SUMMARY OF HOW A CAR ENGINE WORK

Combustion in cars
A gasoline car typically uses a **spark-ignited internal** combustion engine.

In a spark-ignited system, the fuel is injected into the combustion chamber and combined with air. The air/fuel mixture is ignited by a spark from the spark plug.

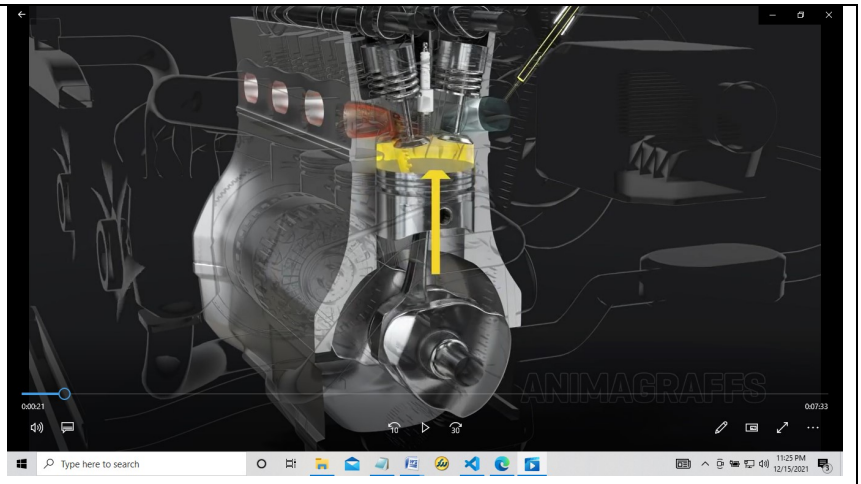
This result in the burning of gasoline

The resultant heat energy from the burning of the gasoline is converted into mechanical work that is applied to the wheels to make the car move.

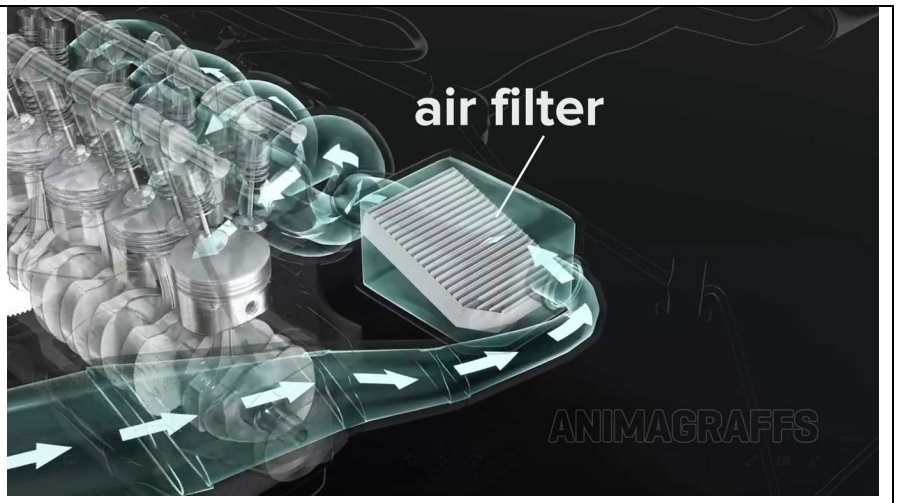
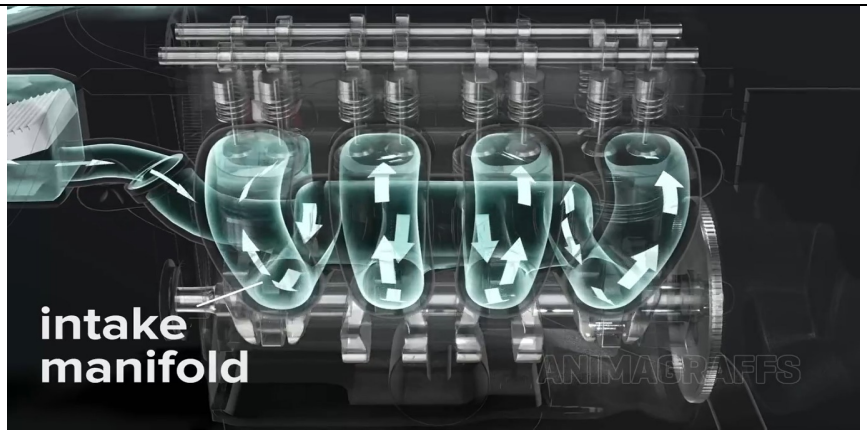
1.ECM – ENGINE CONTROL MODULE

