

# 4

# Inventions and discoveries

## Unit objectives

To talk about past events: finished events, events in progress in the past, and things that happened before other past actions.

**Target language:** *He noticed that the chocolate had melted.*

*He was working in Egypt. He found a tomb. No one had entered for years.*

**Grammar:** past perfect; narrative tenses

## Lesson 1

### Grammar start Student's Book, pages 24–25

#### Warm up

- Ask students what they consider to be the most important inventions in history. Write their ideas on the board. Then ask for suggestions to remove some so only five are left. When you get to the point where students can't agree on what to eliminate, take a vote by a show of hands on what is the most important invention.

### 1 Read and number the sentences in the order the events happened.

This exercise develops thinking skills by having students organize information in a logical order.

- Students look at the picture and say what they think it is, when they think it was invented, and what the first food used in it was.
- They read the article quickly to check their answers (*microwave oven, invented 1946, chocolate and popcorn*).
- Draw attention to the numbered sentences. Remind students the sentences are numbered in the order they actually happened. Why are these the first two? (*other scientists saw the effect of magnetrons before Dr. Spencer – that's why he was doing the research; he put the chocolate bar in his pocket before he went to the lab*).
- Students read the text again and number the sentences in order. They then compare answers with a partner. If necessary, play Track 10 for additional support and students follow in their books.
- Invite volunteers to say the correct order, sentence by sentence, for the class to check.

## Track 10

See Student's Book, page 24, exercise 1

## Answers

a 1 b 3 c 2 d 5 e 7 f 6 g 8 h 4

## 2 Read and complete the grammar box.

- Ask: *When he looked at the chocolate, was it solid or liquid? (liquid). So what happened before that? (the chocolate melted).* Students find a sentence in the text that indicates this (*He noticed that the chocolate bar in his pocket had melted. He realized that the microwaves from a magnetron had melted the chocolate.*).
- Students read the introduction to the grammar box and look at the timeline.
- Draw attention to the first sentence. Ask students what verbs are represented by the simple past cross (*he noticed*) and by the past perfect circle (*had melted*).
- Elicit the form of the past perfect: *had (not) + past participle*. Students complete the sentences in the grammar box. Check answers with the class.
- Read out the sentences from the grammar box. Students listen and repeat. Point out the weak pronunciation of *had*, and point out that it can also be a contraction *'d*.

## Answers

had, created

**EXTRA ACTIVITY** Students look back at the text and find other examples of the past perfect not included in the grammar box (*He was very excited because he had discovered that microwaves cook things more quickly than normal ovens. Other scientists had noticed the same phenomenon.*). Ask students why the past perfect is used here (he discovered the fact about microwaves before he became excited; the scientists noticed this phenomenon before the start of the story).

## 3 Read and number the events '1' and '2' in the order they happened.

- Draw attention to the sample answer with the numbered events. Ask why the events are numbered 2 and 1 (because the chocolate melted first and then Dr. Spencer realized it later – the past perfect is used for an event before the other past action).

- Students do the exercise individually.
- Invite volunteers to read out each completed sentence. The rest of the class raise one arm for the verb they numbered 1 in the sentence, and two arms for the verb they numbered 2. This way, you can get a good view of how well students understand the concept.

### Answers

- a realized – 2 / had melted – 1
- b put – 2 / had seen – 1
- c had popped – 1 / checked – 2
- d got – 2 / had finished – 1
- e had been – 1 / made – 2
- f made – 2 / hadn't used – 1

**EXTENSION** Divide the class into pairs to draw illustrated timelines of the sentences from exercise 3. For each sentence, students write it first at the top of the page, then draw a timeline as demonstrated in the grammar box, with little pictures to show what was happening in the sentence: in a timeline for sentence b, the simple past verb might have a picture next to it of a scientist placing a bowl next to a machine with a lightbulb over his head, and the past perfect could have a picture of a scientist looking at a pool of melted chocolate. Use students' finished illustrated timelines as a wall display.

## Lesson 2

### Grammar practice Student's Book, pages 26–27

#### Warm up

- Divide the class into two teams. Give one student from each team a board pen and tell them you will call out an infinitive verb: *make*. They have to run to the board and write the past participle (*made*). The first person to complete the past participle wins a point for their team. The next person from each team takes a turn until all students have played once. If you have a large class, do half at the beginning and try to leave time at the end for the others to have a turn. Use a mixture of irregular and regular verbs.

#### 1 Listen and complete the sentences.

- Students look at the pictures and guess what is in them, who the man is, and why he is famous. Use these pictures to check the word *mold*.
- Play Track 11. Students listen to find out if their predictions were correct.

