The Theme: Engine Parts

Objectives:

- to practice the new vocabulary for talking about engine parts
- to develop communicative skills
- to involve students into reading, writing, communicative activities
- to develop pupils' thinking.

Equipment: a blackboard, handouts, books, poster and audio.

Lesson type: combined.

PROCEDURE

I. **Greeting.**

II. **Introduction**

T: Glad to see you in a good mood. Today we'll continue to speak about internal combustion engine. An internal combustion engine is any engine that operates by burning its fuel inside the engine. In contrast a steam engine burns its fuel outside the engine. The most common internal combustion engine type is gasoline powered. Others include those fueled by diesel, hydrogen, methane, propane, etc. Like all engines internal combustion engine consists of parts that provide the engine operation. So the topic of today's lesson is Engine parts.

I. **Warming – up**

T: I suggest you to match a-I with 1-9 to make up word combinations.

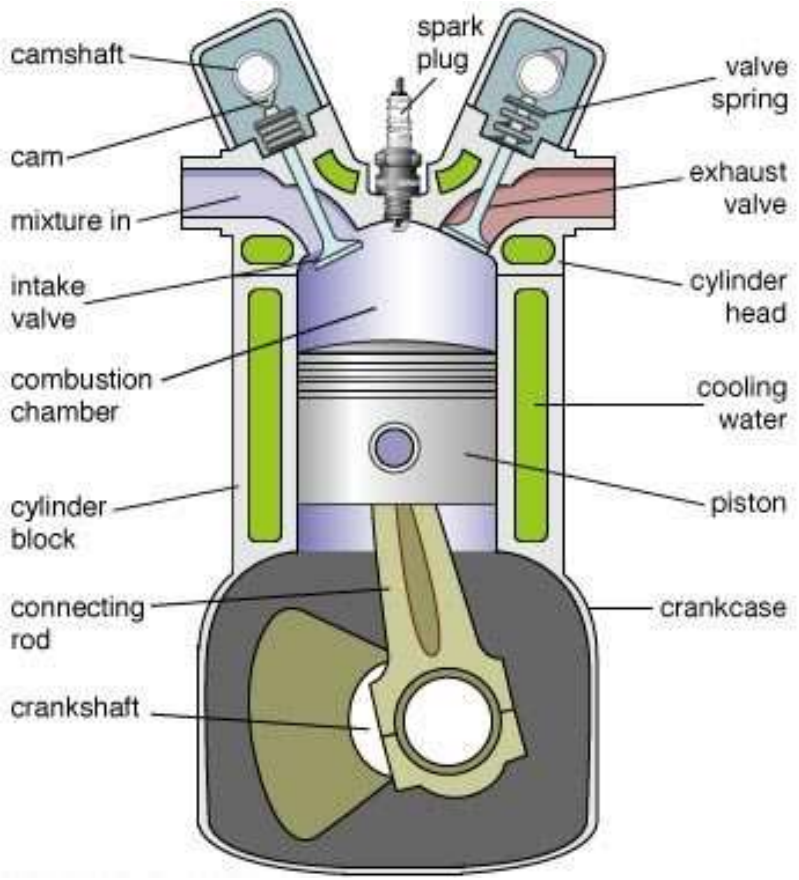
a) petrol	1) stroke
b) motor	2)engines
c) spark	3)injectors
d) fuel	4)engine
e) oil	5)plugs
f) exhaust	6)engine
g) power	7)vehicles
h) four-stroke	8)outlet

i) four-cylinder 9) sump

IV. The main part of the lesson:

1. **Vocabulary practice**

T: You future profession is car mechanic… A skilled car mechanic must know the engine parts. And now let's look at the picture and read new words.



T: Please write down the words in your vocabularies and once more read the names of engine parts (HO1).

Camshaft – розподільний (кулачковий) вал
Cam- кулачок
Intake valve – впускний клапан
Combustion chamber- камера згорання
Cylinder block- блок циліндрів
Connecting rod- шатун
Crankshaft- колінчастий вал
Crankcase- картер

Piston - поршень Cylinder head- кришка циліндра Exhaust valve- випускний клапан Spark plug- свічка запалювання

2. Reading

Pre-reading activity

T: Now I suggest you to do some exercises using new words.

