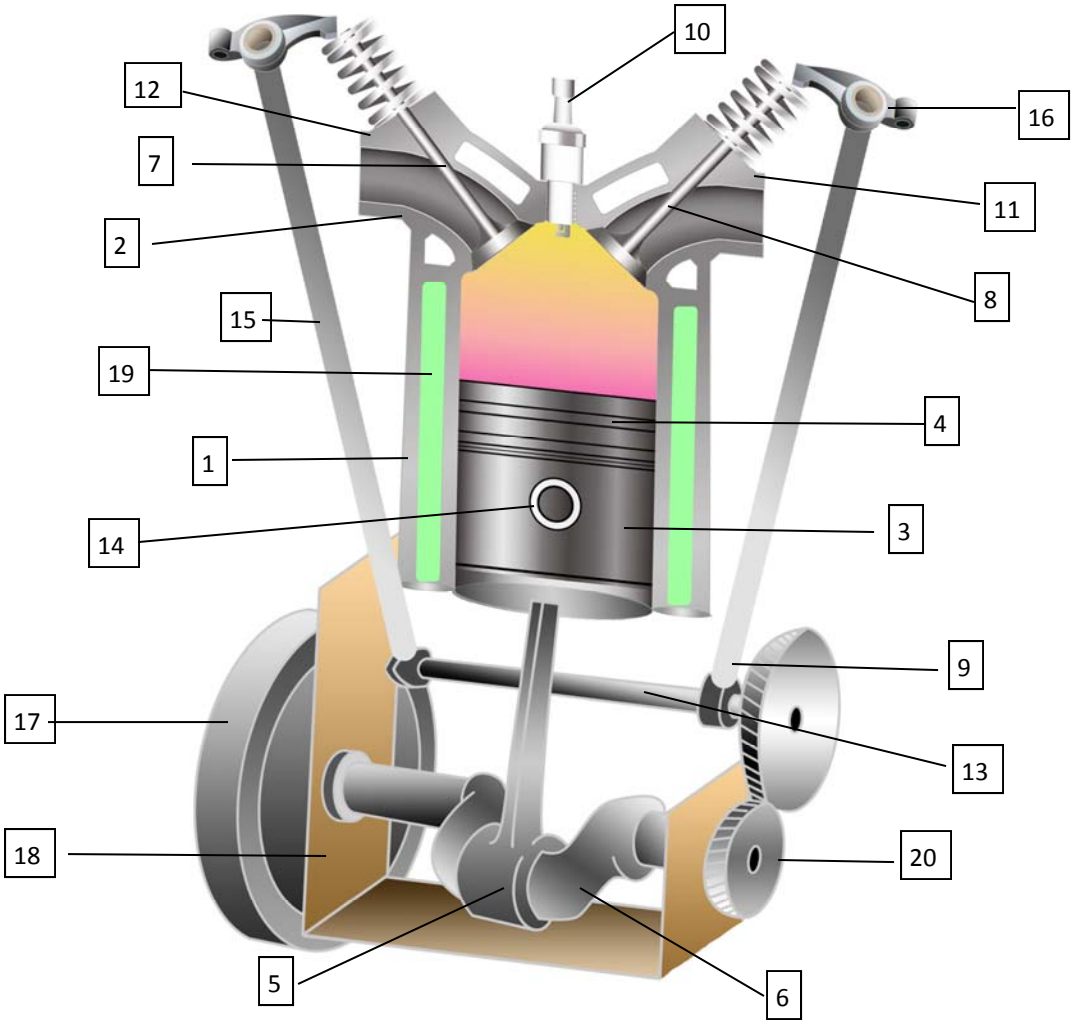
Engine Components



1. Cylinder Block
2. Cylinder Head
3. Piston
4. Piston Rings
5. Connecting Rod
6. Crankshaft
7. Intake Valve
8. Exhaust Valve
9. Tappet
10. Spark Plug or Injector
11. Exhaust Manifold
12. Intake Manifold
13. Camshaft
14. Piston Pin
15. Pushrod
16. Rocker arm
17. Flywheel
18. Oil Sump
19. Coolant
20. Timing Gears

STUDENT HANDOUT

Engine Components

1) Cylinder block - Is the main body of an internal combustion engine. Has a main function of guiding the piston. Made of high grade cast iron.
2) Cylinder head - Is located at the top of the cylinder, sealing the cylinder block. Contain the intake and exhaust valves. Made of cast iron or aluminum.
3) Piston - Is contained within the cylinder. Receives gas pressure and transmits the resulting force to the connecting rod. Usually made of aluminum alloy.
4) Piston ring - Is located in the ring grooves closest to the piston head. Seals the combustion chamber. May also regulate engine oil consumption. Usually made of cast iron and highly elastic materials
5) Connecting rod - Connects the piston to the crankshaft. Provides for fluid movement between the piston and the crankshaft. Made of nickel and chrome.
6) Crankshaft - Is connected to the piston with the connecting rod. Turns reciprocating motion into rotating motion. Usually made by steel forging.
7) Intake Valves - Are located at the cylinder head, at the top of the combustion chamber. Controls the intake of the air/fuel mixture. Made of alloy.
8) Exhaust Valve - Is located at the cylinder head, at the top of the combustion chamber. Controls the exhaust of the air/fuel mixture. Made of alloy.
9) Tappet - Are located between the camshaft and the valve. Lift or open the valve. Made of cast iron
10) Spark plug or Injector - Is located at the top of the cylinder head. Spark plug ignites the air/fuel mixture or the injector pressurizes the air/fuel mixture in the combustion chamber. Spark plug is made of center electrode, and insulator, a metal casing and a side electrode. Injector is made from alloy steel.
11) Exhaust Manifold - Is located above the cylinder head. Releases exhaust gases. Usually made from aluminum alloy.
12) Intake Manifold - Is located above the cylinder head. Collects air/fuel mixture. Usually made from aluminum alloy.
13) Camshaft - Is located at the top or bottom of the cylinder. Controls the opening and closing of the valves. Made of cast iron.
14) Piston pin - Are fitted through the piston. Allow the connecting rods to swivel. Are made of steel.
15) Pushrod - Connects the camshaft to the valves. Allows for the intake of fuel and air and the exhaust of gases. Made of steel.
16) Rocker arm - Is connected to the pushrod. Helps the pushrod convey movement from the camshaft to the valves in order to open them. Made of steel.
17) Flywheel - Is located on the crankshaft. Rotates the crankshaft and stores energy. Made of cast iron.

Engine Components

18) Oil sump - Is located at the bottom of the cylinder block. Stores oil used to lubricate all moving parts of the engine. Made of single sheet-steel or aluminum alloy.
19) Coolant - Is located on either side of the cylinder head. Removes the unwanted heat. Made of water and antifreeze.
20) Timing Gears - Are located at the bottom of the engine, next to the oil sump. Rotates the crankshaft and camshaft in order for the engine valves to open and close. Made of steel.

Note: Engine bearings are located throughout the cylinder block. They are used to support moving parts of the engine. Made of alloy.