

Get **INVOLVED!**

American Edition

3

Teacher's Edition
with Teacher's App





Invention

Vocabulary

Student's Book pp48–49

Lesson goals *Students learn vocabulary for science and talk about famous scientists, discoveries and inventions. Students learn about suffixes and jobs.*

Warm-up

Ask students to write a list of five inventions in their house that are important to their family.

Students then rank them in order of importance.

In pairs, students take turns reading aloud their lists to each other in a random order for their partner to guess which invention is least and most important to them.

Students then compare their lists and discuss similarities and differences.

Elicit inventions from different students around the class and ask whether they listed more software or physical products.

WDYT?

**What makes a good invention?
What's the best way to
present it to people?**

Tell students that 99.9% of inventions fail, then briefly discuss what made the inventions they listed in the Warm-up good inventions.

Discuss as a class whether it matters how an invention is presented. Encourage all ideas and opinions.

Jobs in science

- 1** Ask students to share some of the jobs they came up with and add them to a word cloud on the board.
- With less confident classes, elicit the meaning of the word *physicist* (= an expert or student of physics) and *entrepreneur* (= someone who starts their own business, especially when this involves seeing a new opportunity) and practice the pronunciation of as many of the words as necessary, e.g. *physicist* /ˈfɪzɪsɪst/ and *entrepreneur* /ˌɑːnrəprəˈnʊr/.
 - Discuss as a class which job they think is the most interesting and ask students to justify their answers.

Exercise 1

Suggested answers: anthropologist, archaeologist, astronomer, dentist, epidemiologist, geneticist, geologist, lab technician, meteorologist, nurse, oceanographer, paleontologist, pharmacist, professor, psychologist, researcher, veterinarian, zoologist

- 2** • Remind students that there are no rules for suffixes and jobs, although the suffix *-ist* is common for jobs in science.

Fast finishers

Have students add as many of the additional jobs from the word cloud into their tables as they have time for.

Exercise 2

-er/-eer: engineer, researcher **-or:** doctor, inventor
-ist: biologist, chemist, physicist, scientist
other spelling: entrepreneur

Extra activity

Get the class to think of famous biologists, chemists, etc. Write them on the board for students to refer to later in the lesson.

(**Suggested answers: Biologists** – Charles Darwin (the theory of evolution), Rachel Carson (the effects of pesticides on the natural system); **Chemists** – Alfred Nobel (dynamite), Rosalind Franklin (X-ray diffraction images of DNA); **Engineers** – Elon Musk (Space X, Tesla), Hedy Lamarr (Secret Communications System); **Entrepreneurs** – Mark Zuckerberg (founded Facebook®), Steve Jobs (Apple and Pixar); Inventors – Karl Benz (car), Alexander Graham Bell (telephone), Grace Hopper (computer software), Elizabeth Magie (Monopoly®), Montgolfier brothers (hot air balloon), George Stephenson (steam locomotive), Laszlo Biro (ballpoint pen); **Physicists** – Isaac Newton (theory of gravity), Emmy Noether (the variation principle))

Verb and noun collocations: science

- 3** • Students do the task.
- 4** • Students do the task.
- When discussing the answers, you could provide the class with some of the information from the *Culture note* on the next page.
 - Follow-up questions:
When did a scientist invent the pencil? (1795)
Why did the scientist take a picture of a mouse's brain? (to see how the brain works)

Exercise 4

1 c 2 e 3 d 4 b 5 a

Extra activity

Ask students to debate in small groups which of the inventions they think will be the most useful.



Culture note

Photo 1 When liquids are shaken, air bubbles form. If the bubbles don't burst, foam is formed. There is a type of chemical (called surfactants) that helps bubbles form without bursting. These chemicals are found in many home products, including toothpaste, shower gel and dishwashing liquid. Scientists are evaluating the possible effects of these chemicals on the environment.

The zebrafish in **photo 2** is a small tropical fish from south Asia. They are important in medical research because they share 70% of our genetic code. When the zebrafish loses something – an eye, a tail – they grow a new one.

The device shown in **photo 3** is an EEG headset. It records brain activity. The research was carried out on 95 people aged over 65 walking in different parts of towns and cities. They showed that people were calmer in places like parks than in busy areas.

Photo 4's image of a mouse's brain might not seem that exciting but, given how little we understand about how all brains work, this is seen as a major step toward a fuller understanding of the brain in general and, some day, the human brain.

Photo 5 shows the modern pencil, which was invented by Nicolas-Jacques Conté, a scientist in the army of Napoleon Bonaparte. Graphite was first believed to be a form of lead and was only called *graphite* in 1789, using the Greek word *graphein* meaning 'to write'.

5 Highlight that these are collocations.

- Point out that many of the nouns go with more than one of the verbs but that the collocations in this exercise are specifically the ones in the texts.
- Challenge** More confident students can think of more collocations with these verbs.

Exercise 5

create an invention, come up with a solution, design a device, develop a product, discover something, do an experiment, do research, invent a product, investigate something, make a discovery, research something

- 6
- In pairs, students complete the questions.
 - When writing their own questions, remind them to use the words in exercise 5.
 - Reinforcement** Tell students to look ahead to exercise 7 for some ideas.
 - Ask pairs to read aloud their most interesting question for students to answer as a class.

