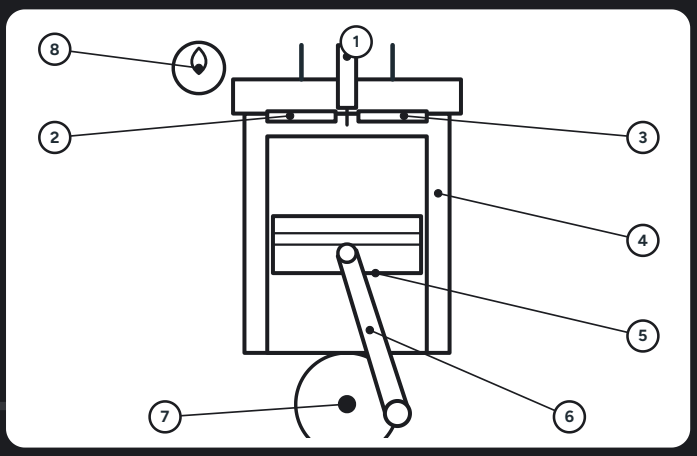
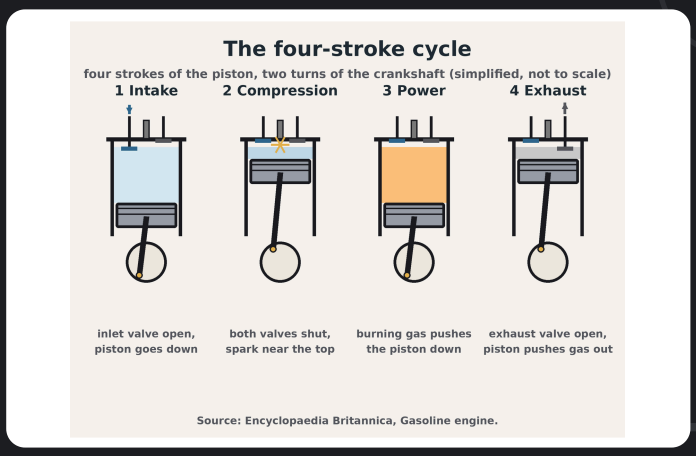
Car Engine Free Sample

