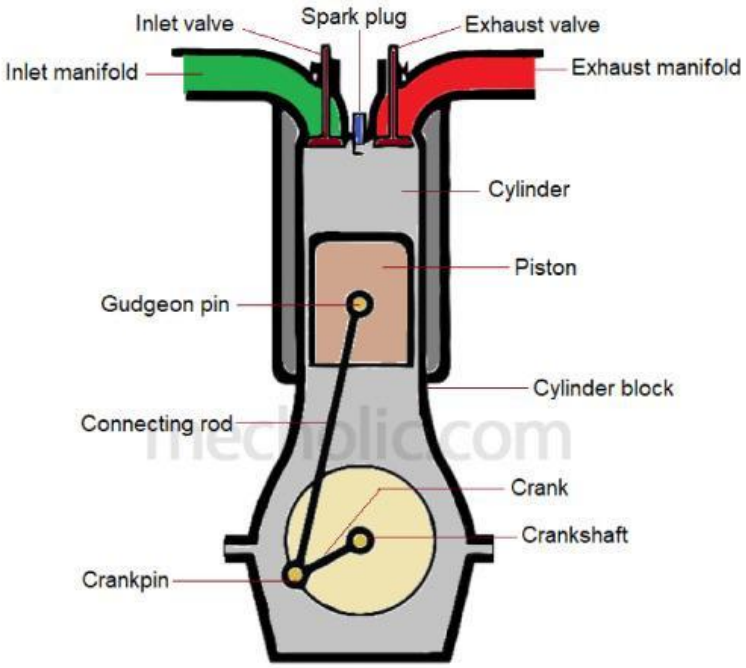


Basic components of IC Engine

Task 1: Match each engine component with its function:

Component	Function
1. Piston	A) Connects the piston to the crankshaft
2. Connecting rod	B) Controls the timing of valve opening and closing
3. Crankshaft	C) Ignites the air-fuel mixture
4. Camshaft	D) Opens to let burnt gases out
5. Intake valve	E) Moves up and down to compress fuel and create power
6. Exhaust valve	F) Opens to let air and fuel in
7. Cylinder	G) Converts linear motion into rotational motion
8. Spark plug	H) The chamber where combustion happens

LIVEWORKSHEETS

Task 2. Choose the correct option.

1. The piston moves **inside, within / outside** the cylinder.
2. The connecting rod connects the piston **from/ to** the crankshaft.
3. The valves are located **in / on** the cylinder head.
4. The valves open **out of / into** the combustion chamber.
5. The spark plug is located **at / under** the top of the cylinder head.
6. The camshaft pushes **away from / against** the valves to open them.
7. The intake valve opens **out of / into** the combustion chamber to let air in.
8. The exhaust valve opens to let gases flow **out of / into** the combustion chamber.
9. The crankshaft rotates **inside / on top of** the engine block.

READ THE TEXT.

BEFORE THE CYCLE BEGINS. The cycle begins with the piston at top dead centre (TDC). This is the highest point in the cylinder. The four strokes always happen in the same order: intake, compression, power, and exhaust.

INTAKE STROKE. The crankshaft rotates and pulls the piston down. The camshaft opens the intake valve. As the piston moves down, a mixture of air and fuel is sucked into the cylinder. The exhaust valve stays closed.

COMPRESSION STROKE. The crankshaft pushes the piston up. Both valves are now closed. The piston compresses the air-fuel mixture into a small space at the top of the cylinder.

POWER STROKE. At the top, the spark plug ignites the compressed mixture. The explosion pushes the piston down with great force. This is the only stroke that produces power.

EXHAUST STROKE. The crankshaft pushes the piston up again. The camshaft opens the exhaust valve. The rising piston pushes the burnt gases out of the cylinder.

THE CYCLE REPEATS. The piston returns to TDC and the cycle repeats thousands of times per minute.

Intake → Compression → Power → Exhaust → Intake ...

Task 3. Read each statement. Write T (True) or F (False) based on the text above.

Statement	T/F
1. The cycle begins with the piston at bottom dead centre.	
2. During the intake stroke, the exhaust valve is open.	
3. Both valves are closed during the compression stroke.	
4. The spark plug ignites the mixture during the power stroke.	
5. The power stroke is the only stroke that produces power.	
6. The exhaust valve opens during the compression stroke.	
7. The piston pushes burnt gases out during the exhaust stroke.	
8. The four strokes happen in random order.	

LIVEWORKSHEETS

Task 4: Circle the correct word to complete each sentence.

1. The piston moves in a **(rotary / reciprocating)** motion.
2. The crankshaft converts **(linear / oscillating)** motion into rotary motion.
3. The valves use **(reciprocating / rotary)** motion to open and close.
4. The camshaft spins in a **(linear / rotary)** motion.
5. The wheels of the car use **(rotary / reciprocating)** motion to move the vehicle.
6. The connecting rod swings in a **(reciprocating & pivoting / only rotary)** motion.
7. The flywheel stores energy using **(reciprocating / rotary)** motion.
8. The timing belt transfers **(rotary / linear)** motion from the crankshaft to the camshaft.

Task 5. Choose from these words to complete the paragraph:

- **rotary**
- **reciprocating**
- **linear**

"In an internal combustion engine, the fuel burns and pushes the piston down. During this single power stroke, the piston moves in _____ motion. However, overall, the piston moves up and down in a continuous cycle of _____ motion. This force travels through the connecting rod to the crankshaft. The crankshaft changes this motion into _____ motion. The spinning crankshaft turns the flywheel and the transmission. The camshaft also spins in _____ motion to open the valves. The valves open and close in _____ motion to let air in and exhaust out. Finally, the _____ motion of the crankshaft makes the car's wheels turn."

The Four-Stroke Cycle

Task 6: Put the Steps in the Correct Order

Step	Description
	The spark plug ignites the compressed fuel-air mixture.
	The piston moves down, drawing in the fuel-air mixture through the intake valve.
	The piston moves up, pushing out the burnt gases through the exhaust valve.
_	The piston moves up, compressing the fuel-air mixture.
	The expanding gases push the piston down, creating power.

LIVEWORKSHEETS

Task 7. Choose the correct temporal connector from the dropdown menu to complete the description of the four-stroke cycle.

Word Bank: ***when / as / finally / after / before / then /***

(1) _____ the piston reaches top dead centre, the spark plug fires and ignites the compressed mixture.

(2) The intake valve opens exactly _____ the piston starts moving down, allowing the air-fuel mixture to enter.

(3) _____ the exhaust stroke is complete, the intake valve opens again and the whole cycle repeats.

(4) The camshaft rotates continuously; _____ , it opens the exhaust valve at the right moment to let the burnt gases escape.

(5) _____ all four strokes have been completed, the piston returns to its starting position and the process begins again.

Task 8: Complete the description of each stroke using the correct word below:

reciprocating / rotary / exhaust / spark plug / intake / connecting rod / crankshaft / camshaft

1. The part that connects the piston to the crankshaft is the _____.
2. The _____ rotates inside the engine block and sends power to the wheels.
3. The _____ has lobes that push the valves open at the correct time.
4. The _____ fires at the top of the compression stroke.
5. During the _____ stroke, the piston moves down and the intake valve opens.
6. During the _____ stroke, the piston moves up and the exhaust valve opens.
7. The piston moves up and down in _____ motion.
8. The crankshaft spins in _____ motion.

LIVEWORKSHEETS