Exercise 6

1 invented (Martin Cooper) 2 created (Guglielmo Marconi)
 3 discovered (Marie Curie) 4 came up with (Tim Berners-Lee)
 5 discovered (Nicolaus Copernicus) 6 developed (Ada Lovelace)
 7 discovered (Alexander Fleming)
 Students' own answers

- 7
- Draw students' attention to the model dialogue and elicit the meaning of *best-selling* (= selling in very large numbers, e.g. *a best-selling novel*).
 - As a class, ask students to raise their hands to see which things are the most popular with students.

VIDEO SKILLS

8 See the video script on p141.

- Students do the task. Encourage them to look for clues like the locations, age of the people, activities and objects they see.
- Students do the task.
- If necessary, check understanding of *entrepreneur*, *innovator* and *competition*.
- When students have discussed the questions, nominate pairs to share their answers with the class. Elicit other opinions from the class and discuss.

Exercise 9

The video is about projects young people have developed related to satellite technology.

Exercise 10

- 1 Students' own answers
- 2 **Suggested answers:**
- There is an interview with one of the teenage competitors about how she felt.
 - The voiceover tells us more about the competition and about what happened before the event, and gives more detail about one of the inventions.
 - There is footage of the competition which shows us who was there and what the location was like, and what some of the presentations were like. There is also footage at the beach of one of the inventions, a wristband for surfers.

Further practice

- Vocabulary → Workbook p28
- Vocabulary → On-the-Go Practice
- Vocabulary worksheets (basics, standard and higher) → Teacher's Resource Center
- Pronunciation → Student's Book p128

Pronunciation p128 Exercise 2

/aɪ/: design, device, scientist /eɪ/: brain, create, investigate
 /oʊ/: chose, phone

Homework

Ask students to choose one of the options in exercise 7 and write a few sentences about why they would like to do that thing.

Reading and critical thinking

Student's Book pp50–51

Lesson goals *Students read an online article that encourages more young people to invent things, practice identifying text purpose and use critical thinking skills to evaluate and improve a product.*

Warm-up

To prepare for the lesson, read aloud sentences containing some specific items of vocabulary. Ask students to define each word based on the context.

- 1 *vaccine*: The influenza vaccine is given to very old and very young people because influenza can kill them.
 (= a substance usually injected into the body to give protection against a disease)
- 2 *melt*: Sea levels are rising because ice in Antarctica is melting. (= to change from a solid substance into a liquid)
- 3 *battery*: My phone doesn't work because the battery has run out. (= an object that supplies electricity)

An online article

- 1
- Students do the task.

Exercise 1

Suggested answers:

People in science: biologist, chemist, doctor, physicist, researcher
Things they do: design, create, discover, find a solution, improve

- 2 23 Students read the text and check if their guesses about the vocabulary were correct.

Exercise 2

Suggested answers: scientist, invent something, engineer, invent a device, design a device (a trailer with a fridge on it)

► Subskill: Identifying text purpose

Highlight that most texts have one of three purposes – to persuade, to inform or to instruct.

- A persuasive text presents one side of an argument and may use adjectives and repeated words.
- An informative text contains facts to guide you and presents all sides of an argument.
- An instructive text tells you how to do something. It may use imperatives, *must/mustn't* and lists.

- 3
- Students do the task.

Exercise 3

- 1 a – It's an article because there is a headline, a concise description, followed by further detail.
- 2 b – The writer's relaxed style is accessible to a non-specialist audience and the language is straightforward and the writer uses the active voice.
- 3 c – The writer tries to motivate the reader by talking about successful young inventors of both sexes who have had an impact on the world. The writer encourages the reader to follow a similar path.

Extra activity

Elicit how the format, language and style would be different for the incorrect options in exercise 3.

(1 It isn't from a textbook because the language would probably be more formal. The use of direct questions is also unlikely in a scientific book. 2 If the audience were experts in the field, the language would be more complex and the content less general. 3a An instruction manual would have imperatives, sequencing words and non-emotive language. 3b The tone is not academic enough. 3d There is no advice on becoming a successful inventor.)

- 4
- Students do the task.
 - Reinforcement** Students could work in pairs.
 - When students have finished, elicit the key sentences that helped students choose their answers.
 (1 *When he was a baby, ... vaccines were all useless.*
 2 *Eesha had always loved chemistry* 3 *it could be used for any electronic device.* 4 *Eesha won a \$50,000 science prize ... His invention has already won an international science prize.* 5 *It's called a 'supercapacitor' ... she wanted to improve technology; he wanted to find a solution. He designed a trailer with a fridge on it – the Vaxxwagon.* 6 *It could help millions in countries where not everyone has electricity at home ...*)

Exercise 4

1 Anurudh 2 Eesha 3 Eesha 4 Both 5 Both 6 Eesha

- 5
- Point out to students that there may be more than one possible answer.

Fast finishers

Ask students to write one or two alternative ways to complete the sentences based on the text.

Exercise 5

Suggested answers:

- 1 in 20–30 seconds.
 2 any electronic device, even cars.
 3 at the University of California.
 4 they protect people from diseases and save lives.
 5 it was useless (because it was too warm).
 6 someone pulls the trailer to generate power.

- 4
- 6 • **Word work** Encourage students to use the context to decide on the meaning.