The Engine Control Module (also called the Powertrain Control Module or PCM) is the brains of the engine management system. It controls the fuel mixture, ignition timing, variable cam timing and emissions control. It constantly monitors emissions performance via its OBD (Onboard Diagnostics) programming, and it oversees the operation of the fuel pump, engine cooling fan and charging system. It also interacts with the transmission controller (if separate), Anti-Lock Braking System-ABS/traction/stability control system, body control module, climate control module and anti-theft system. In short, the engine control module performs a wide variety of functions that are necessary to operate a vehicle.	

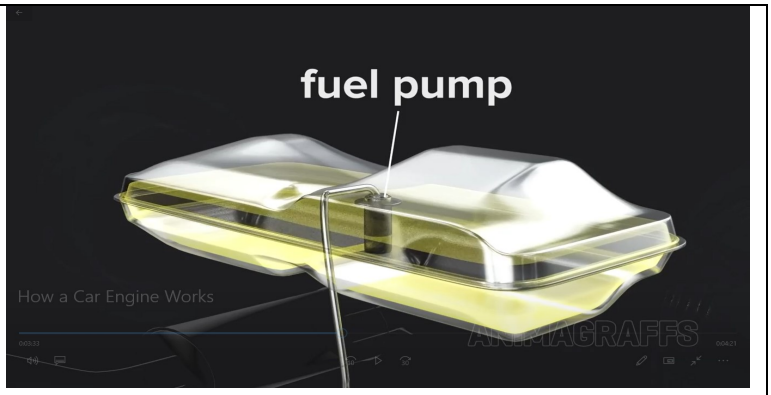
2.PISTON

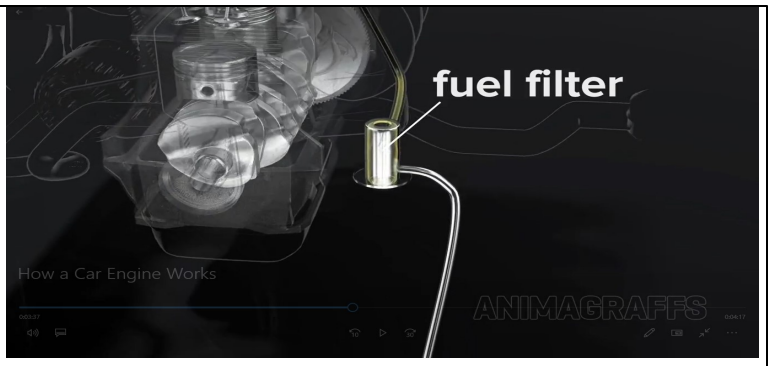
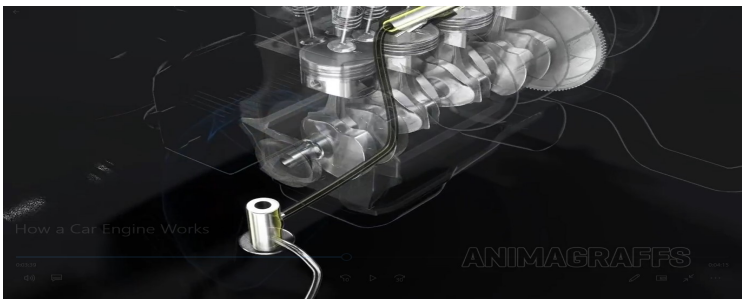
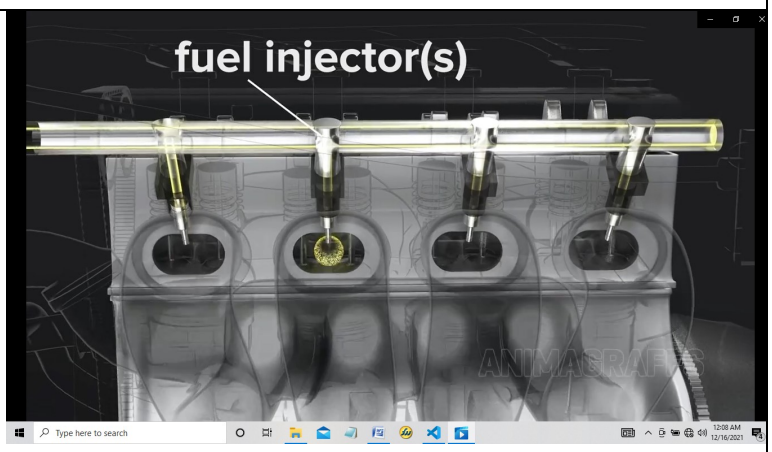
In an internal combustion engine, a **piston** is one of the greatest components that help the working of the combustion cycle. The engine part is enclosed in a cylinder block which use a piston ring to give no space for gas escape. The pistons help in the transformation of heat energy into mechanical work and vice versa. It moves upward and downward inside the cylinder in order to expand and contracts air-fuel mixture. For this reason, a piston is inevitable in an internal combustion engine. Car engine use a 4 stroke cycle In four-stroke (gasoline and diesel) car engines, the intake, compression, combustion and exhaust process takes place above the piston in the cylinder head, which forces the piston to move up and down (or in and out in a flat engine) within the cylinder, thereby causing the crankshaft to turn.	