- Play the track again. Students listen and complete the sentences. Divide the class into pairs to compare answers.
- Play the track a third time, if necessary.
- Invite students to the board to write the missing words for each question. Ask the rest of the class to agree or elicit any corrections necessary.

### Track 11

*The story of the accidental discovery of penicillin by Alexander Fleming in 1928 is very famous. In 1928, Dr. Fleming was already well known because he had had a lot of success as a medical researcher. But his laboratory was often messy. One day, he returned from a family vacation and noticed that he had forgotten to throw away his bacteria cultures. He had left them on a table in the corner of his laboratory. He saw that mold had developed on one of the dishes. He examined the mold and found it had stopped the bacteria near it from growing, while the bacteria further away had grown normally. He was very excited with this discovery. During the First World War, Fleming had seen how soldiers died of bacteria in their injuries. Since then, he had wanted to find ways to stop the growth of bacteria that killed so many people. Now maybe he had the solution! The doctor grew the mold again, this time deliberately, and discovered it killed a number of bacteria that caused disease. He called the mold "penicillin." Fleming had discovered something important because he hadn't cleaned his laboratory properly!*

### Answers

- |           |             |
|-----------|-------------|
| a 1928    | e mold      |
| b medical | f bacteria  |
| c messy   | g soldiers  |
| d table   | h important |

**MIXED ABILITY** This is quite a challenging note-taking exercise. After the first listening, you can write the answers on the board in random order. This way, more confident students can check their answers and those who need more support can complete more spaces.

**EXTRA ACTIVITY** This is a nice story to act out. Divide the class into small groups. Play Track 11 again and students mime the actions of the story.

## 2 Complete the sentences with the verbs in the past perfect.

- Draw attention to the first sentence. Elicit again how to form the past perfect (*had* + past participle).
- Students complete the sentences individually.
- Invite volunteers to read out each complete sentence for the class to check.

### Answers

- |                  |                 |
|------------------|-----------------|
| a had developed  | f had worked    |
| b had been       | g had been      |
| c had killed     | h had noticed / |
| d hadn't cleaned | hadn't realized |
| e had left       |                 |

**MIXED ABILITY** If students need more support, first let them decide if the verb in the blank was action 1 or 2 in the sentence (as they did in Lesson 1, exercise 3). Give students one or two minutes to decide this individually, then check each sentence with the whole class. Confirm the correct choice (1 or 2) with them.



Praise students for the work they have done so far. Tell them they have earned a bronze medal and they now have the chance to earn a silver medal.

## 3 Complete the text with the correct form of the verbs in the box.

- Brainstorm with students words that can come before or after the verbs in the word box: *water freezes, leave your phone at home, fall down, invent the computer, send an email, want a vacation, invent medicine, make a mess.*
- Students complete the text individually. Divide the class into pairs to compare answers. Check answers with the class.

### Answers

- |                |                |
|----------------|----------------|
| a had left     | e had made     |
| b had fallen   | f had sent     |
| c had frozen   | g had wanted   |
| d had invented | h had invented |

There is a tendency for students to insert *been* into past perfect verbs when it is not necessary: *He had ~~been~~ made an invention.* Correction exercises where students have to find and strike through the extra word can help recognize and correct this error.



## 4 Use the prompts to write sentences.

- Point out and read the "Look" box. Check understanding.
- Draw attention to the first sentence in exercise 4. Elicit which action was first (*hear*) and which was second (*read*). Elicit why the past perfect is used (because that was the situation before students read the article).
- Students write sentences individually. If necessary, they can number all actions 1 or 2 before they write. Divide the class into pairs to compare answers.
- Do open class feedback. Invite volunteers to share their sentences with the class.

### Answers

- a Before we read the article, we hadn't heard of Frank Epperson.
- b Frank had just woken up when he remembered his drink.
- c George Crum was angry because a customer had complained about his fries.
- d People hadn't tried potato chips until Crum invented them.
- e He was surprised because he hadn't expected the customer to like them.

**EXTENSION** Divide the class into pairs. One student reads out a sentence from the text, and the other decides if it is true or false: Student 1: *When George Crum checked his drink, he saw that he had made a popsicle.* Student 2: *False!*



Praise students for the work they have done so far. Tell them they have earned a silver medal and they now have the chance to earn a gold medal.