A taste of the printable packs from engines.motoring.im





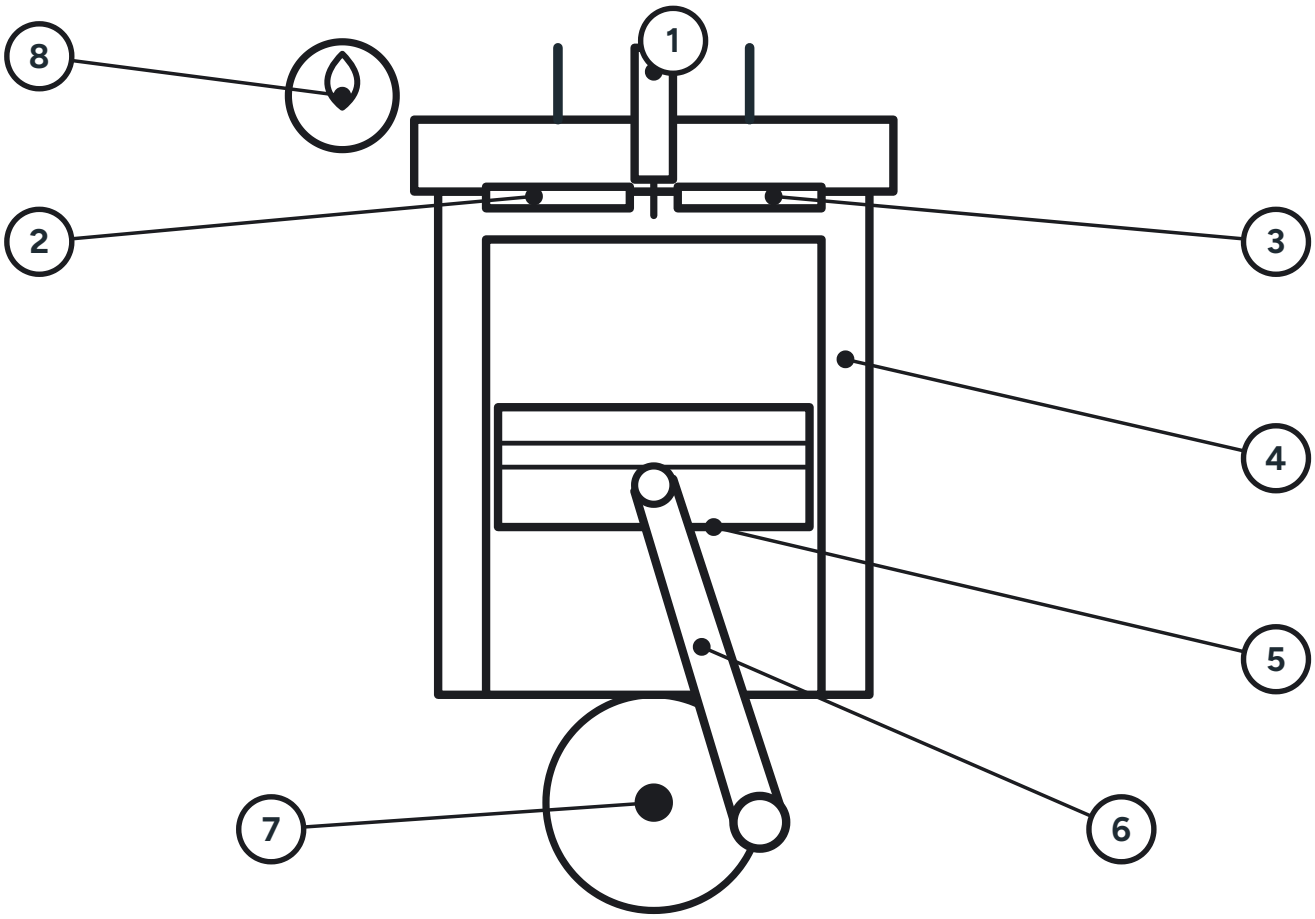
FREE · 9 PAGES · A4 + US LETTER

A cylinder to label · a puzzle · four fact cards · a gear page · a sorting sheet · a poster

FROM THE COLOURING PACK

Inside one cylinder

A four-stroke petrol engine, cut open so you can see inside



Our own simplified drawing, not to scale.

Write the letter from the word bank next to each number, then colour the drawing.

1. _____ **2.** _____ **3.** _____ **4.** _____

5. _____ **6.** _____ **7.** _____ **8.** _____

WORD BANK

A. Cylinder
B. Spark plug
C. Crankshaft
D. Inlet valve
E. Connecting rod
F. Exhaust valve
G. Camshaft
H. Piston

The force on the piston passes down the connecting rod to the crankshaft, which turns the piston's straight-line motion into turning motion.

Answers: 1) B 2) D 3) F 4) A 5) H 6) E 7) C 8) G

FROM THE PUZZLE PACK

Car engine true or false

Circle T for true or F for false. Answers at the bottom.

1. A diesel engine takes in only air on its intake stroke. **T F**

2. Each four-stroke cycle takes one turn of the crankshaft. **T F**

3. One horsepower is 746 watts. **T F**

4. Most of the energy in a petrol car's fuel is used to move it down the road. **T F**

5. A turbocharger is spun by the engine's own exhaust gases. **T F**

6. Karl Benz's Motorwagen had four wheels. **T F**

Answers: 1) T 2) F 3) T 4) F 5) T 6) F

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4

CARD 2 OF 24 · HOW ENGINES WORK

The four strokes

Each four-stroke cycle takes four strokes of the piston (intake, compression, power and exhaust) and two turns of the crankshaft.

Intake stroke: with the inlet valve open, the piston moves down and draws a mixture of petrol vapour and air into the cylinder.

Power stroke: with both valves still closed, the expanding burnt gas presses the piston down.

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D

CARD 6 OF 24 · PETROL AND DIESEL

The diesel engine

In a diesel engine, air is squeezed until it is hot enough to set alight the diesel fuel sprayed into the cylinder.

Unlike a petrol engine, a diesel engine takes in only air on its intake stroke.

The air in a diesel cylinder is usually hotter than 526 °C (979 °F), hot enough for the fuel to catch fire by itself.

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2:1

CARD 13 OF 24 · GEARS AND POWER

Gear ratios

A gear is a toothed wheel on a shaft; gears work in pairs to pass on turning motion and torque (turning force) without slipping.

