CAPITOLO

11

Lucky Breaks

Luck can give you the surprise; only curiosity tells you what to do with it.

OBIETTIVI

1. I can talk about luck, chance, discoveries, regret and relief, and make adjectives with *-able* and *-ible*.
2. I can use the third conditional to imagine a different past.
3. I can compare the four conditionals and choose the right one.
4. I can use *should have* to talk about regrets and to criticise.
5. I can apologise, accept an apology and sympathise, and write a for-and-against essay.
6. I can talk about Fleming and the story of penicillin, and compare it with lucky breaks in Italian science.

INDICE DEL CAPITOLO

11.1 Vocabulary: Luck, Chance and Discovery 2
11.2 Reading: Happy Accidents 4
11.3 Grammar: Third Conditional, should have 6
11.4 Listening and Speaking: Regret, Apologies and Sympathy 10
11.5 Writing: A For-and-Against Essay 13
11.6 Culture: Science in Britain: Fleming and Penicillin 15

English 2 · Parte IV · Looking Ahead · versione 1.0
Capitolo 11: Lucky Breaks · pagine 287–308 del volume completo · estratto per lo studio

Some of the most important discoveries in history happened because somebody made a mistake, forgot to tidy up or noticed something strange. In September 1928 a Scottish scientist came back from holiday, looked at a dirty dish in his laboratory and saw something that would save millions of lives. In this unit you read about "happy accidents" in science, hear how Sam got his phone back thanks to an amazing coincidence, and learn to say sorry, to sympathise and to talk about things you regret.

To imagine how the past could have been different, English uses the **third conditional**: *If Fleming **had tidied** his lab, he **wouldn't have discovered** penicillin.* To talk about regrets, it uses *should have*: *I **should have** checked my pockets!*

11.1 Vocabulary: Luck, Chance and Discovery

11.1.1 Luck and chance

Tabella 11.1 collects the words you need to talk about luck and unexpected events. Watch the pronunciation of *coincidence* /kəʊˈɪnsɪdəns/, stressed on the second syllable, and *breakthrough* /ˈbreɪkθruː/, stressed on the first. You met *discover* and *invention* in *English 1* (Unit 14): remember that you **discover** something that already exists (a planet, a mould) and **invent** something new (a machine).

Tabella 11.1 Luck, chance and discovery

Word	Meaning	Example
luck (noun) · **lucky** (adj.)	good or bad things that happen by chance	*Good luck with your exams! You were lucky.*
coincidence	two things that happen together by chance, in a surprising way	*What a coincidence! We were born on the same day.*
by chance / **by accident**	without planning it	*I met my old teacher by chance at the station.*
by mistake	because of an error	*I took your bag by mistake. Sorry!*
on purpose	deliberately; the opposite of *by accident*	*Did you break it on purpose?*
accident	something that happens without being planned, often bad	*Penicillin was a happy accident.*
experiment (noun and verb)	a scientific test to find out something	*The experiment went wrong, but the result was interesting.*

discovery	finding something that nobody knew before	*the discovery of X-rays*
breakthrough	an important new discovery or development	*a breakthrough in medicine*
lucky break	a piece of good luck that helps you succeed (informal)	*Getting that job was a lucky break.*
chance	(1) luck; (2) a possibility; (3) an opportunity	*by chance · There's a good chance it'll rain. · Give me a chance!*

ERRORE FREQUENTE

In italiano diciamo *avere fortuna* ed *essere fortunato*; in inglese si usa quasi sempre *be lucky*. *Fortune* significa soprattutto "un patrimonio, molti soldi" (*He made a fortune*).

✗ *You have luck!* → ✓ *You're* ***lucky****!* · ✗ *I had the fortune to meet her.* → ✓ *I was* ***lucky*** *to meet her.* · ✗ *I did it for chance.* → ✓ *I did it* ***by chance****.*

Attenzione ai falsi amici: *casual* significa "informale" (*casual clothes*), non "casuale"; *casuale* si dice *random* o *by chance*. E *occasion* è "un evento, una ricorrenza": *un'occasione* (opportunità) è *a chance* o *an opportunity*.

