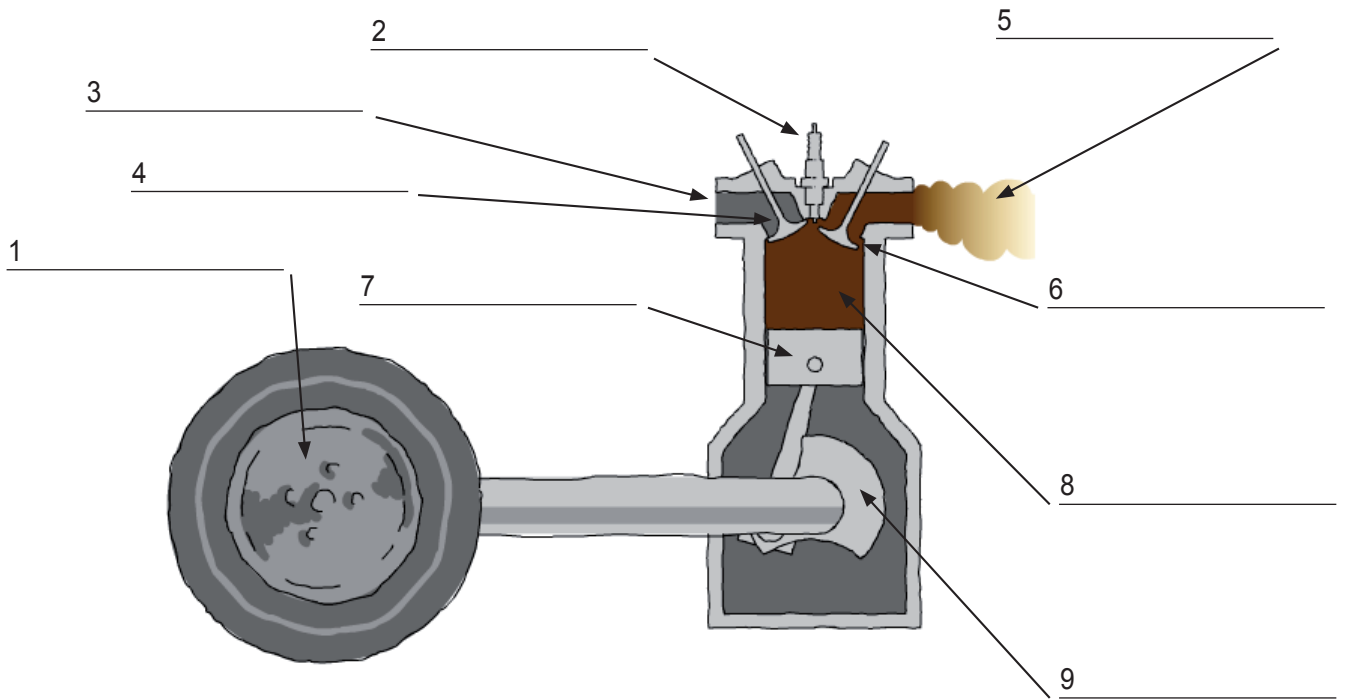


Exercise 1

Write the labels in the correct place on the diagram.