If the driven gear has twice as many teeth as the small driving gear, it turns at half the speed with twice the torque.

When the smaller gear of a pair drives, the pair slows the speed and multiplies the torque.

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1897

CARD 20 OF 24 · THE PIONEERS

Rudolf Diesel

Rudolf Diesel, a German engineer born in Paris in 1858, invented the engine that bears his name.

Diesel wanted an engine more efficient than the Otto engine, and saw that squeezing air hard enough would make the spark unnecessary.

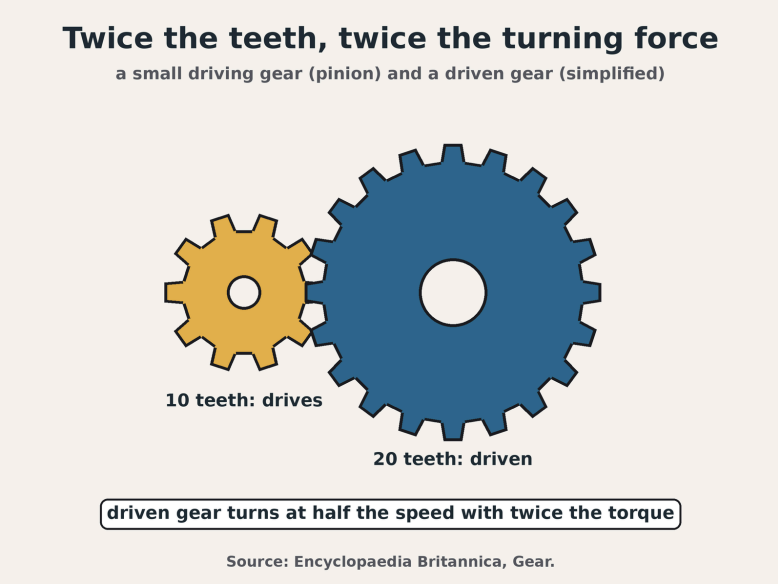
In 1897 Diesel demonstrated a 25-horsepower, four-stroke, single-cylinder engine.

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FROM THE WORKBOOK

Twice the teeth, half the speed

Use the rule to answer the questions. Answers at the bottom



If the driven gear has twice as many teeth as the small driving gear, it turns at half the speed with twice the torque.

1. A 15-tooth gear drives a 30-tooth gear. The small gear turns 60 times a minute. How many times a minute does the big gear turn?

2. Which of the two gears turns with more torque?

Answers: 1) 30 times a minute. 2) The 30-tooth gear (twice the torque).

PETROL OR DIESEL?

Spark or squeeze?

Circle the engine for each clue. P = Petrol · D = Diesel · B = Both

1. An electric spark lights the fuel.

P · D · B

2. Uses intake, compression, power and exhaust strokes in its four-stroke form.

P · D · B

3. Powers the vast majority of cars and lawn mowers.

P · D · B

4. Uses spark plugs to light its fuel.

P · D · B

5. Takes in a mixture of fuel vapour and air on the intake stroke.

P · D · B

6. Powers freight lorries, locomotives and ships.

P · D · B

7. Can be supercharged to make more power.

P · D · B

8. Is a kind of internal-combustion engine.

P · D · B

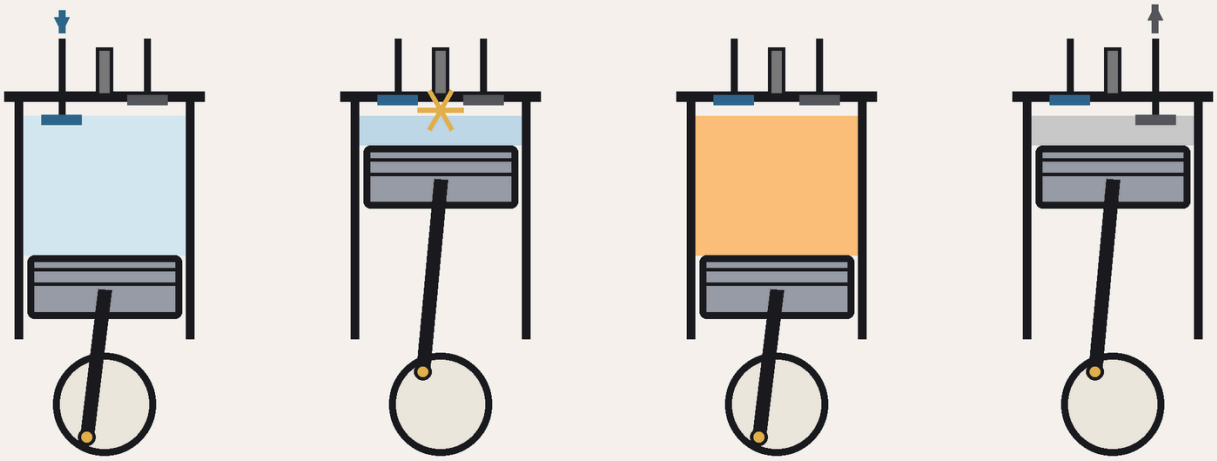
Answers: 1) P 2) B 3) P 4) P 5) P 6) D 7) B 8) B