Complete the sentences with the words from the brackets (HO2)

- The … changes reciprocating motion of pistons to rotary notion.
- The … opens the valves of the engine.
- The … is one of basic parts of the engine.
- The cylinder and the … form the combustion chamber.
- The … of fuel provides forces.
- The … keeps the lubricating oil near the engine parts.

(cylinder head, camshaft, burning, crankcase, crankshaft, cylinder block)

While-reading activity

T: Now your task is to read the text about engine parts and then will be ready to do some exercises.

Engine parts

Internal combustion engines have stationary, rotary and reciprocating parts.

Stationary Engine Parts. The stationary engine parts are the cylinder block, the crankcase and the cylinder head.

The cylinder block is one of basic parts of the engine. The process of combustion takes place within the cylinders.

The crankcase is a part of the cylinders. It supports the crankshaft and the camshaft and keeps the lubricating oil near the engine parts.

The cylinder heads close the cylinders. The cylinders and the cylinder heads form the combustion chambers.

The burning of fuel takes place within the combustion chambers.

Rotary Engine Parts. Rotary engine parts are the crankshaft, the flywheel and the camshaft.

The crankshaft changes reciprocating motion of pistons to rotary motion. The camshaft opens the valves of the engine.

Reciprocating Engine Parts. The reciprocating engine parts are pistons, rings, valves and connecting rods. These parts cause engine vibration.

The piston moves up and down within the cylinder .The piston head receives the force from the combustion of fuel within the cylinder and transmits it to the piston pin, connecting rod and crankshaft.

The piston has four rings. Three rings are at the head of the piston and provide good compression. One ring is at the bottom of the piston. It controls the cylinder lubrication. The piston rings absorb heat from the piston and transmit it to the cylinder.

The engine has valves. They are intake valves and exhaust valves. Intake valves allow the fuel to enter the combustion chamber. Exhaust valves allow the gases to pass from the combustion chamber. So the valves open and close the combustion chamber where the burning of fuel takes place. A camshaft opens each valve.

The connecting rod links the pistons and the crankshaft. It changes the reciprocating motion of pistons into the rotary motion of the crankshaft.

Post-reading activity

T: Now you know all engine parts so you are ready to do some exercises after text. I want you to do this exercise by yourself and then we'll check. I give you handouts with task (HO3).

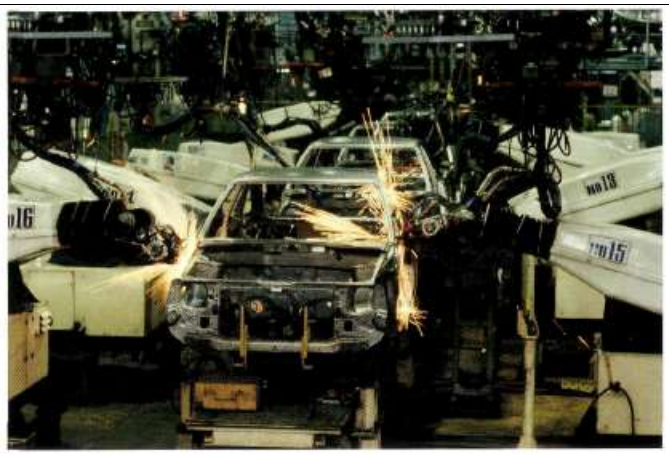
Say whether the following sentences are True or False:

1. Internal combustion engines have stationary and rotary parts only.
2. The process of combustion takes place out of the cylinders.
3. The cylinder heads close the cylinders.
4. Rotary engine parts are the crankshaft, the flywheel and the camshaft.
5. The reciprocating engine parts do not cause engine vibration.
6. The engine has intake valves only.
7. The connecting rod links the pistons and the crankshaft.
8. The piston rings absorb heat from the piston and transmit it to the rods.
9. The piston moves up and down within the cylinder .
10. Exhaust valves allow the gases to pass from the combustion chamber.