3. AIR INTAKE

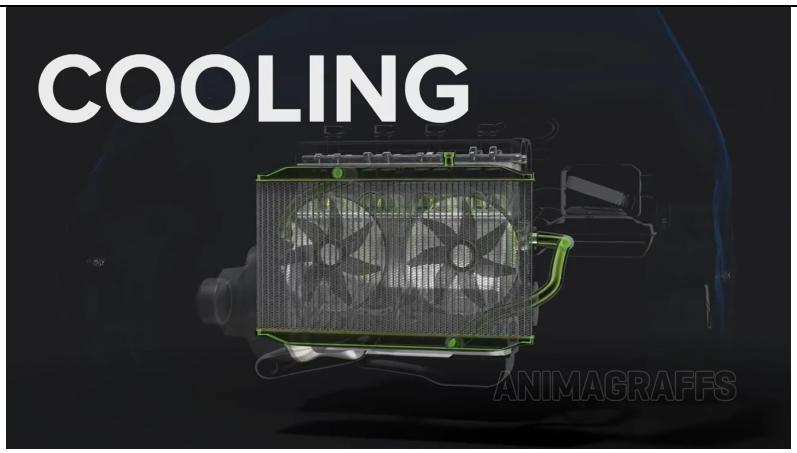
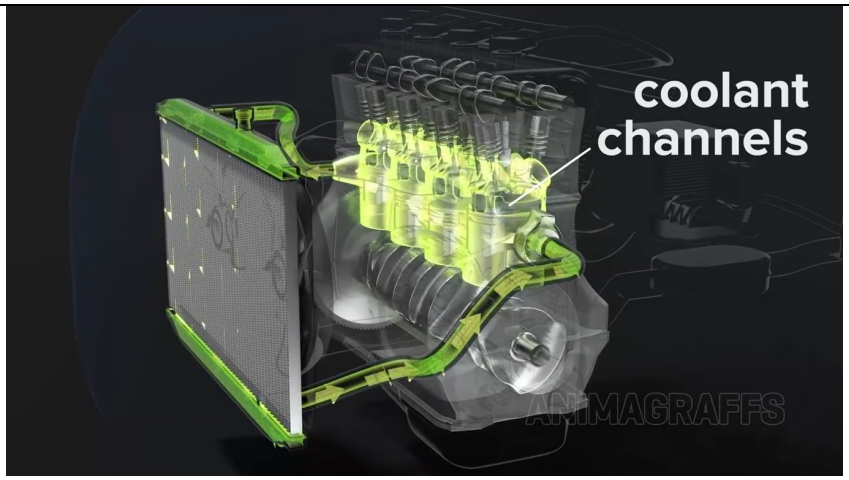
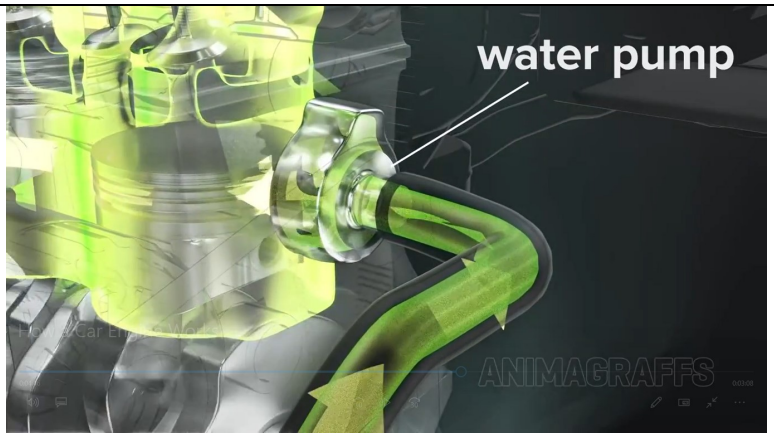
The air filter **prevents any insects, dust, particles, sand or debris reaching the engine and ensures a good mixture of air and fuel to support performance**. Air comes into the air filter	
And then into the intake manifold Where it mixes with fuel before being sucked into individual cylinders through intake pot	