11.1.2 Regret and relief

When things go wrong, or nearly go wrong, we need words for our feelings:

- **regret** (verb and noun): feel sorry about something you did or didn't do: *I regret shouting at her. I have no regrets.*
- **relief** (noun): the good feeling when something bad stops or doesn't happen: *What a relief! It was a relief to find my phone.* The adjective *relieved* is from *English 1* (Unit 9).
- **disappointed**: sad because something was not as good as you hoped: *I was disappointed with my mark.*
- **guilty**: feeling bad because you did something wrong: *I feel guilty about forgetting her birthday.*
- **a narrow escape** (also *a close call*): a situation where you nearly had an accident or a problem: *The bus stopped just in time — that was a narrow escape!*
- **apologise** (AmE *apologize*) **for** + noun / *-ing*: *He apologised for being late.* The noun is *an apology*.

11.1.3 Word formation: *-able* and *-ible*

The suffixes ***-able*** and ***-ible*** make adjectives that mean "that can be done": *predict* → *predictable* (that can be predicted), *believe* → *believable, accept* → *acceptable, wash* → *washable*. *-able* is the common one, and it is usually added to a whole English verb. *-ible* usually comes after a part of a

word taken from Latin, which is not an English word by itself: *possible, visible, terrible, flexible, edible* (that can be eaten).

Spelling: a final *-e* usually disappears (*believe → believable, use → usable*), but it stays after *c* and *g* to keep the soft sound (*notice → noticeable, change → changeable*); *-y* after a consonant becomes *-i-* (*rely → reliable*).

To make the opposite we add a negative prefix (Unit 4): **un-** with most *-able* words (*unpredictable, unbelievable, unacceptable, unavoidable*), **in- / im- / ir- / il-** with most *-ible* words (*invisible, inflexible, inedible, impossible, irresponsible, illegible*). *Im-* comes before *p* and *m*, *ir-* before *r*, *il-* before *l*. There are exceptions (*inevitable*, *incurable*), so check new words in the dictionary.

Watch out. ***Sensible*** is a false friend: it means *ragionevole, assennato* (*a sensible decision*). *Sensibile* is *sensitive* (*sensitive skin, a sensitive person*). And *unbelievable* is often used for anything surprising, good or bad: *The ending was unbelievable!*

11.2 Reading: Happy Accidents

Before you read. Can a mistake ever be useful? Think of an object or a medicine that you use every day: do you know how it was invented? Read the article from the science page of *Hillside Voice* and find four discoveries that happened by chance. (*testo della redazione*)

Happy Accidents

Hillside Voice · Science page — by Callum Reid

Scientists like to look organised. They plan experiments, write down every result and repeat every test. But if you read the history of science, you soon discover that luck has played a surprisingly big part. Some of the greatest breakthroughs began with an accident, a mess or a strange coincidence. Here are four of my favourites.

A glow in the dark. On 8 November 1895, the German physicist Wilhelm Röntgen was experimenting with a glass tube in his laboratory in Würzburg. He had covered the tube with black cardboard, so no light could escape. Then he noticed something unbelievable: a screen on a bench some distance away had started to glow. Something invisible was passing through the cardboard. Röntgen called the mysterious rays "X", because he didn't know what they were. A few weeks later he took a picture of his wife's hand that showed her bones. In 1901 he won the first Nobel Prize in Physics. If he hadn't noticed that faint glow, would somebody else have discovered X-rays? Probably — but maybe not so soon.

A melted snack. In the 1940s an American engineer, Percy Spencer, was working with radar equipment. According to the usual story, he was standing next to a working machine when he realised that the snack in his pocket had melted. Many people would have simply bought another one. Spencer did an experiment instead: he put some popcorn in front of the machine, and it began to pop. In 1945 his company asked for a patent for a new way of cooking food. The first

microwave ovens were almost two metres tall and incredibly expensive. Today there is one in millions of kitchens.

