

Get INVOLVED!

American Edition

3

Workbook
with Digital Workbook



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Jobs in science; science

- 1 ☆ Complete each job in science with the endings in the box.

eer eur er ist ist ist or or tist

- 1 biologist_____
- 2 chem_____
- 3 doct_____
- 4 engin_____
- 5 entrepren_____
- 6 invent_____
- 7 research_____
- 8 scien_____
- 9 physic_____

- 2 ☆☆ Circle the correct option.

- 1 I'd like to invent/discover a robot that knows what I need to take to school every day and puts it in my bag for me!
- 2 I hope we can create/come up with a solution to the problem of air pollution in cities.
- 3 Is it possible to design/do a computer that can do homework for you?
- 4 Scientists can learn a lot about the human body by doing/making experiments in space.
- 5 The company is developing/coming up some exciting new products at the moment.
- 6 Experts have done/made some exciting discoveries about volcanoes recently.
- 7 It would be great if scientists could discover/make a way to clean up the oceans.
- 8 People who are designing/investigating climate change often have to travel all over the world.
- 9 It's important to research/discover new medicines carefully before testing them on patients.
- 10 It must be an amazing feeling when you investigate/create a new invention that works!
- 11 Scientists don't spend all their time making/doing research in laboratories.

- 3 ☆☆☆ Complete the information about the three inventions with the verbs in the box. There are two verbs you don't need.

came create developed discovered do
doing inventing investigating made making

Scientists are 1 doing research and 2 _____ new discoveries all the time, and this results in products that we can buy and use. Here are three things that are part of our everyday lives now, but didn't exist before the year 2000.

1 FaceTime®

People first started 3 _____ the possibility of video phones in the 1930s, but they didn't 4 _____ any serious research until the 1960s. With video calls becoming more popular, FaceTime only became available for individuals to use in 2010.

2 e-readers



In 1949, Ruiz Robles, a Spanish teacher, 5 _____ up with a smart idea. She decided to put information from different books onto one portable device, her 'mechanical encyclopaedia', so that her students didn't have to carry so many books.

With more advanced technology, in the early 2000s, Sony® 6 _____ a commercial e-reader, an amazing device that allows you to carry hundreds of books with you all the time!



3 YouTube™

Three people worked together to 7 _____ the video site YouTube in 2005. And, as a result, people 8 _____ internet movie stars!

- 4 ☆☆☆ Answer the questions. Give reasons for your answers.

- 1 What would you most like to research? Why?
- 2 What would you most like to invent? Why?

Past perfect

- 1 ☆ Find the past perfect verb in each sentence.

- 1 The researcher soon realized that he had discovered a new medicine.
- 2 She had finished work for the day when she suddenly noticed something interesting.
- 3 I hadn't thought about becoming a scientist before I saw this program.
- 4 They couldn't finish their experiment because a storm had destroyed their equipment.

- 2 ☆☆ Complete the sentences with the correct past perfect form of the verbs in parentheses.

- 1 I was excited because I had discovered (discover) something new.
- 2 The machine didn't work because we _____ (forget) to turn it on!
- 3 They continued working because they _____ (not finish) their experiments.
- 4 We were disappointed because we _____ (not find) the answer we were looking for.

- 3 ☆☆ Circle the correct option.

- 1 Had the experiments been/The experiments had been successful?
'No, they weren't/hadn't.'
- 2 'They found/Had they found a solution to the problem?'
'Yes, they had/did.'
- 3 'Did you met/Had you met Sasha before?'
'No, I haven't/hadn't.'
- 4 'Had they won/Had they win the game?'
'Yes, they won/had.'

- 4 ☆☆ Circle the correct option.

- 1 They stopped/had stopped the research last year because all their experiments failed/had failed.
- 2 Stella soon talked/had talked to her friends about the machine that she invented/had invented.
- 3 Before she decided/had decided to become a scientist, she tried/had tried several other jobs.
- 4 A letter arrived/had arrived last week to say that I won/had won a prize in a science competition.
- 5 By the time Jack arrived/had arrived, we finished/had finished testing the products.