3.Listening

T: I see you know all engine parts perfectly so I suggest you to practice in its using. Look at this extract from a tour of a car factory. Complete the text with the words from the box (HO4).

clutch • combustion • crankshaft • cylinders • distribution • fuel • piston • spark plug • torque



'Now we come to the engine. The principle of the internal _____[1] engine has not changed in the last 100 years. The engine takes in _____[2] and air which is compressed in a combustion chamber. Then this mixture is ignited by a _____[3] to produce an explosion, which moves the _____[4] in the cylinder. The up and down motion of the piston in the cylinder is converted into rotational motion by the _____[5]. The rotational force generated by the engine is known as _____[6].

The size of the engine determines the power. The more _____[7] there are, the more powerful the engine. This power is transmitted through the _____[8], the gearbox, the propeller shaft (in rear-wheel and four-wheel drive), and the axles to the wheels. The position of the engine can vary, but generally speaking it is mounted at the front. In some sports cars, the engine is mounted at the rear (e.g. Porsche) or in the middle (e.g. Ferrari or Lamborghini) because of weight _____[9]. So, that's enough about the engine for the moment – let's move on to the next stage ... '

Post-listening

T:I see you are ready now listen to the recording to check your answers.

4.Speaking

T:I want you to make up 2 groups. Each group asks and answers the questions of another group. The questions should be about engine parts. I give you 2 minutes to prepare.

5.Writing

T: Please write down the sentences and complete it with the worlds from the text (HO5).

1 In an engine, linear motion is converted into _____ motion by the crankshaft

2 The power of the engine is _____ through the clutch and the gearbox.

3 The spark plug _____ the air/fuel mixture and sets off an _____.

4 A 6-cylinder engine is more _____ than a 4-cylinder engine.

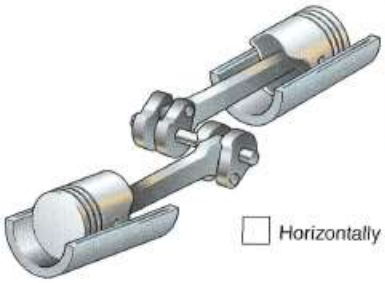
5 Fuel and air is compressed in the _____ chamber.

Answers: 1.rotational 2. transmitted 3. ignites, explosion 4. powerful 5. Combustion.

7. **Individual work**

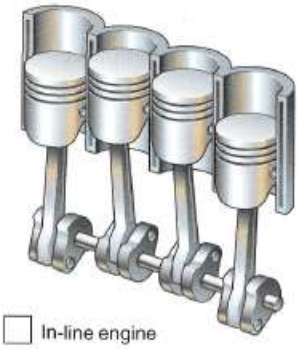
T: I've prepared for you an interesting task. Now I give you the cards with the task. Let's see who will be the first? (HO6)

Match the descriptions of engine layout with the diagrams.



1 This layout is used for high-performance engines with a compact layout such as in the BMW 7-series. The cylinders are arranged in two banks set at an angle to one another. This layout is normally more cuboid in shape than the other two.

☐ Horizontally opposed engine



2 This layout is wide and flat and gives the engine a low centre of gravity. The cylinders are arranged in two banks on opposite sides of the engine. It is very practical for cars with the engine located at the rear, such as the Porsche.

☐ In-line engine

3 This layout is long and narrow. The cylinders are all next to each other in a single bank. It is a standard, simple layout used in the Mercedes A-class, for example.

☐ V-engine

T: Now you know a lot about engine parts and types of engines , so I suggest you to practice in asking the questions to the sentences. Write down it, please(HO7).

Put questions to the underlined words and word combinations.

1. Some cars have the engine <u>in the rear or the middle of the car.</u>
2. The engine block houses <u>the engine's internal parts.</u>
3. The number of cylinders depends <u>on the make of the car</u>.
4. In a in-line engine the cylinders are arranged <u>in a straight line.</u>
5. <u>A V-type engine with 6 cylinders</u> is called a V-6.

8.Summering

T: Thank you everybody for good working during the lesson. I want you to practice more in speaking that's why your home assignment is to make up dialogue using new words and word combinations.