4. FUEL

The fuel pumb carries gas from the tank To a fuel filter To the engine	

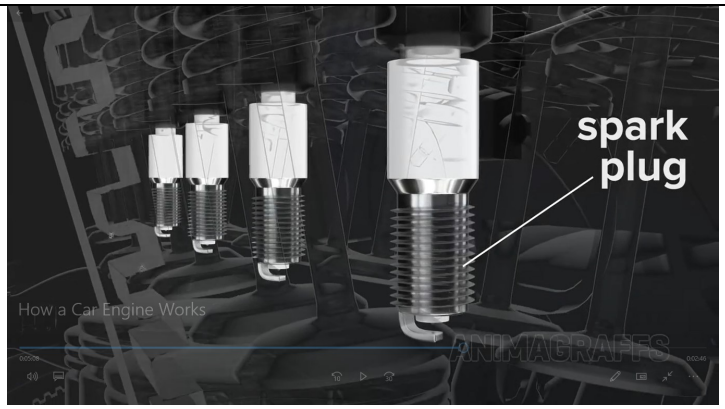
	 
Where fuel injectors emit a precisely timed spread of gas into the intake pot	

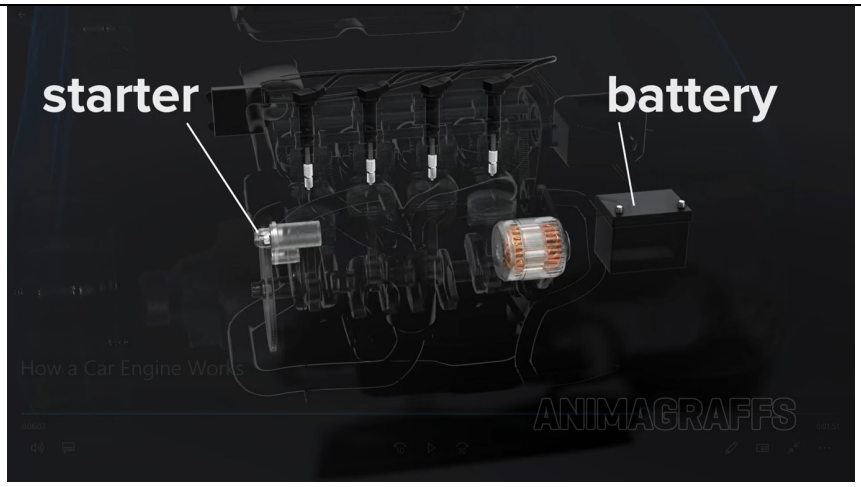
5. COOLING

Engine get very hot during operation and require cooling system	
Cooling channels around the cylinder and through the cylinder head carries a special liquid called anti-freeze to keep temperature with safe operating range. It is called anti-freeze because it will not freeze in icy water After cooling hot engine part, cooling circulate in the radiator	
The waterpump keeo the cooling system flowing and properly presurrized.	