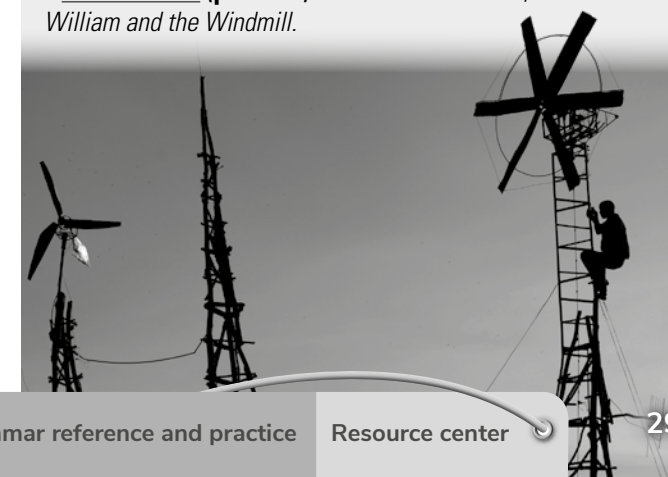
- 5 ☆☆☆ Read sentence a. Does sentence b have the same meaning or a different meaning?

- 1 a She developed the new product after she had done some research.
b She did some research and then she developed the new product. same/different
- 2 a Paul had already gone home when I arrived at the laboratory.
b Paul went home and then I arrived at the laboratory. same/different
- 3 a I visited NASA, then I decided to become an astronaut.
b I had decided to become an astronaut before I visited NASA. same/different
- 4 a Before everyone else had arrived at the laboratory, she made an amazing discovery.
b She made an amazing discovery and then everyone else arrived at the laboratory. same/different
- 5 a He had just started his research when I met him.
b I met him, and then he started his research. same/different

- 6 ☆☆☆ Complete the text with the correct simple past or past perfect form of the verbs.

The boy who built a windmill

William Kamkwamba 1 grew up (grow up) in a village in Malawi, in south east Africa. When he was only 14, he 2 _____ (decide) to build a windmill to supply electricity to his home. He 3 _____ (not design) anything like this before, but he wanted to help. He 4 _____ (stop) going to school when he was very young because his family didn't have enough money to pay the school fees. At 14, William 5 _____ (not know) anything about windmills, but he copied some pictures that he 6 _____ (see) in a library book when he was at school. He 7 _____ (use) all kinds of things to make his windmill, including parts of cars and an old bike wheel. But the windmill worked, and when people saw it, they were amazed at what he 8 _____ (manage) to achieve. He now works as an inventor, and a few years ago, a movie company 9 _____ (produce) a movie about his life, called *William and the Windmill*.



Describing products

- 1 ☆ Find eight words or phrases for describing products in the word square.

W	E	A	R	A	B	L	E	D	E
I	P	C	O	S	S	I	E	R	U
R	C	H	A	N	D	Y	L	E	S
E	R	E	X	T	M	O	K	E	E
L	T	A	C	G	O	B	R	I	L
E	X	P	E	N	S	I	V	E	E
S	R	E	L	I	A	B	L	E	S
S	B	R	A	K	L	K	N	A	S
B	A	D	L	Y	M	A	D	E	Z

- 2 ☆☆ Write the opposites of the adjectives.

- 1 hard to use e a s y t o u s e
 2 practical _____
 3 useless _____
 4 badly made _____
 5 expensive _____
 6 comfortable _____
 7 reliable _____
 8 high quality _____

- 3 ☆☆ Read what people say about products that they like or dislike. Choose the two adjectives in the box that match each description.

- 1 My new fitness tracker is amazing! It has a lot of smart new ideas and ways to watch what you eat and how much exercise you do. The instructions on the screen are really simple to follow, so you can't go wrong! It's cheaper than lots of others that are available too!

easy to use expensive innovative useless

easy to use innovative

- 2 I bought these new headphones to listen to music on the bus. The best thing is that you don't have to attach them to your phone, which is great. The sound is amazing – much better than my old ones, and they feel really nice over my ears.

cheap high quality uncomfortable wireless

- 3 I was worried about spending so much money on a smart watch, but it was worth it! It's strong and stylish, and it looks great on me. It can do everything a phone can do. I can call people, send messages and get on the internet. I was always losing my phone, so it's really useful to have something that's always there when I need it.

badly made cheap handy wearable

- 4 I bought a selfie drone last week – what a disappointment! The idea is that you send it up into the air to take a selfie from above, but it's really difficult to get it in the right position to take a good photo. The camera doesn't always work properly, either. I'm so annoyed that I spent so much money on it!

expensive hard to use practical reliable

- 4 ☆☆☆ Write a short paragraph about a product that you've bought recently. Say why you like/don't like it. Use at least four adjectives from the box and your own ideas.

comfortable easy to use handy high quality
 innovative practical reliable well made

Relative pronouns

- 1 ☆ Circle the correct relative pronouns in the sentences.

Did you know ...?