Exercise 6

- | | | |
|--------------|------------|-----------|
| 1 remote | 2 generate | 3 improve |
| 4 healthcare | 5 charge | 6 trailer |

- 7 • Students do the task.

Exercise 7

- | | | |
|------------|--------------|-----------|
| 1 generate | 2 improve | 3 remote |
| 4 charge | 5 healthcare | 6 trailer |

- 8 • Before students do the task, model the activity with a pair of more confident students.
- **Reinforcement** Elicit key phrases and write them on the board to help students discuss their opinions:
- I agree because ... I think that ...*
I disagree/don't agree because ...
In my opinion ... If you ask me ...

CRITICAL THINKING

SUPER SKILLS



- 1 • **Remember** (LOT) Elicit how products can improve our lives, e.g. they enable us to do things faster, more easily and in a more convenient way.
- Before students do the task, brainstorm a list of products students can choose from, e.g. sneakers with air-cushioned soles, smartphone, smartwatch, fitness tracker, smarhub, e-reader ...
 - Put students in pairs to pick a product. Make sure they don't all choose the same one.
- **Reinforcement** Have more than one pair working on the same product so they can brainstorm in larger groups.
- Give students two minutes to complete the task. Share their ideas on the board.
 - If your class needs further support, write some prompts on the board:
It's designed to .../It's used for ...
It is controlled by ...
All you have to do is ...
Some of its functions are ...
- 2 • **Analyze** (HOT) Have students brainstorm advantages and disadvantages in their pairs or in small groups, before structuring their ideas in pairs.
- Remind them to evaluate their product and give an opinion on whether the advantages outweigh the disadvantages.
 - Write some key words on the board to help students evaluate their product, e.g.: *practical, cost, quality, lifespan, time-consuming, breakable, design.*

- **Challenge** Give students some more advanced vocabulary to include in their descriptions:
- this compensates for*
this makes up for
a key benefit is
one drawback is
a significant advantage
on the other hand
there are more pros than cons

- Give students time to analyze their product.
 - Elicit answers from some pairs around the class.
- 3 • **Evaluate** (HOT) Read aloud the suggested answers to give students a model.
- Have students work in pairs or small groups to suggest an improvement. Tell them to look at the weaknesses they identified for ideas.
 - Students could present their ideas to the class for the class to vote on the most improved product.

Critical thinking

Suggested answers:

- My smartphone is designed to improve my life. It's portable and it makes it easier to communicate with people, get directions, etc.
- A smartphone works well but when there is low battery, it's not very practical. It's small and compact and so is easy to carry. My smartphone was expensive but I use it every day. I think a cell phone is value for money because it makes life easier.
- It could be improved if it was cheaper and the battery didn't run out.



Culture note

Eesha Khare, from Saratoga in California, was 18 years old when she developed the **supercapacitor** in 2013. She was awarded an Intel Foundation Young Scientist Award at the Intel International Science and Engineering Fair in Arizona. 1,600 finalists from more than 70 countries participated. She went on to study for a PhD at MIT in the USA.

Anurudh Ganesan was awarded the LEGO® Education Builder Award at the Google® Science Fair in 2015 for the **Vaxxwagon**.

According to UNICEF®, approximately 1.5 million children die each year around the world as a result of not receiving appropriate and effective vaccines. The Vaxxwagon tackles one of the causes of this. It costs about \$100 and takes around five hours to build.

CELEBRITY CORNER

Ellen Ochoa went into space in 1993.

Further practice

- Reading → Workbook p32
- The longer read → Teacher's Resource Center
- Accessible reading worksheet → Teacher's Resource Center

Homework

In pairs, ask students to choose one of the inventors in the reading text and write a three- to four-line summary about him/her and his/her invention.

Encourage them to find out more information about the young inventor and add three or four more facts to their text.

Grammar

Student's Book p52

Lesson goals Students learn the form and use of the past perfect and when to use the past perfect or the simple past.

Warm-up

Write the below verbs from the previous lesson on the board.

have, do, find, need, use, run, charge, want, win, create, take, get, be, keep, reach

In pairs, students race to write the simple past and past participle forms. The first pair to finish reads out their list to check answers as a class.

Past perfect

- 1 • Before students do the task, make sure they understand that each of the examples talks about two actions that happened in the past, one before the other. They contain two verbs, one in the past perfect (shown in blue) and the other in the simple past.
- Use the information in the notes below to discuss ordering events and time expressions.

Exercise 1

- | | | |
|----------|-------|-------|
| 1 before | 2 can | 3 can |
|----------|-------|-------|

Past perfect

ABCD

Show that the past perfect indicates the action which occurred first, whatever the order of the actions in the sentence:

By the time I arrived, they had already tried lots of new ideas.
They had already tried lots of new ideas by the time I arrived.

Fast finishers

Ask students to find as many examples of the past perfect as they can in the Reading text on p51.

- 2 • Before students do the task, suggest they go through the sentences and identify the tenses and the time expressions.
- While checking answers, ask students to change the order of the clauses in each sentence, e.g. *Before we found a solution, we had tried different things.*

Exercise 2

- | | | |
|-------------------|---------------------|--------------------|
| 1 'd tried | 2 'd invented | 3 had just started |
| 4 hadn't finished | 5 'd already tested | |

- 3 • Ask students to read the text before they do the task.
- Check their answers and ask students to change the order of the clauses in the sentences where possible.