spark plug

intake valve

exhaust valve

chamber

piston

crankshaft

car wheel

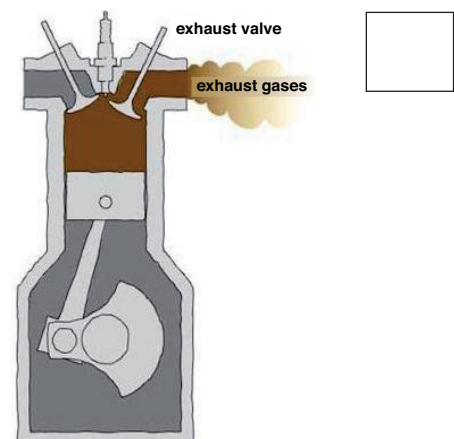
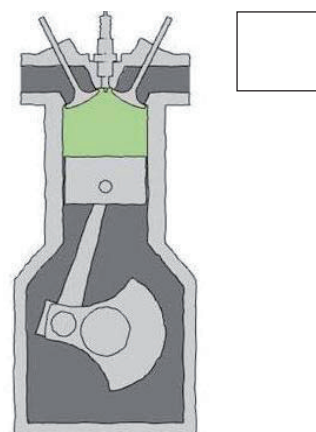
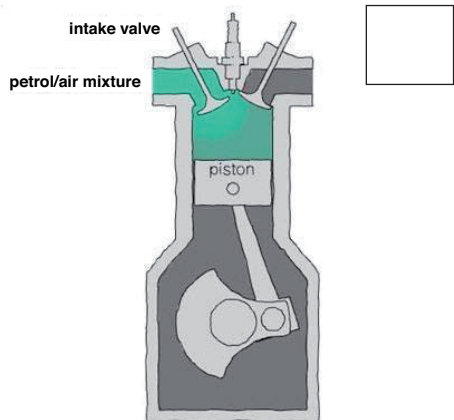
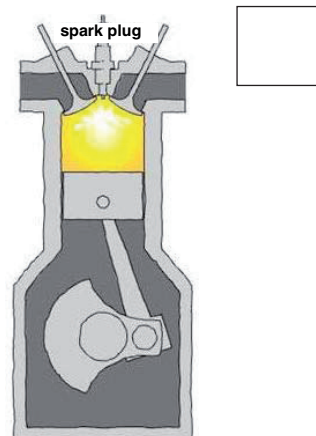
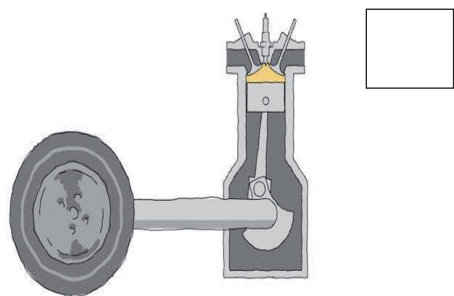
petrol-air mixture goes in

exhaust gases go out

Exercise 2

Write the number of the correct caption (1-5) next to each picture.

1. Suck! As the piston moves down, the intake valve opens and air mixed with a tiny drop of petrol is pumped into the chamber.
2. Squeeze! As the piston moves up, both valves are closed and the petrol/air mix gets squashed.
3. Bang! The spark plug sparks, causing the squashed petrol/air mix in the chamber to explode and push the piston down and up.
4. Blow! As the piston moves up, the exhaust valve opens and the exhaust gases get pushed out of the car via the exhaust pipe.
5. As the piston moves down and up it pushes the crankshaft round. This makes the car's wheels go round.



Exercise 3

Join the phrases to show the correct sequence of actions.

1. Suck!	As the piston moves up,	it pushes the crankshaft round. This makes the car's wheels go round.
2. Squeeze!	As the piston moves down and up,	causing the squashed petrol/air mix in the chamber to explode and push the piston down and up.
3. Bang!	As the piston moves down,	both valves are closed and the petrol/air mix gets squashed.
4. Blow!	As the piston moves up,	the intake valve opens and air mixed with a tiny drop of petrol is pumped into the chamber.
5. Round and round!	The spark plug sparks,	the exhaust valve opens and the exhaust gas es get pushed out of the car via the exhaust pipe.

Objectives

Science

Students look at the different parts of a petrol engine and learn how it works.

Language

Skills: Speaking, listening and reading

Grammar: Present simple tense, present simple passive, *get* + participle

Vocabulary: Nouns: *spark plug, intake valve, exhaust valve, chamber, piston, crankshaft, wheel, petrol, air, mixture, exhaust gases, engine, exhaust pipe*

Verbs: *suck, pump, squeeze, squash, bang, spark, explode, blow*

Activities

Activities	Language skills
Students say what they know about how an engine works	Speaking; vocabulary; present simple tense
They label a diagram of a petrol engine	Vocabulary
They order a set of pictures showing the sequence of events in how an engine works	Speaking; reading; vocabulary; present simple tense; present simple passive; <i>get</i> + participle
They watch the animation and check their answers	Listening; reading; vocabulary
They read and join up phrases to show the sequence of events	Reading; vocabulary
(Groups only) They give an oral commentary on the animation	Speaking; vocabulary; present simple tense; present simple passive; <i>get</i> + participle

Procedure

With the whole class

(Typical situation: whole class watching the presentation and animation on an interactive whiteboard or projector.)