- 1 Microsoft is a name which/who is now famous all over the world. Bill Gates and Paul Allen started the company in 1975.

- 2 *Spacewar!* was the first computer game. The person which/who created it in 1962 was Steve Russell.

- 3 A lot of different people worked towards creating the first computer, but Charles Babbage was the person whose/which work was perhaps the most important.

- 4 People first used the name Silicon Valley in the 1970s. It is the area in California that/where a lot of big computer companies have their offices.

- 5 It is difficult to think about a time when/where there were no cell phones, but it isn't very long ago. The first cell phones only went on sale in the 1980s.

- 6 The Black Diamond iPhone® is made of real gold. It looks beautiful, but the price that/who you have to pay for it isn't so nice – \$15.3 million!

- 2 ☆☆ Complete the sentences with *who*, *which*, *where*, *when* or *whose*.

The story of recorded music

Before the 19th century, the only way to hear music was to listen to live musicians. The time 1 when this changed was the 1870s, and the person 2 _____ changed it was Thomas Edison. He invented the phonograph – the first machine to record and play music. However, Edison's machine was impractical and the sound 3 _____ it produced wasn't of high quality. The first music records were made in Washington D.C., but it was difficult to move them to places 4 _____ people could buy them because they were made of glass, and they broke easily! The early 1900s was a period 5 _____ records improved in quality, and famous singers started to sell recordings of their music. Records continued to be popular until the 1970s when companies developed the technology 6 _____ replaced them – CDs. These remained the most popular way of listening to music until the 2000s. The man 7 _____ company changed the way we listen to music forever was Steve Jobs. His company, Apple, developed the iPod®, the device 8 _____ made the company famous throughout the world.

Essential adjective clauses

- 3 ☆ Match 1–6 with a–f to make sentences.

- 1 You can now buy robots that e
 2 My brother is someone who _____
 3 I'd love to be someone whose _____
 4 Australia is one place where _____
 5 Sunday is the only day when _____
 6 My neighbors are artists who _____

- a invention changes the world!
 b I'd love to live one day.
 c don't use any modern technology!
 d loves new technology.
 e can clean your room for you!
 f we don't have to get up early!

- 4 ☆☆ Complete the joined sentence using an essential adjective clause.

- 1 Fire was the first big invention. It changed the lives of humans forever.

Fire was the first big invention which changed the lives of humans forever.

- 2 Some people need glasses. They know that glasses were a really important invention.

People _____ know that they were a really important invention.

- 3 Johannes Gutenberg was a German printer. His invention changed the world.

Johannes Gutenberg was a printer _____ changed the world.

- 4 China is a country. People invented paper there in about 100 BCE.

China is the _____ invented paper in about 100 BC.

- 5 The 1890s was an important time. People built the first cars.

The 1890s was the _____ built the first cars.

- 5 ☆☆☆ Complete the sentences with an essential adjective clause and your own ideas.

- 1 I'd like to invent a device _____.
 2 I'd like to live in a place _____.
 3 I get along with people _____.
 4 The summer is a time _____.

A magazine article

The fictional inventions we would all love to have

Real inventions are great, but the real world has rules, like people can't fly and animals can't talk. In books and movies, there are no rules. That's why writers and movie directors can create inventions which are really fun! We look at our favorite fictional inventions, and how we would like to use them. Which one is your favorite?

Transporter

The Transporter in the *Star Trek* movies is a device that can break people down into tiny parts. It then moves them to another place as energy, and puts them back together again a few seconds later.

Useful? Well, getting to school on time would be much easier, and it would be a great way to escape when someone just keeps talking to you!

DeLorean Time-Travel Car

This is the time-travel car that Dr. Emmett Brown develops in the movie *Back to the Future*. Teenager Marty McFly uses it to go back to 1955, where he meets his parents as teenagers.

Useful? Definitely! Great for finding out about life in the past. You could also travel into the future and look at the answers to exam questions, then come back and take the exams!



Translation Collar

Who said animals can't talk? The movie *Up* came up with a way for people and animals to talk to each other – a translation collar. When the animal wears the collar around its neck, it can communicate with humans.

Useful? Maybe. But what if your dog tells you he would rather go and live with your friend, or your pet fish asks to go and swim in the river?

Invisibility Cloak

This features in the *Harry Potter* books – a magic cloak that makes you disappear completely when you put it on.

Useful? Yes! You could use it for going onto a soccer field and secretly helping your team to score a goal!

FUN FACTS

Scientists believe that one day it might be possible to invent clothes that can make us disappear. We can see things because light shines on them. If an object can push light away, it could become impossible to see!