Exercise 3

- | | | | |
|------------------|-----------|--------------|----------------|
| 1 had complained | 2 decided | 3 complained | 4 had had |
| 5 had cut | 6 cooked | 7 loved | 8 had invented |

crisps vs chips vs fries

ABCD

What American English refers to as *chips* are known as *crisps* in British English.

British English uses the term *chips* to refer to what Americans call *fries*.

However, with the rise of American fast food, *fries* is becoming an increasingly common term everywhere.

- 4 • Check understanding of how *Wh-* questions are formed by doing question 1 together.
- After the task, share the information from the *Culture note* below about Crum and Lay.

Exercise 4

- Who had complained about the fries? A customer.
- Did the customer complain again? Yes.
- Why had Crum had enough? Because the customer had complained twice.
- How did Crum cook the really thin potatoes? In hot oil.
- What had he invented? He'd invented chips.



Culture note

George Crum (1824–1914) is credited with inventing **chips**. but they didn't make him fabulously rich. The chips became famous locally but they only became popular throughout the USA after he had died.

A mechanical potato peeler was invented in the 1920s and this made chips easier to make and they began to be more widely known.

In 1932, **Herman Lay** began a business selling chips and soon after bought a company that made them. In 1961, the company expanded further and became Frito-Lay. Today, Lay's is the number one brand of chip sold in the USA.

- 5 • Students do the task.
- **Reinforcement** Tell students that there are four simple past and four past perfect forms.
 - After the task, share the information from the *Culture note* below.

Exercise 5

- | | |
|-----------------|-----------------|
| 1 cooked | 2 realized |
| 3 had run out | 4 had forgotten |
| 5 decided | 6 took |
| 7 hadn't melted | 8 had invented |

Culture note

Chocolate chip cookies became so popular they were even included in packages to American soldiers serving overseas in WWII.

Ruth Wakefield included her chocolate chip cookie recipe in a cookbook which became a best-seller.

She made a business arrangement with Andrew Nestlé: Wakefield allowed Nestlé to print her cookie recipe on the wrapper of one of their chocolate bars. In return, she received \$1 and a lifetime's supply of Nestlé chocolate!

- 6 • To solve this puzzle, students need to use the past perfect to work out the sequence of events.

Exercise 6

Kiera finished first.
Order: Kiera, Tobias, Ruth, John, Sami

Further practice

- Grammar bootcamp → Student's Book p121
- Grammar bootcamp answer key → Teacher's Resource Center
- Grammar → Workbook p29
- Grammar reference and practice → Teacher's Resource Center
- Grammar → On-the-Go Practice
- Grammar worksheets (basics, standard and higher) → Teacher's Resource Center

Homework

Ask students to write four personalized sentences using the past perfect and different time expressions.

Get online

In pairs, ask students to find out more about *either* George Crum *or* Ruth Wakefield.

Ask them to share their information with another pair who chose the same person, then to share their information with a pair who chose the other person.

Vocabulary and Listening

Student's Book p53

Lesson goals *Students learn to describe products and to listen for the information they need in the context of a talk about products that harm the environment.*

Warm-up

Write these sentences on the board:

- 1 Every day ___ pieces of plastic enter our oceans.
- 2 There are ___ pieces of plastic floating in the ocean.
- 3 ___ marine animals and ___ sea birds are killed by marine plastic pollution every year.

Write or dictate these numbers: 100,000 (one hundred thousand) / 1 million / 8 million / 5.25 trillion

In pairs, students fill the blanks with the appropriate numbers.

Check students know that a million has six zeroes; a trillion has 12 zeroes.

(1 8 million 2 5.25 trillion 3 100,000, 1 million)

Describing products

- 1 • Ask students to discuss the questions in pairs. Tell them not to read the reviews yet.
- If possible, project the images at the front of the class and have students close their books.

Exercise 1

- 1 Students' own answers
- 2 **Suggested answers:** comfortable, easy-to-use, handy, high quality, innovative, practical, useful, wearable, wireless

- 2 • Students do the task.

Exercise 2

- Matching:** 1 A 2 B
- 1 Students' own answers
 - 2 Students' own answers

- 3 • Students do the task.

Exercise 3

- 1 wireless
- 2 handy
- 3 innovative
- 4 practical
- 5 wearable
- 6 high quality

- 4 • After checking answers, discuss the questions as a class.

Exercise 4

well made – badly made; expensive – cheap; easy to use – hard to use; practical – impractical; expensive – inexpensive; high quality – low quality; comfortable – uncomfortable; reliable – unreliable; useful – useless

Negative prefixes: practical – impractical, expensive – inexpensive, comfortable – uncomfortable, reliable – unreliable

Other:

Opposite adjectives: e.g. easy to use – hard to use, high quality – low quality

Opposite adverbs: e.g. well made – badly made

Negative suffixes: useful – useless

Negative prefixes

ABCD

- The opposite of some adjectives is formed by adding a negative prefix (e.g. *un-*, *im-*, *in-*, *ir-*, *il-*):
helpful – *unhelpful* *responsible* – *irresponsible*
possible – *impossible* *regular* – *irregular*
correct – *incorrect* *legal* – *illegal*
- Highlight that words that take *il-* as a prefix begin with *l*, words that take *ir-* begin with the letter *r* and words that take *im-* begin with the letter *m* or *p*.