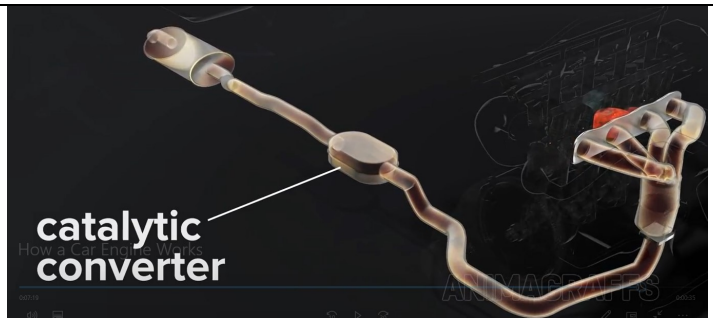
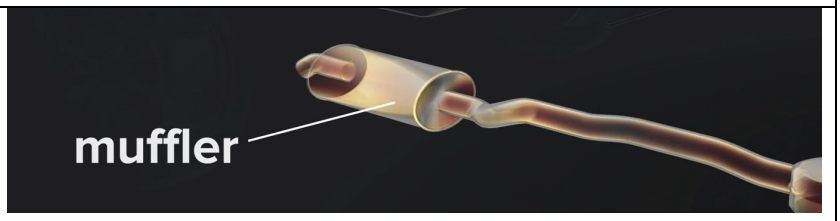
The thermostat regulate cooling temperature by either routing cooling back through the engine or radiator for further cooling	

6. ELECTRICAL

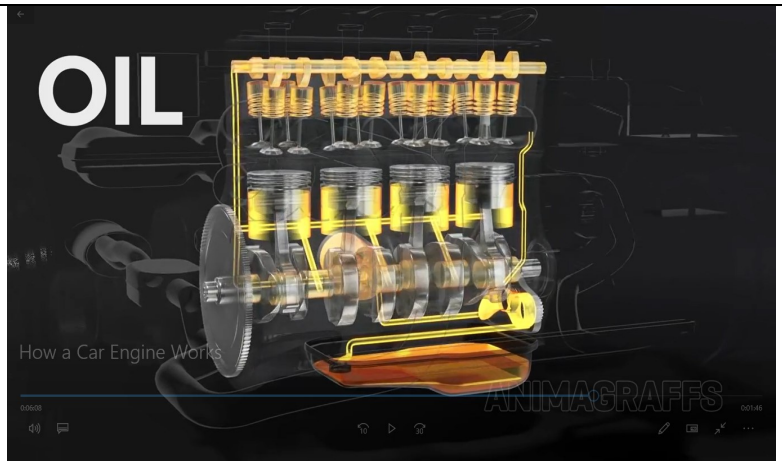
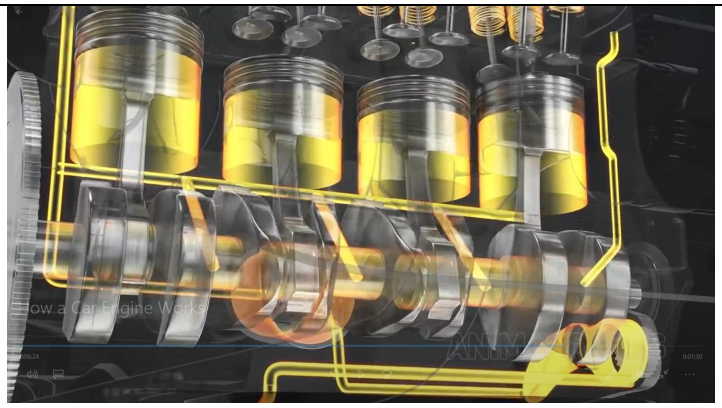
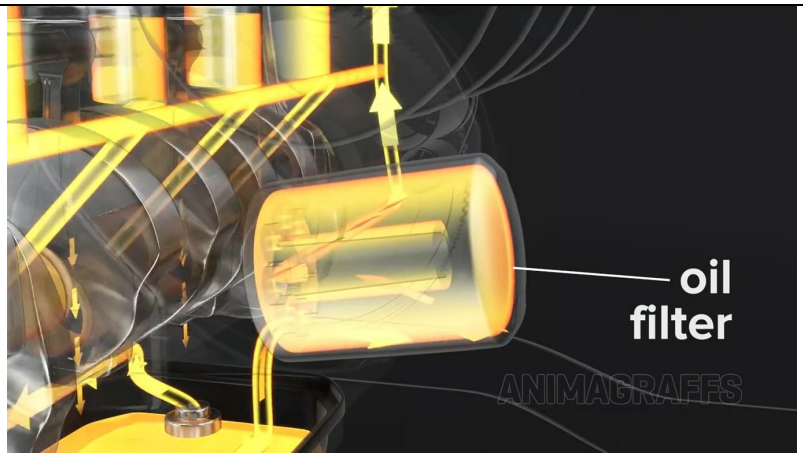
The spark plug delivers the electrical spark that ignite the fuel air mixture for combustion Combustion in cars A gasoline car typically uses a **spark-ignited internal** combustion engine. In a spark-ignited system, the fuel is injected into the combustion chamber and combined with air. The air/fuel mixture is ignited by a spark from the spark plug. Specifically, an internal-combustion engine is a	