A glue that didn't stick. In 1968 Spencer Silver, a chemist at the American company 3M, was trying to make a very strong glue. He failed: his glue was so weak that you could stick things and then pull them off again easily. For years nobody found a use for it. Then, in 1974, his colleague Art Fry had an idea. He sang in a church choir, and the paper bookmarks in his song book kept falling out. A bookmark with Silver's glue would stay in place and come off without damage. The result was the Post-it Note, sold all over the USA from 1980.

Noise from the universe. In 1964 two American radio astronomers, Arno Penzias and Robert Wilson, were using a huge antenna in New Jersey. Their measurements were spoilt by a strange noise that came from every direction, day and night. They checked every cable. They even removed a family of pigeons that were living in the antenna, and cleaned up their mess. The noise didn't go away. It turned out to be radiation left over from the early universe, an important piece of evidence for the Big Bang theory. In 1978 they shared the Nobel Prize in Physics.

So are great discoveries just a question of luck? Not really. Thousands of people must have seen a melted snack or heard a strange noise before, and they did nothing. What these scientists had in common was curiosity: they didn't ignore the unpredictable result, they asked why. In a lecture in 1854 the French scientist Louis Pasteur said that in observation, chance favours only the prepared mind. In other words, luck gives you the surprise. What you do next is up to you.

Language in context

Look at the two sentences in the article that imagine a different past. *If he **hadn't noticed** that faint glow, would somebody else **have discovered** X-rays?* is a question in the third conditional, which you will study in 11.3. And *Many people **would have** simply **bought** another one* uses only the main clause: the *if*-clause (*if they had been in his place*) is understood. Notice also the *-able / -ible* words: *unbelievable, invisible, unpredictable*, and the collocations *do an experiment, make a discovery, win a prize, play a part*.

APPROFONDIMENTO

Serendipity. There is a special English word for a lucky discovery made by accident: **serendipity**. It was invented by the writer Horace Walpole in a letter to a friend dated 28 January 1754. He took it from an old tale, *The Three Princes of Serendip*, whose heroes were always discovering, by accident and by intelligence, things they were not looking for. *Serendip* is an old name for Sri Lanka. Italian has borrowed the word too: *serendipità*.

LEARNING TO LEARN

Learn from your mistakes: keep an error log. Scientists learn from failed experiments; you can learn from your mistakes in English. An **error log** is a list of the mistakes you make most often.

1. **Collect.** When you get a test or a piece of writing back, copy every mistake into a notebook or a file: the wrong sentence (✗), the correct one (✓) and the type of error (tense, word order, preposition, spelling).
2. **Explain.** Write the rule in a few words, in English or Italian: *no would after if*.
3. **Count.** After a month, look at your log. Which type of mistake comes back again and again? That is your next goal.
4. **Check.** Before you hand in your next piece of writing, read it once looking only for your top three mistakes.

Try it: start your log today with three mistakes from your last English test.

11.3 Grammar: Third Conditional, *should have*

In Unit 4 you studied the zero, first and second conditionals and *wish* + past simple. Now you complete the picture with a conditional for the past, and you learn a way to talk about regrets.

11.3.1 The third conditional

We use the **third conditional** to imagine a different past: a situation that did **not** happen, and its imaginary result. It is often used for regrets, criticism and relief. Figura 11.1 shows the two paths: what really happened, and what didn't.

Tabella 11.2 The third conditional: form

	if-clause: *if* + past perfect	main clause: *would have* + past participle
Affirmative	*If I* ***had left*** *earlier, ('d left)*	*I* ***would have caught*** *the bus. ('d have caught)*
Negative	*If she* ***hadn't helped*** *me,*	*I* ***wouldn't have finished*** *in time.*
Questions	*If you* ***had known****,*	***would*** *you* ***have told*** *me?*
Short answers		*Yes, I* ***would****. / No, I* ***wouldn't****.*

As with the other conditionals, the *if*-clause can come first (with a comma) or second (without a comma): *I would have called you if I had had your number.* Instead of *would have* we can use ***could have*** (= would have been able to) or ***might have*** (= perhaps would have): *If you'd told me, I* ***could have*** *helped you. If it hadn't rained, we* ***might have*** *won.*