Fast finishers

Ask students to think of more adjectives with negative prefixes. When everyone has finished, they can read aloud their words for others to add to their list.

A talk

- 5 • Ask students to read the questions and check they understand the meaning of the words in bold.
- Encourage students to guess their answers to the questions.

Exercise 5

packaging – where we put goods so they can be sold, e.g. plastic, boxes

harms – damages environment – natural world

- 6 24 See the audio script on p133.

- Ask students to share any facts they know about plastic waste in the world's oceans or any that they can remember from the audio.

Exercise 6

Suggested answers:

- 1 It's water balls that you can eat.
- 2 The packaging is made of plants and seaweed.
- 3 No, it is good for the environment.
- 4 It's small, round, easy-to-use, edible, not expensive, handy, useful.

Subskill: Listening for the information you need

Remind students that a key technique is to underline the key words in the question so they are cued to listen to information around the blank. Point out that the exact words they need to write are on the recording, but some of the words surrounding the blanks are not expressed in exactly the same way.

- 7 • Before the task, ask students to read the Subskill advice. Share the information from the teacher's notes above.
- Elicit what type of information could go in each space, e.g. a name, number, date or adjective. Ask them to underline the key words to help them.

Exercise 7

Information needed:

- | | |
|--------------------|--------------------|
| 1 number | 1 50 |
| 2 number | 2 13 million |
| 3 noun/noun phrase | 3 ball of water |
| 4 verb | 4 create any trash |
| 5 past participle | 5 tested |
| 6 quantifier | 6 Millions |

- 8 • Students do the task.
- Elicit the key information that helped students decide on their answers.

Exercise 8

- 1 False 2 True 3 No information 4 True 5 False 6 True

- 9 • Students do the task.

Further practice

- Vocabulary → Workbook p30
- Vocabulary → On-the-Go Practice
- Vocabulary worksheets (basics, standard and higher) → Teacher's Resource Center
- Listening → Workbook p33
- Listening worksheet → Teacher's Resource Center

Homework

Ask students to find out more information about single-use plastics, e.g. facts and figures, products that are being developed to solve this problem.

Get online

Ask students to find and watch a video on Oohos, then to share with a partner any interesting information they discover.

Grammar

Student's Book p54

Lesson goals Students review relative pronouns and learn about essential adjective clauses. Students learn facts about a famous scientist and an inventor.

Warm-up

Play **First to five**.

(See Activities bank, page 6, for full instructions.)

Suggested categories: jobs in science, words related to inventions and discoveries, the environment, everyday objects, negative prefixes, adjectives to describe products

Relative pronouns

- Students do the task.

whose vs who's

ABCD

- Although they sound alike (they are homophones) and both are related to the pronoun *who*, *whose* and *who's* have different functions.
- Who's* is a contraction – it can mean *who is* or *who has*. It has an apostrophe, which can sometimes be used in words that show possession – but here it does not show possession.
- Whose* is the possessive form (to show belonging) of the pronoun *who*: *Whose party is it?*

Exercise 1

- a who, that b which, that c where d when e whose
- after

Extra activity

Read aloud these sentences for students to say the correct relative pronoun. Ask students to say when more than one pronoun is possible.

- This is the house (...) I was born.* (where)
- I like inventions (...) are really useful.* (which/that)
- He's the man (...) dog bit me.* (whose)
- She's the woman (...) invented Monopoly.* (who/that)
- He was born (...) the First World War began.* (when)

- Do the first one as a class.
 - Elicit what students know about the scientist Stephen Hawking before they complete the task.
 - Ask students if another pronoun is possible in some places. (yes – 2nd part of 1 *that* 4 *who* 5 *that* 6 *that*)

Exercise 2

- whose, who (Stephen Hawking) 2 where (the UK)
- when (1942) 4 that (Barack Obama) 5 who (his daughter)
- which, time (space and black holes)



Culture note

When **Stephen Hawking** was 21, he was diagnosed with a form of motor neurone disease (MND) and only given a few years to live. Despite this, he lived until he was 76 years old and died in 2018.

He received many awards for his scientific work including a CBE (Order of the British Empire – Commander) in 1982 and the Fundamental Physics Prize (2013).

MND gradually affects the brain cells that communicate with the body's muscles. Hawking used a special computer that talked for him, which he controlled by moving a muscle in his cheek.

Essential adjective clauses

- Students do the task. Check their answers and share the information from the notes below.

Exercise 3

- can 2 need 3 usually

Essential adjective clauses

ABCD

- Highlight the essential adjective clauses in the example sentences and remind them that without this information, it would be difficult to know who or what is meant.
 - If the essential clause is removed from a sentence, its meaning is fundamentally different. For example, saying *That's the city* is very different from saying *That's the city where they live*.
- Elicit what students know about the inventor Alexander Graham Bell before they do the task.

Exercise 4

- Alexander Graham Bell is the man **who/that** invented the telephone.
- Bell moved from Scotland to Canada **where** he started his experiments.
- He was investigating sound in 1879 **when** he discovered a way to communicate over distance.
- He used a magnet **which/that** turned sound into electricity.
- Bell is the man **whose** invention changed the way we communicate.