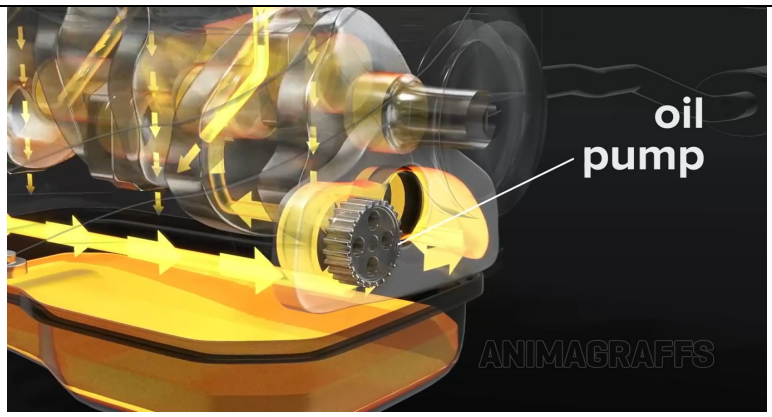
heat engine in that it converts energy from **the heat of burning gasoline into mechanical work, that** is applied to the wheels to make the car move.	
The alternator works like a power generator, converting the engine mechanical energy to electricity to charge the battery or run other electrical systems while the engine is running.	
The battery provide power to the starter for engine start	

7. EXHAUST

Your vehicle's exhaust system is designed to **take care of toxic emissions your car produces**. It will 1) direct harmful hydrocarbons away from the driver and passengers, and 2) reduce the air polution your car releases into the environment, helping keep the air clean.	
The exhaust manifold collects gases from multiple cylinders into one pipe	
Exhaust flows to the catalytic converter which captures toxic chemicals in engine exhaust	
And out through muffler that reduces exhaust noise	

8. OIL

Motor oil is used to lubricate, clean, prevent corrosion, improve sealing, cool the engine by carrying heat away from moving parts	
Rings around the top of the piston head carries the oil away from the combustion process while allowing the cylinder to be lubricated	
OIL FILTER Oil filter keeps oil clean from contaminate	

OIL PUMP Oil pump keep oil properly pressurized and flowing	
OIL PAN Oil flow to the engine and back to the oil pan for recirculation. Oil rest in the oil pan when not in circulation