Subskill: Identifying text purpose

To understand the purpose of a text, look at the kind of language that it uses. Some texts address the reader directly by using 'you'.

1 ☆ 10 Read and listen to the article. Circle the correct option.

- The text uses **formal/informal** language.
- It **asks/doesn't ask** the reader direct questions.
- It is written in a **serious/fun** tone.
- The text is probably from a **textbook/magazine**.
- It is written for **scientists/teenagers**.
- The writer's purpose is to **educate/entertain** people.

2 ☆☆ Read the article again. Which invention are the sentences about? Write T (Transporter), D (DeLorean), TC (Translation Collar) or IC (Invisibility Cloak).

- This helps with language difficulties. TC
- This might help you to get better grades at school. —
- This allows people to go somewhere quickly. —
- You can use this to visit different periods of history. —
- This might cause problems if animals ask for what they want. —
- When you wear this, people can't see you. —
- This would be useful if you want to end a conversation. —

3 ☆☆☆ Read the article again and answer the questions.

- What is a 'fictional' invention?
- How does the Transporter work?
- What disadvantages does the writer mention with the Translation Collar?
- Which of the fictional inventions would you most like to have? What would you use it for?

A talk

1 ☆ 11 Listen to a talk about the Museum of Failure. Circle the correct answers.



- What can you find in the museum?
 - information about inventors who had bad ideas
 - examples of products that were not successful
 - information about why some ideas fail
- What is the aim of the museum?
 - to teach people how to make successful and popular products
 - to warn people about the dangers of failing when you try something new
 - to encourage people to accept failure and learn from their mistakes

Subskill: Listening for the information you need

When you listen for detailed information, read the sentences first and think about the type of information you need to listen for.

2 ☆☆ Match the type of information that is missing with sentences 1–6.

- a material
 - an adjective to describe a product
 - a place
 - an adjective to describe a feeling
 - a number
 - a date
- The Museum of Failure started in Sweden.
 - The museum has more than _____ failed products.
 - The Itera bicycle was made of _____.
 - Bic started selling pens for women and girls in _____.
 - Kids loved green ketchup at first because it was _____.
 - Jack says the museum teaches you that you shouldn't feel _____ if you fail.

3 ☆☆ Listen again and complete the sentences in exercise 2.

4 ☆☆☆ Answer the questions. For questions 5 and 6, give your own opinion.

- Why did the company make the Itera bicycle out of plastic?

- How do we know that Bic is a successful company?

- Why did children stop eating green ketchup?

- What has Jack learned from the museum?

- Do you agree that we shouldn't be scared of failure? Why/Why not?

- Would you like to visit the museum? Why/Why not?

Checking information

1 ☆ Circle the correct option.

- The museum opens at nine o'clock, **isn't it/ doesn't it?**
- There are some really interesting things there, **aren't they/aren't there?**
- Matt doesn't want to come with us, **does he/ doesn't he?**
- You enjoy going to art galleries, **don't you/ didn't you?**
- The installations were really amazing, **aren't they/weren't they?**
- We didn't book in advance, **did we/didn't we?**

2 ☆☆ Use question tags to check the information about the Cancun Underwater Museum.

- The Cancun Underwater Museum opened in 2010, didn't it?
- It became popular immediately, _____
- There are over 5,000 sculptures, _____
- Visitors swim around the sculptures, _____
- There aren't many museums like this, _____
- It is the biggest underwater museum in the world, _____

A formal letter

1 ☆ Are the sentences formal or informal?

- Hi, Jack. How are you? informal
- I am writing to apply to take part in your show. _____
- I know you'll love my new product. _____
- I enclose a photo of my product. _____

2 ☆☆ Complete the formal letter with the phrases in the box.

As you will see Dear Sir or Madam for considering
I am writing In addition look forward to hearing
Sincerely you will agree

1 _____,
2 _____ to suggest that you visit my school as part of your **Innovation Schools** TV series.
I enclose details of all the activities that we take part in at my school. 3 _____, we hold regular **Top Inventor** competitions. 4 _____, last summer we organized a special festival for young entrepreneurs. I am sure that 5 _____ that this is something that will interest your viewers.
Thank you 6 _____ my application. Please contact me if you require further information.
I 7 _____ from you.
8 _____,
Sam Johnson

SUPER SKILLS



COMMUNICATION

Using language to persuade people

Complete the presentation for a new product with the words and phrases in the box.

came up with financial side funding
happy to answer product unique

Good afternoon. The 1 _____ which I invented is a spoon that you can eat. I 2 _____ the idea because I love ice cream, but plastic spoons are bad for the environment. My product is 3 _____ because you can eat the spoon. What about the 4 _____? The spoons cost three cents to make, and I'd sell them for five cents. I'm asking for 5 _____ of \$600. Thank you for listening to my presentation. Now, I'm 6 _____ any questions.