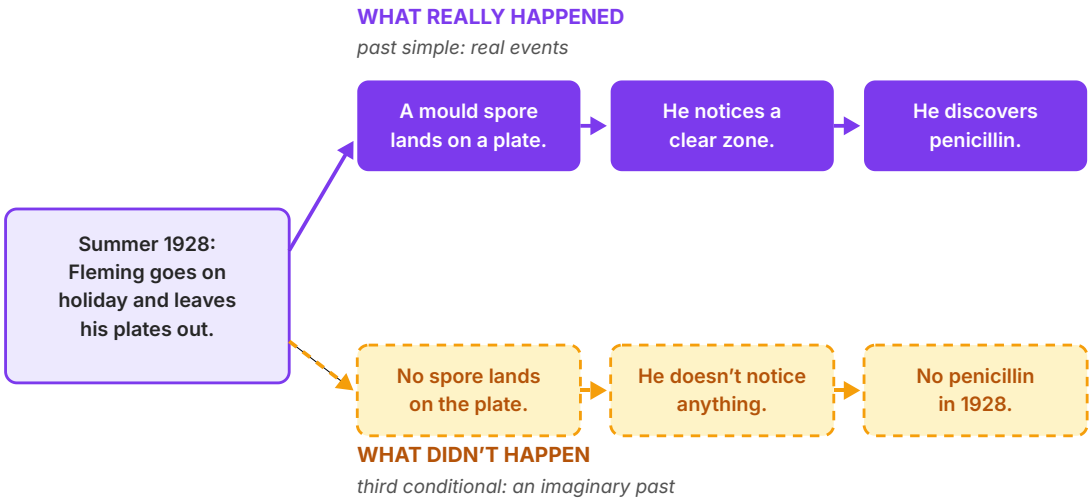


Figura 11.1 The third conditional: what really happened (past simple, above) and what didn't happen (third conditional, below). Each step of the real story becomes negative in the imaginary one.

The two meanings of 'd. In spoken English both *had* and *would* become *'d*: *If I'd known, I'd have come.* To understand which is which, look at the word that follows: *'d* + past participle (*'d known*) = *had*; *'d* + *have* (*'d have come*) = *would*. In quick speech *would have* sounds like /ˈwʊdəv/ and *wouldn't have* like /ˈwʊdntəv/.

GRAMMAR IN ITALIANO

Third conditional (*periodo ipotetico dell'irrealtà nel passato*). Forma: *if* + **past perfect**, *would have* + **participio passato**. Si usa per un'ipotesi che riguarda il passato e che non si è realizzata.

Confronto con l'italiano. Corrisponde a **se + congiuntivo trapassato, condizionale passato**: *Se fossi partito prima, avrei preso l'autobus* = *If I had left earlier, I would have caught the bus.* Attenzione: nella lingua parlata italiana si sente spesso l'imperfetto (*Se lo sapevo, venivo*); in inglese invece la struttura resta sempre la stessa, anche nel parlato.

ESEMPIO SVOLTO

Costruire un third conditional da due fatti reali. Fatti: *I didn't set my alarm. I missed the test.*

1. Trova la causa (*if*-clause) e la conseguenza (main clause): causa = *I didn't set my alarm*; conseguenza = *I missed the test*.
2. Immagina il contrario: ciò che era negativo diventa affermativo e viceversa. *didn't set* → *had set*; *missed* → *wouldn't have missed*.
3. Metti la causa al past perfect dopo *if*: *If I had set my alarm,*
4. Metti la conseguenza con *would / wouldn't have* + participio: *I wouldn't have missed the test.*
5. Controlla: nessun *would* nella frase con *if*; virgola se *if* viene prima. ✓ *If I had set my alarm, I wouldn't have missed the test.*

ERRORE FREQUENTE

Mai *would* nella frase con *if*, e attenzione al participio passato dei verbi irregolari (Appendice, Tabella A.1).