### Lesson 3

#### Grammar goal Student's Book, pages 28–29

### Warm up

- Write on the board anagrams of the inventions and discoveries mentioned in the unit so far: *linipilenc (penicillin), wimercova (microwave), clisoppe (popsicle), totpao phics (potato chips).* Students figure out the real names and raise their hands to write them on the board next to the anagram. Ask for whole class agreement.

## 1 Read the article. What did Howard Carter discover?

- Students look at the picture and discuss what they can see. Students read the text quickly to answer the question (*the tomb of Tutankhamen, an Egyptian ruler*). At this point, check vocabulary: *tomb, dig, pharaoh, unknown*.
- Students read the text again and find the significance of these numbers in the text: 1922; 3,000; 3,500; 17 (the date of the discovery, the number of years ago someone last entered the tomb, the number of objects Howard Carter took from the tomb, the number of years later he died).

### Grammar box

- Invite volunteers to read out a section of the grammar box each.
- Students find and underline more examples of each tense in the text.
- Refer students to the Grammar reference, page 87, to review and consolidate the use of narrative tenses.

## 2 Circle the correct words.

- Draw attention to the first sentence. Elicit what tense is used and why (*past perfect* – the work happened before he found the tomb).
- Students do the exercise individually. Divide the class into pairs to compare answers. They can refer to the grammar box, if necessary.
- Check answers as a class.

### Answers

- a had worked
- b was digging / had cut
- c had discovered
- d had tried / had not been

## 3 Write the verbs in the correct narrative tense. Listen and check.

- Ask students if they think there is still more treasure to discover. What kinds of things do they think people can still find?

- Students quickly read the first half of the text and find the answers to these questions: *Where? When? Who? How many? How old?* Do open class feedback (*United Kingdom; 2012; Ronald Gray; 30,000; 2,050 years old*).
- Divide the class into pairs. Students work together to complete the exercise.
- Play Track 12. Pause the audio before each blank for volunteers to give their answers. Play the track to confirm.

### Track 12

*In 2012, a treasure hunter discovered 30,000 silver and gold coins, and some jewelry while he was searching a field in the United Kingdom. Ronald Gray had a cheap metal detector which he had bought three months earlier. The treasure he found was one of the largest collections of Celtic coins and jewelry anyone had ever found. Experts in Celtic history said the coins were at least 2,050 years old.*

*Mr. Gray chose that particular field because he had heard stories about other people finding old coins there. While he was using his metal detector it started making a lot of noise. He dug for 30 minutes. When he stopped, he had found 60 coins. He hurried back to the store that had sold him the metal detector and he bought a better, more powerful model. When the day ended, he had uncovered at least 120 coins.*

### Answers

- |                 |                 |
|-----------------|-----------------|
| a discovered    | h was using     |
| b was searching | i started       |
| c had           | j had found     |
| d had bought    | k hurried       |
| e had / found   | l had sold      |
| f said          | m bought        |
| g had heard     | n had uncovered |

**MIXED ABILITY** If students need more support, you can provide a guide on the board showing how many of each different tense they will need to complete the text: *simple past* x 6, *past progressive* x 2, *past perfect* x 6.



#### 4 Expand the prompts to write an article in your notebook. Use narrative tenses.

This exercise encourages lifelong learning by guiding students through the process of writing an article using a number of verb tenses.

- Elicit the answer for the first sentence of the article and write it on the board: *In 2013, a treasure hunter discovered a gold plate while she was diving off the Florida coast.* Elicit why each tense is used (simple past for a main action in the story, past progressive for action in progress at the time).
- Divide the class into pairs. Students work together to expand the rest of the prompts. Tell students that when the exercise is finished, they will pass their story around to the other students to compare. The knowledge that their work will have an audience will motivate students to be more careful and precise.
- Students pass around their stories, read them, and pass them on again. After a couple of minutes, stop and ask if they think there are any corrections needed on the version they are holding. Students read out a sentence they think may not be correct (they do not need to say whose it is). Elicit corrections from the whole class, if necessary.
- Ask a confident student to come to the front of the class and read out the complete story. Ask for whole class agreement.

**EXTRA ACTIVITY** Students search for or create visuals to make their article more attractive, or write the article on the computer and add visuals to make it look like a magazine or newspaper article. You can compile these and staple or bind them to make a class magazine.

**EXTENSION** Divide the class into groups. Students work together to create a small theatrical play about the discovery of the Tutankhamen tomb. This will help the use of the tenses become more real for students. The play should include small speaking parts for various students and also a narrator so the narrative tenses can be clearly heard and contextualized. Invite groups to perform their play for the class.



Praise students for their work and tell them they have now finished the unit and earned a gold medal.