Vocabulary review

Jobs in science; science

1 Circle the correct option.

We've all heard of famous 1 inventors/inventions like Thomas Edison and Alexander Graham Bell. But what would you like to invent?

TomG51: I'd like to 2 make/come up with a solution to the problem of plastic waste. It would be great to 3 research/design a device for recycling plastic that everyone can use at home.

Libby_Lu: I'd love to 4 invent/do a new kind of plane that uses solar power!

BigMax: I love studying plants, so I'd like to become a famous 5 engineer/biologist and 6 do/make an important discovery of a new medicine from a plant in the rainforest.

Describing products

2 In each review, the underlined adjectives are in the wrong place. Write the correct words.

This battery pack can charge anyone's phone wherever they are and is 1 reliable – you don't need to be a technology expert. It's really 2 cheap when you're on vacation and worried your phone might run out of power. We tested it 50 times and it worked every time, so it's definitely 3 handy. At \$39, it isn't 4 easy to use, but it's well worth the money!

- easy to use
- _____
- _____
- _____

This 5 wireless device is great if you like the latest technology! To check information, you can either ask questions directly, or use the touch screen to find what you're looking for. It's 6 high quality, of course, so you can put it anywhere you like in your room. The sound is really 7 useful, so it's great for listening to music. And the built-in camera is also very 8 innovative for making video calls.

- _____
- _____
- _____
- _____

Grammar review

Past perfect

1 Complete the sentences with the correct simple past or past perfect form of the verbs.

- The professor was (be) delighted to find out that his invention had won (win) a prize.
- By the time I _____ (arrive) at the laboratory, everyone else _____ (finish) their experiments.
- She _____ (work) at the university for several years before she _____ (make) her first important discovery.
- When he _____ (see) the results, he realized that he _____ (just/discover) a new kind of clean energy.

Relative pronouns

2 Circle the correct option.

Women Inventors

There are a lot of women 1 who/whose/that inventions have changed our lives.

When Margaret Knight worked in a factory in the US in the 1850s, factories were places 2 which/where/that there were a lot of accidents. Margaret designed a device 3 who/that/where made machines much safer to use.

Mary Anderson was an American woman 4 who/whose/that invention has made driving a lot safer. She invented a device 5 where/that/who helps drivers when it's raining – the windscreen wiper!



Essential adjective clauses

3 Join the sentences using an essential adjective clause.

- Henry Ford was an entrepreneur. His cheap cars allowed more people to have their own car. Henry Ford was _____
- Nicholas-Jacques Conté was a French scientist. He invented the pencil. Nicholas-Jacques Conté was _____
- The year was 1825. The first passenger railway line opened. 1825 was _____

ROUND-UP

1 2 3 4 5 6 7 8

Read the article. Circle the correct option.

Junior Dragons' Den is a TV competition for young entrepreneurs. Young people 1 which/who/whose have ideas for new products present them to a team of business people. They try 2 persuade/in persuading/to persuade the business people to give them money so they 3 can/could/able to develop their ideas and start 4 sell/are selling/selling their products. The young people 5 had to/have to/could work hard because the business people, or 'dragons', are not easy 6 convincing/convince/to convince. It's important that they know their products well, and they 7 mustn't/don't have to/couldn't make any mistakes with their costs. Sometimes people fail because their ideas aren't very good, and sometimes they fail because they ask for 8 enough/too many/too much money. The competition has been on TV 9 since/for/already a few years now and it 10 has already helped/was already helping/had already helped to fund a lot of successful new products. Do you have 11 too many/enough/a lot of imagination to come up with an idea and face the dragons?

4 SELF-EVALUATION

Read the objectives for this unit. How well can you now do each one? Put a check (✓).

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| 1 I can talk about science. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 I can use adjectives to describe products. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 I can use the past perfect. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 I can use relative pronouns and essential adjective clauses. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 I can understand the purpose of a text. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 I can listen for information. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 I can use question tags to check information. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 I can write a formal letter. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

If you choose ☹️, ask your teacher for extra help.

Get INVOLVED!

American Edition



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• **Kahoot!**



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COMMON EUROPEAN FRAMEWORK

A1

A2

B1

B2

C1

C2

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