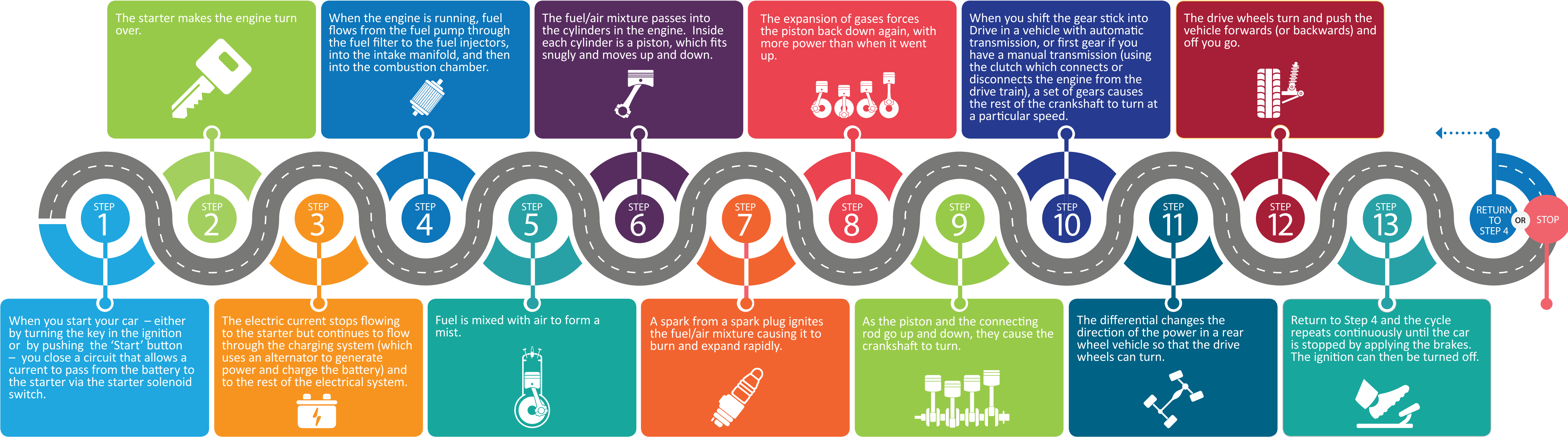


# KNOW YOUR VEHICLE: HOW A CAR WORKS




## 8 ESSENTIAL MOTOR VEHICLE SYSTEMS

There are many systems that work together to operate a motor vehicle. Simple operations such as moving forward, reversing, braking and cooling are all necessary functions required to operate a motor vehicle safely.

**1**

**ENGINE SYSTEM**

An internal combustion engine burns fuel in combustion chambers inside an engine.



**2**

**DRIVE TRAIN**

A drive train includes the many parts that transfer the spinning motion from an engine to the wheels. You may know a drive train by more common terms: Four Wheel Drive, Rear Wheel Drive, Front Wheel Drive or All Wheel Drive.

**A drive train has three jobs:**

1. Transferring spin force from an engine to the wheels.
2. Changing the rate of spin delivered to the wheels by shifting gears.
3. Connecting and disconnecting an engine from the wheels in order to start or idle.

**3**

**FUEL SYSTEM**

**The fuel system has three basic jobs:**

1. To supply an engine with fuel.
2. To mix this fuel continuously with air in varying combinations.
3. To discharge the burnt remains safely.

Fuel droplets form a vapourised mixture, like a mist, as they enter the engine and are mixed into an airflow. The airflow is created by the action of the pistons moving up and down.

**4**

**COOLING SYSTEM**

The cooling system uses a mixture of water and antifreeze to absorb and disperse engine heat.

**The cooling system has three jobs:**

1. Disperse excess engine heat.
2. Quickly heat a cold engine.
3. Maintain the correct engine running temperature.

**5**


**RUNNING GEAR**

The running gear includes the parts used to guide the vehicle through bumps, swerves and road hazards. The running gear connects the driver to the roadway and helps the vehicle to negotiate rough roads, sharp turns and fast stops; all while keeping a constant weight on four tyres. If bouncing and bumps cause one tyre to even slightly leave the roadway, this will adversely affect a vehicle's steering, cornering and braking – especially dangerous in extreme conditions when control is needed the most.

**6**

**BRAKING SYSTEM**


The braking system controls how fast, smooth and straight a car slows down. Vehicles not only have hydraulic brakes but also electronic braking systems. Most modern vehicles have anti-lock braking systems (ABS) that can prevent skids in slippery conditions.



**7**

**ELECTRICAL SYSTEM**

An automotive electrical system is a collection of circular electrical pathways. Each pathway, called a circuit, includes a wire leading from a battery to an electrical accessory and then back to the battery. The battery stores the electrical current that your vehicle uses to start and passes electricity along wires to the parts of your vehicle that need electricity to function, such as the ignition system, lights and radio.



**8**

**SAFETY SYSTEM**

Safety systems are very important in vehicles that move at high speeds. Airbags, reverse beepers, sensors, cameras and monitors are standard features in new cars. Research and testing continues to prompt the development and inclusion of mandatory safety systems.