CAR ENGINE POSTER

The four strokes

The four-stroke cycle

four strokes of the piston, two turns of the crankshaft (simplified, not to scale)



Source: Encyclopaedia Britannica, Gasoline engine.

Drawing: our own, simplified and not to scale.

Intake, compression, power, exhaust

Each four-stroke cycle takes four strokes of the piston (intake, compression, power and exhaust) and two turns of the crankshaft.

Compression stroke: with both valves closed, the piston moves up and squeezes the mixture; near the top an electric spark sets it alight.

Power stroke: with both valves still closed, the expanding burnt gas presses the piston down.

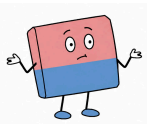
WANT MORE?

Six full car engine packs

All checked against Encyclopaedia Britannica, the US Department of Energy and NASA Glenn Research Center

PACK	WHAT'S INSIDE
Colour the Engine: Car Engine Colouring Pack	Colour-in drawings of a cylinder, the four strokes, gears, a spark plug, a Wankel rotor and the first engines, each with a fact-checked caption, plus label-the-part pages.
Car Engine Puzzle Pack: Crosswords, Codes & Stroke Logic	A crossword, a word search, a code-cracker, a stroke-order puzzle, a petrol-or-diesel sort and a timeline sort, with answer keys.
Car Engine Fact Cards: Parts, Pioneers & Power	Twenty-four fact-checked cards on engine parts, the four strokes, petrol and diesel, gears and the inventors, ready to cut out.
How an Engine Works: A Car Engine Workbook	Follow the four strokes, compare petrol and diesel, work out gear ratios and horsepower, and build an engine timeline from 1807 to 1971.
Pistons & Sparks: Kids' Car Engine Worksheets	For ages 7 to 11: name the parts, order the strokes, true or false, spark or squeeze, gear maths and a crankshaft maze.
Car Engine Poster Set	Six fact-checked posters: the four strokes, petrol vs diesel, engine parts, gears, where the energy goes and the engine pioneers.

Each pack comes in A4 and US Letter, and all six come together in The Complete Car Engine Printables Bundle. See engines.motoring.im/shop/ for links. Free car engine games: engines.motoring.im



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The small print, kept short

YOUR LICENCE

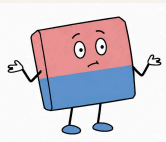
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All drawings, charts, puzzles and layouts are REALLYBYTE's own work.

WHERE THE FACTS COME FROM

Every fact in this pack was checked against the pages below (Encyclopaedia Britannica, the US Department of Energy and NASA Glenn Research Center) on 3 Nov 2026. Charts are drawn from the sourced figures. The drawings are our own, simplified and not to scale. Not endorsed by any of the sources.

NASA Glenn Research Center: Engine mechanical operation: www1.grc.nasa.gov/beginners-guide-to-aeronautics/engine-mechanical-operation/
Encyclopaedia Britannica: Diesel engine: www.britannica.com/technology/diesel-engine
Encyclopaedia Britannica: Gasoline engine: www.britannica.com/technology/gasoline-engine
Encyclopaedia Britannica: Horsepower: www.britannica.com/science/horsepower
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Useless can't help (he's an eraser, and he's busy polishing a piston), but we can. Problems with your file, or spotted something we should fix? Email **info@reallybyte.com**.

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