

## Internal Combustion Engine Activity Background

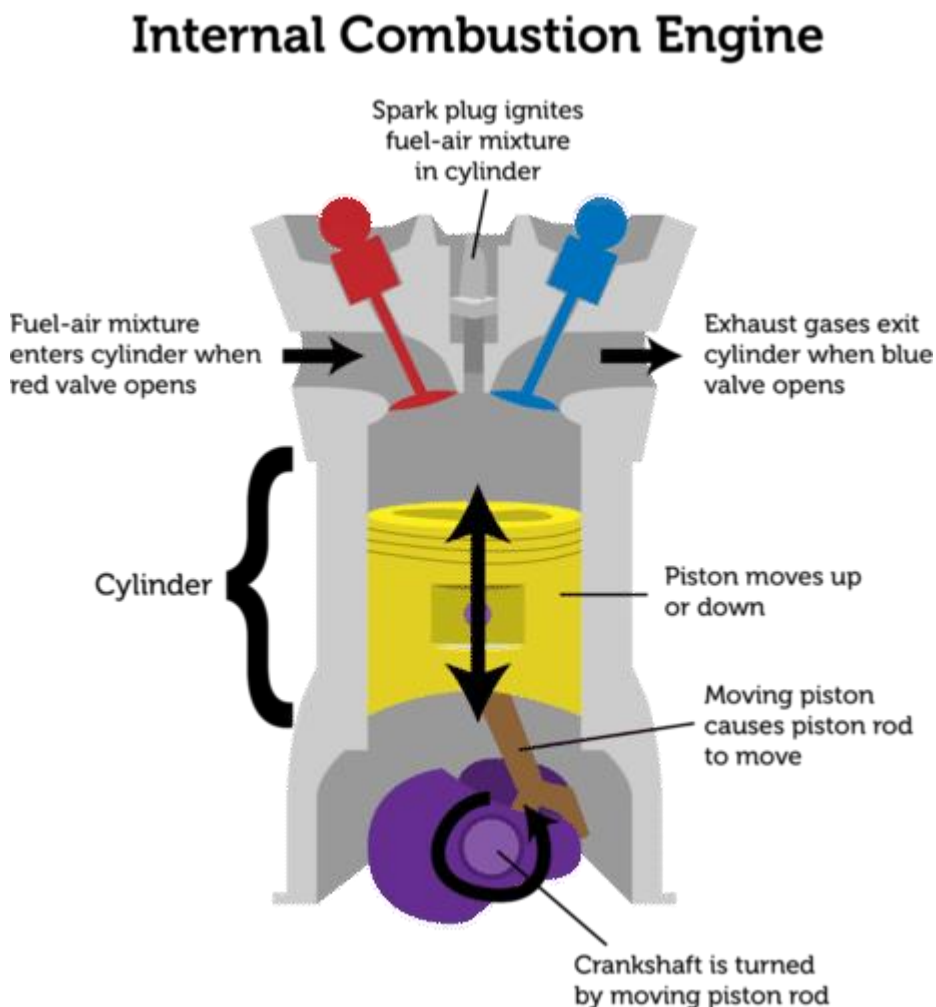
**Objective:** To support understanding of the following questions:

- What is an internal combustion engine?.
- How does an internal combustion engine work?
- How does kinetic energy turn the wheels of a car to drive?

### How Internal Combustion Engines Work

An **internal combustion engine** burns the fuel inside the engine of cars, and other vehicles. The engine works in a series of steps, which keep repeating. You can follow the steps in the diagram below.

1. Fuel and air is sent into the cylinder through a valve, which then closes.
2. The piston inside the cylinder moves up and compresses the fuel-air mixture in the cylinder. The mixture is under a lot of pressure warm.
3. Then a spark from a spark plug ignites the fuel-air mixture, causing it to burn explosively within the confined space of the closed cylinder.
4. The pressure of hot gases from combustion pushes the piston downward.
5. The piston moves up again, pushing exhaust gases out of the cylinder through another valve.
6. The piston moves downward again, and the cycle repeats.



## **How Does Energy from the Engine Turn the Wheels?**

In a car, the piston in the engine is connected by the piston rod to the crankshaft. The crankshaft rotates when the piston moves up and down. The crankshaft, in turn, is connected to the driveshaft. When the crankshaft rotates, so does the driveshaft. The rotating driveshaft turns the wheels of the car.

## **How Many Cylinders does a car need?**

Most cars have at least four cylinders connected to the crankshaft. Their pistons move up and down in sequence, one after the other. A powerful car may have eight pistons, and some race cars may have even more. The more cylinders a car engine has, the more powerful its engine can be.

## **Summary**

- A combustion engine is a complex machine that burns fuel to produce thermal energy and then uses the energy to do work. An internal combustion engine burns fuel internally, or inside the engine.
- In an internal combustion engine, a mixture of fuel and air is burned in a closed cylinder, forcing a piston to move up and down.
- In a car, the moving piston rotates a crankshaft, which turns a driveshaft. The turning driveshaft causes the wheels of the car to turn.

## **Review**

1. What is a combustion engine? What is an internal combustion engine?
2. How an internal combustion engine work?
3. How can a car become faster?
4. How can a car become more powerful?
5. Find out what happens when a car brakes

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<https://www.thoughtco.com/who-invented-the-car-4059932>