Culture note

Alexander Graham Bell was born in 1847 in Edinburgh, Scotland. Both his mother and his wife were deaf, which is what led him to study the science of sound. He was also taught in schools for the deaf.

As well as the telephone, he invented the metal detector and a device to detect icebergs. He also contributed to important research related to flight.

GRAMMAR ROUND-UP

- Before students do the task, elicit the meaning of *bounce* (= in this context, to jump repeatedly up and down, typically on something springy). Elicit example sentences, e.g. *The children bounced on the bed*.

Exercise 5

- | | | | |
|---------|--------------|----------|---------|
| 1 was | 2 who | 3 had | 4 were |
| 5 could | 6 which/that | 7 became | 8 Since |

Further practice

- Grammar bootcamp → Student's Book pp121–122
- Grammar bootcamp answer key → Teacher's Resource Center
- Grammar → Workbook p31
- Grammar reference and practice → Teacher's Resource Center
- Grammar → On-the-Go Practice
- Grammar worksheets (basics, standard and higher) → Teacher's Resource Center

Homework

Ask students to go online and find out more about either Stephen Hawking or Alexander Graham Bell. Read the information in the *Culture notes* on the previous page to help students choose. Ask them to write at least three sentences based on the information they find using essential adjective clauses.

Real-world speaking

Student's Book p55

Lesson goals Students learn about question tags for checking information and use them in a dialogue.

Warm-up

Elicit what a *light show* is (= a show where (laser) lights are projected onto buildings and public spaces).

Encourage a brief discussion by asking, for example, what light shows are like or what they know about them (see *Culture note* below). You could also show a video of a light show, e.g. Lumiere UK.

Checking information

- Ask students whether they have ever been to a light show. You could follow up by asking whether they had to pay for tickets.



Culture note

The lights used in **light shows** are laser lights. Their use in art and entertainment started in the 1970s and they became a feature of rock concerts.

Some of the most famous light festivals in the world are Vivid Sydney (Australia), the Amsterdam Light Festival (Holland) and Lumiere (UK).

The lights are often projected onto famous buildings, like Sydney Opera House in Vivid Sydney. Many light shows are free, or you can see parts of the most famous light festivals without paying.

- Before students watch the video, write the two points on the board.

Books closed. Students do the task.

Exercise 2

- They decide to go at 6:00 pm.
- They decide to take a sandwich and some snacks.

- Students do the task.
 - Challenge** Students complete the dialogue and then watch to check.

Fast finishers

Students read the dialogue and find five ways to agree, three time references, three adjectives and two food items.

(agree: Me too.; Yeah, that's right.; That's true.; OK; Yeah time: 6:00 pm, spend two hours, last time adjectives: excited, expensive, free food: sandwich, snacks)

Exercise 3

- wasn't there 2 weren't there 3 do we 4 don't you

- Play the video again for students to notice the rising intonation in the question tags.
 - Elicit which two phrases are not in the dialogue.
 - Explain how question tags are formed and used (see *Question tags* note below) and use the Extra activity on the next page if you feel it would benefit your students.
 - Ask students to practice the dialogue in pairs. Remind them to imitate the intonation patterns they heard in the video. Those who finish early can swap roles.

Exercise 4

It's on for four nights, isn't it?
You checked the route, didn't you?

Question tags

ABCD

- Point out that question tags are not really questions requiring a proper answer. They are used to check information and invite people to agree with us.
- They are often used to keep a conversation going.
- The most confusing aspect of question tags for students is that when the main clause is affirmative, the question tag is negative, and vice versa.

Extra activity

Write the rules on the board and ask the students to choose the correct words to complete them.

- 1 When the verb in the main clause is affirmative, the auxiliary verb in the tag is **affirmative/negative**. When the verb in the main clause is negative, the tag is **affirmative/negative**.
 - 2 The pronoun in the tag **is/isn't** the same as the subject in the main clause.
 - 3 The auxiliary verb **agrees/doesn't** agree with the subject of the sentence.
 - 4 When the main clause uses the verb be, the tag **uses/doesn't use** it.
 - 5 The auxiliary verb in the tag **is/isn't** in the same tense as the verb in the main clause.
- (1 negative, affirmative 2 isn't 3 agrees 4 uses 5 is)

- 5 • **THINK** In pairs, students decide on an event. Elicit what type of information students need to think about for each point, e.g. start time, type of transportation, facilities at the event, whether they are expensive, whether they can take snacks.
- **Challenge** Students can also think about cost and whether they need to buy a ticket beforehand.
- **PREPARE** Remind them to include question tags and highlight how Felix responded to them. (a simple Yes/Yeah, but also *that's right* and *that's true*; No followed by further confirmation – *No, it's free*.)
 - **PRACTICE** Give students enough time to practice in pairs.
 - **PERFORM** Before students perform, ask them to read the **Peer review** questions in exercise 6 and make notes as their classmates perform. Also, ask how they could improve their dialogue.
 - Students perform their dialogues in small groups or as a class.
- 6 • **Peer review** After all the students have performed their dialogues, nominate students to discuss, in general terms, whether their classmates used a variety of phrases and good intonation.