✗ *If I would have known, I would have come.* → ✓ *If I* ***had known****, I would have come.* · ✗ *If she had went to bed early…* → ✓ *If she had* ***gone*** *to bed early…* · ✗ *I would of helped you.* → ✓ *I would* ***have*** *helped you.* (*would've* si pronuncia come *would of*, ma si scrive *have*)

11.3.2 The four conditionals compared

Now you know all four basic conditionals. Tabella 11.3 and Figura 11.2 put them side by side; the same table is in the appendix (see the appendix, Tabella C.1). The key question is: **is the situation real or imaginary, and when is it?**

Tabella 11.3 The four conditionals compared

Type	Form	Use	Example
zero	*if* + present, present	things that are always true	*If you heat ice, it melts.*
first	*if* + present, *will* + base form	a real possibility in the future	*If I find your phone, I'll call you.*
second	*if* + past simple, *would* + base form	an imaginary or unlikely present or future	*If I found a wallet, I'd take it to the police.*
third	*if* + past perfect, *would have* + past participle	an imaginary past: it didn't happen	*If I hadn't found your phone, you'd have lost all your photos.*

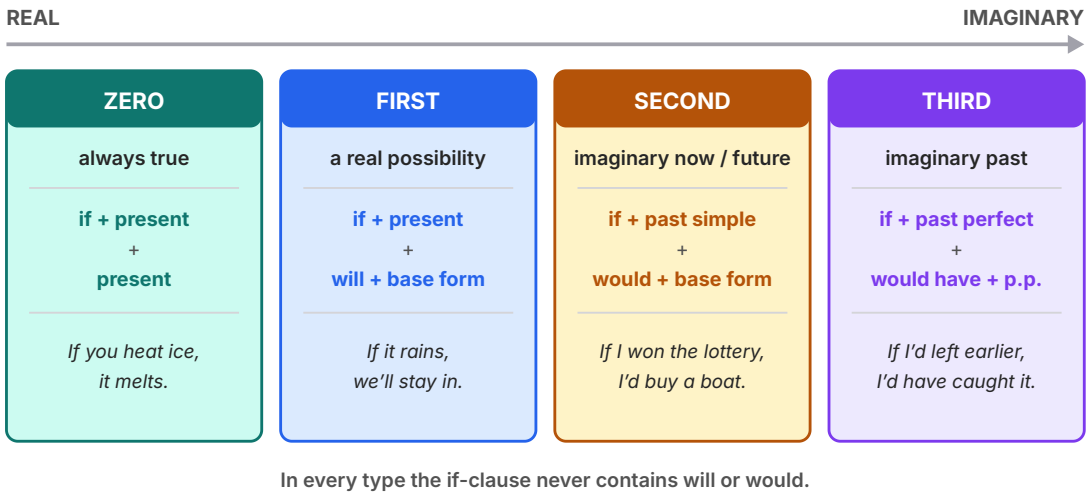


Figura 11.2 The four conditionals, from real (left) to imaginary (right). The zero and first conditionals talk about real situations; the second and third imagine situations that are not true now or were not true in the past.

A useful test. Ask yourself: *did it really happen? If I find your phone…* (maybe I will: first) · *If I found a wallet…* (it hasn't happened, I'm imagining: second) · *If I hadn't found your phone…* (I did find it, so this is contrary to the facts: third).

11.3.3 *Should have* for regrets and criticism

To say that something in the past was a mistake, we use ***should have* + past participle**. The negative is *shouldn't have*. Like *must have* and *can't have* in Unit 6, it is a modal followed by *have* + past participle.

- **Regret** (about yourself): *I **should have** checked my pockets. I **shouldn't have** stayed up so late.* (= but I didn't / but I did, and now I'm sorry)
- **Criticism** (about other people): *You **should have** told me! They **shouldn't have** left the gate open.*
- **Questions**: ***Should** I **have** said something?* (= was it a mistake not to?)
- **Thanking for a present**: *Oh, **you shouldn't have**!* is a polite way to say "thank you, it's too much".