- 1 [Slide 1] Introduce the topic. Ask the class to look at the diagram of an engine in exercise 1 on the worksheet. Ask students questions to help them say what they know about how an engine works, but do not go into detail. Introduce some key vocabulary (see above). Then get the students to do exercise 1 in pairs: they label the diagram. Monitor and help. When students have finished, check answers with the whole class. (See answer key.)
- 2 Ask the students to continue working in pairs to do exercise 2 on the worksheet: they match the pictures with the correct caption. Monitor and help, but do not give students the answers.
- 3 [Slides 2 and 3] Play the animation. Tell the students to watch and listen carefully and check whether they numbered the pictures correctly. Students check their answers in pairs. (See answer key.)

Teacher's Notes

- 4 Grammar focus (optional – see below).
- 5 [Slide 4] Tell students not to look at exercise 2 while they do the next exercise. Students continue to work in pairs and do exercise 3 on the worksheet: they join the phrases to show the correct sequence of actions. Monitor and help. Then check answers with the whole class. (See answer key.)

With groups (one group studies the engine and then presents it to the class)

(Typical situation: students arranged in groups around computers e.g. in a language lab)

- 1 [Slide 1] Students work in their group and do exercise 1 on the worksheet: they label the diagram. When students have finished, they can check their answers with the answer key.
- 2 Ask the students to do exercise 2 on the worksheet: they match the pictures with the correct caption. Monitor and help, but do not give students the answers.
- 3 [Slides 2 and 3] Play the animation. Tell the students to watch and listen carefully and check whether they numbered the pictures correctly. Students can also use the answer key to check their answers.
- 4 Grammar focus (optional – see below).
- 5 [Slide 4] Tell students not to look at exercise 2 while they do the next exercise. Students do exercise 3 on the worksheet: they join the phrases to show the correct sequence of actions. They can use the answer key to check their answers.
- 6 [Slide 5] The group gets ready to give an oral commentary on the animation. They can rehearse it once or twice if they wish. Play the animation without sound; students give the commentary.

Grammar focus (optional): present simple passive

1. Focus on main sentence 2 from exercise 2: *As the piston moves up, both valves are closed and the petrol/air mix gets squashed.* Write the sentence on the board or ask students to highlight it on their worksheet. Underline the passive verb form *are closed*. Ask students to identify whether this verb form describes an active process or a passive process. Is the phrase describing what the subjects (the valves) do, or what happens to the subject?
2. Explain to the students that scientific processes are often expressed using the present simple passive, because the most important thing is the event and not who or what carried it out. Now underline the verb form *gets squashed*. Tell students that *get* is often used like *be* with a participle to give a meaning that is like a passive verb form.
3. Write the structure of the present simple passive on the board: *am/are/is + past participle*. Write *get/gets + past participle* too.
4. If you wish, give students further grammar exercises practising the present simple passive to describe processes.

How an engine works

Worksheet answer key

Exercise 1

1. car wheel
2. spark plug
3. petrol-air mixture goes in
4. intake valve
5. exhaust gases go out
6. exhaust valve
7. piston
8. chamber
9. crankshaft

Exercise 2

a	4
b	5
c	2
d	1
e	3

Exercise 3

1. Suck!	As the piston moves down,	the intake valve opens and air mixed with a tiny drop of petrol is pumped into the chamber.
2. Squeeze!	As the piston moves up,	both valves are closed and the petrol/air mix gets squashed.
3. Bang!	The spark plug sparks,	causing the squashed petrol/air mix in the chamber to explode and push the piston down and up.
4. Blow!	As the piston moves up,	the exhaust valve opens and the exhaust gases get pushed out of the car via the exhaust pipe.
5. Round and round!	As the piston moves down and up,	it pushes the crankshaft round. This makes the car's wheels go round.