Further practice

- Speaking → Workbook p33

Homework

Ask students to research a famous light show and write a paragraph about it.

Writing

Student's Book pp56–57

Lesson goals Students practice using formal language to write a formal letter to respond to an ad.

Warm-up

Ask students what they remember about the key features in an informal email ('chatty' style similar to speaking, contractions, phrasal verbs, etc.).

Tell students that they are going to work on formal letters this class. Elicit the features of a formal letter. Then ask them to scan the letter on p56 to see if they thought of all the key features.

(Suggested answers: full forms instead of contractions, appropriate greeting and closing phrases, formal letter format, polite style with full sentences, no colloquial expressions, no exclamation marks ...)

A formal letter

- 1 • Students do the task.
 - Follow-up questions:
What is the name of the type of letter Lexie is sending? (a cover letter)
What type of product does Lexie want to present? (a device to increase internet speed)

Fast finishers

Ask students to find seven adjectives in the letter used to describe an invention. (innovative, new, easy-to-use, well made, reliable, high-quality, practical)

Exercise 1

- 1 B 2 yes 3 Lexie's product increases internet speed.

Cover letters

- Cover letters are the type of formal letter (or email) students are most likely to have to write. Highlight the following points:
 - They are sent with your résumé so they shouldn't just repeat the information there.
 - They should point out why your skills and experience are relevant to the job or opportunity you are applying for.
 - They are usually the first written contact with the person you are trying to impress and first impressions count.
- Remind students to pay attention to presentation, spelling and punctuation.
- A well-written cover letter will help students get their application noticed and help them secure an interview.

- 2 • Students do the task.

Exercise 2

- 1 d 2 g 3 e 4 b 5 a 6 c 7 f

Subskill: Using formal language

Highlight to students that formal language is used when they don't know the person well.

Point out some of the features:

- polite style
- complete sentences
- formal linkers such as *furthermore*
- full forms instead of contractions
- longer versions of basic phrases where possible, e.g. *I feel strongly* rather than just *I think*
- impersonal phrases, e.g. *X will be of interest ...* rather than *you will find X interesting ...*

Remind them that a formal letter states clearly why the sender is writing and clearly signals new topics in each paragraph with phrases such as *I am writing to ... / I enclose ... / Thank you for considering ...*

- 3 • Before the task, ask students to read the Subskill advice. Share the extra information from the notes above.

Exercise 3

- 1 Please contact me ... 2 I am writing ...
3 I would be happy to ... 4 Thank you for considering ...
5 I look forward to ... 6 I enclose ...

- 4 • Students do the task.

Exercise 4

- 1 Thank you for considering ... 2 I look forward to ...
3 I am writing ... 4 I would be happy to ...
5 Please contact me on ... 6 I enclose ...

- 5 • Students complete the table.

Exercise 5

Introducing an opinion: I feel strongly that ... , I am sure you will agree that ...

Adding information: In addition, Furthermore

Extra activity

Write or dictate these words for students to think of informal equivalents:

Moreover/Furthermore (plus/also)

However (but)

Therefore (so)

In addition (and another thing/also/too)

In my opinion (I think)

Ask students to write the formal words in the correct column in the table in exercise 5.

- 6 • Check they understand the word strip (= a long, flat narrow piece of something, e.g. a *strip of paper*).
- In preparation for the writing task, elicit which sentences describe the product (1, 2 and 3) and which ones make it sound interesting (4, 5 and 6).
 - After the task, ask students if they think the invention is a good one. Ask: *Is number 6 true?*

Exercise 6

- 1 which/that 2 which/that 3 who/that
4 when 5 who/that

- 7 • **THINK** Remind students that they can choose any invention they like to write about or the invention in exercise 6.
- **Reinforcement** Write some prompts on the board to help students structure their notes: *What is it?*
How can you use it?/What does it do?
What interesting features does it have?
Who is the product for?
Remind students to include adjectives in their descriptions.
- **PREPARE** Ask students to organize their notes into paragraphs.
 - Refer students back to exercise 2 for the structure of a formal letter but be clear that they must not copy this model.
 - **Reinforcement** Refer students back to exercise 4. Ask them to write the completed sentences in the correct order in the three paragraphs. (Paragraph 1: 3; Paragraph 2: 6; Paragraph 3: 1, 4, 5, 2)
 - **WRITE** Before they write their letter, ask them to read through points 1–4 in **CHECK** to see the things they need to include.
 - Remind students that they can use the expressions in the Subskill advice and in exercise 5.
 - **Challenge** Encourage students to include a wide variety of structures and include new expressions if you did the Extra activity after exercise 5.
 - **CHECK** Encourage students to proofread their work before they exchange their formal letter with another student.
- 8 • **Peer review** In pairs, students read their partner's letter and answer the question. They could also refer to the questions in **CHECK** to help them give feedback.

Further practice

- Writing → Workbook p34
- Writing competence → Teacher's Resource Center

Homework

Ask students to write a neat version of their formal letter.

Project

Student's Book pp58–59

Lesson goals *Students pitch a new invention and use language to persuade people.*

Warm-up

Ask students to look at the Graphic organizer for this unit on p131. Allow five minutes for them to discuss with a partner what they learned about inventions, science and inspiring people, and what they have enjoyed most about the unit.

WDYT?

**What makes a good invention?
What's the best way to
present it to people?**

Ask students to race to make a list of inventions they have seen in the unit. Alternatively, work together to write this list on the board:

- 1 Eesha's supercapacitor
- 2 Anurudh's Vaxxwagon
- 3 Crum's chips
- 4 Ruth Wakefield's chocolate chip cookies
- 5 FITT360 and wireless speaker
- 6 Oohos
- 7 Lexie's internet speed device

Divide the class into groups, and assign two inventions to each group. Ask students to choose two adjectives to describe their inventions and justify why each one is 'a good invention'.

When discussing as a class, establish which words came up often. Conclude with the class that perhaps these qualities are what makes a good invention.

Elicit ways to present a product to the market. Ask students to vote for the best method.

TASK

Read through the task and the learning outcomes with the class. Tell students that they will need to use the language from the Quick review on p57 to successfully complete their project.

Elicit the meaning of a *product pitch* (= a description of a product or service you are trying to sell) and the verb *persuade* (= to make someone believe something by giving them a good reason). Also, share that *head torch* (UK) = *headlamp* (US), while *torch* (UK) = *flashlight* (US).

1 See the video script on p141.

- Give students time to read the questions before you play the video.

Exercise 1

- 1 They came up with the idea because when Oliver went camping he used to get really cold at night and when he got up in the morning, and he could never find his flashlight or phone in the dark.
- 2 Yes, they look and sound confident.
- 3 The product pitch does not include information about where the student would make the product.

Extra activity

Ask students the following additional questions:

Do you think Oliver and Amelia's pitch is good or bad? Why?

Is there anything you would do differently for your own pitch?

Have you ever had to do a pitch for an idea? What was it? How did the audience respond?

STEP 1: THINK ●●●●

- 2 • Use the Model project notes on the next page for further ideas.

Exercise 2

Suggested answers:

- 1 When they need money to develop their product.
- 2 bankers, TV judges
- 3 Information about the product, what is special about it and the reasons why people would like to buy it.

STEP 2: PLAN ●●●●

- 3 • Organize students into pairs (or groups of three). Ask them to choose a product they all agree on.
- Ensure that students come up with answers to all of the questions – they can make them up if they can't find out the real answers. The important thing is that the product pitch sounds informative, confident and positive about the product.

Get online

Encourage students to investigate more about their product's key features and target market.

Students can research the jet suit or the ping-pong door on p59, or a different invention.

STEP 3: CREATE ●●●●

- 4 • Students read the tips and then practice the Key phrases in pairs. Answer any questions students have about pronunciation, intonation or meaning.
- 5 • Students do the task. Remind them to refer to exercise 1, question 3, to help them structure their pitch and their own notes.
 - ▶ **Challenge** Point out to students that *tripling* (= using three words or statements in a row) is simple and catchy, e.g. *big, bold and beautiful*. Challenge them to include this in their product pitch.
- 6 • Ask students to decide who says what in their product pitch and take turns practicing their part.
 - Students then give each other feedback on what can be improved.
 - Encourage students to think about and plan the answers to any questions they may be asked after they have pitched their product.

STEP 4: PRESENT ●●●●

- 7 • Students do the task, either as a whole class or in smaller groups.
 - Encourage students to write down questions during the product pitches to ask each group.
- 8 • **Peer review** Point out to students that they are reviewing the product more than the presentation.
 - Remind students to be positive with their questioning.

Model project

The Model project demonstrates a layout for a pitch poster on the left, and provides further product ideas on the right. Concentrate students' attention on the Sleep suit while you discuss these notes – students will only be required to produce this part of the poster.

Organization: The project should have a title. Students can either have a labeled picture illustrating the main features of the product or they can show the product and explain the main features. Point out the bullet points beneath the illustration and tell the class that they will need to use these to go into more detail verbally about the product and why it is interesting/useful.

Artwork: The pitch is supported by a clear picture which demonstrates the overall look and appeal of the product, and ideally including close-ups of the key features.

Language: The language on the poster is simple and clear, so that it doesn't distract from what the speakers are saying. It is written in note form, in the simple present, and using *you* to address the customer directly.

Tone: The explanations are written in friendly, relaxed styles – carrying these across to pitches will be effective.

4 FINAL REFLECTION

- Ask students to assess their performance and to think about any area they think they could improve.
- Ask students to think in particular about how the class reacted to their product pitch, and any feedback they received.

Beyond the task

Discuss the questions as a class. If students struggle to come up with ideas for the first question, start by asking the second question, plus when they might have to give a presentation in the future.

Further practice

- Super skills → Workbook p34

Homework

Ask students to write a paragraph about an invention from the unit or an invention of their choice.

End-of-unit further practice

- Social and emotional competence → Workbook pp74–75
- Exam trainer → Workbook pp84–94
- Progress test (standard and higher) → Teacher's Resource Center
- Communication games → Teacher's Resource Center
- CLIL and Culture worksheets → Teacher's Resource Center
- Evaluation rubrics → Teacher's Resource Center
- Wordlists → Teacher's Resource Center
- Student's Book audio and audio scripts → Teacher's Resource Center
- Workbook audio and audio scripts → Teacher's Resource Center
- Workbook answer key → Teacher's Resource Center

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