GRAMMAR IN ITALIANO

***Should have* + participio passato** = **avrei dovuto / non avrei dovuto** (rimpianto) e **avresti dovuto** (critica). *I should have studied more = Avrei dovuto studiare di più. You shouldn't have shouted = Non avresti dovuto urlare.*

Confronto con l'italiano. In italiano il verbo *dovere* cambia tempo (*avrei dovuto*) e l'infinito resta presente (*studiare*). In inglese *should* non cambia mai: è l'infinito che diventa passato (*have studied*).

ERRORE FREQUENTE

Dovevo o *avrei dovuto*? Se esprime un rimpianto (non l'ho fatto, ed è stato un errore) si usa *should have*, non *had to*: *had to* indica un obbligo che c'era davvero.

✗ *I had to study more for the test.* (= ero obbligato) → ✓ *I* ***should have studied*** *more for the test.* (= avrei dovuto) · ✗ *You should had told me.* → ✓ *You should* ***have told*** *me.* · ✗ *I should to have called.* → ✓ *I* ***should have called****.*

APPROFONDIMENTO

Wish* + past perfect (B1+, optional).** In Unit 4 you used *wish* + past simple for wishes about the present: *I wish I had more time*. For regrets about the **past**, use *wish* + **past perfect**: *I* ***wish *I* ***had checked*** *my pockets. She* ***wishes*** *she* ***hadn't said*** *that.* In Italian: *Vorrei aver controllato le tasche / Se solo avessi controllato le tasche!* The meaning is very close to *should have*: *I wish I'd listened = I should have listened.* Never use *would* after *I wish* for your own past actions: ✗ *I wish I would have listened.*

11.4 Listening and Speaking: Regret, Apologies and Sympathy

When something goes wrong, we need to say that we are sorry, to accept other people's apologies and to **sympathise**: to show that we understand how someone feels. Short, natural phrases matter more than long explanations.

11.4.1 Listening 1: Lost and found

Sam left his phone on a bus on his way home from a GCSE revision class. In the evening his dad, David, calls him. Listen to your classmates reading the script (books closed): where was the phone, and why was it a coincidence?

Tabella 11.4 Listening script — Lost and found

David	Hi, Sam. Have you lost anything today, by any chance?

Sam	Dad! How do you know? I've lost my phone. Lucky you rang the house phone. I've looked everywhere.
David	Well, you can stop looking. It's in my pocket.
Sam	What? How?
David	You left it on the number 72 this afternoon. The driver found it under a seat at the end of his shift and brought it to the depot. I was having a cup of tea in the office when he walked in with it. I recognised the case — the one with the rabbit on it that Lily chose.
Sam	No way! What a coincidence! If you hadn't been in the office, I'd never have got it back.
David	Well, the driver would have taken it to lost property. But you might have waited a week.
Sam	Phew. What a relief. All my revision notes are on it. I should have put it in my bag, I know.
David	You should have. And you shouldn't have been looking at it on the bus with your bag open, either.
Sam	I know, I know. I'm really sorry, Dad. It won't happen again.
David	Don't worry about it. These things happen. I once left my wallet in a café in Bath, with my driving licence in it.
Sam	Did you get it back?
David	Eventually. After two weeks and a lot of phone calls. So you were lucky. Shall I bring it round tonight?
Sam	Would you? That would be brilliant. Thanks, Dad. I owe you one.

11.4.2 Listening 2: I'm so sorry!

In Turin, Marta borrowed Giulia's calculator for the weekend. On Monday morning, just before a maths test, she has some bad news. Listen (books closed): what has happened, and how does Giulia react?

Tabella 11.5 Listening script — I'm so sorry!

Marta	Giulia… I have to tell you something. Please don't be angry.
Giulia	That sounds bad. What's happened?
Marta	You know I went to my grandmother's on Saturday? I was doing my maths homework there, with your calculator.
Giulia	Yes… and?
Marta	I left it there. In Pinerolo. I'm so sorry. It was completely my fault.
Giulia	Marta! We've got the maths test in ten minutes!
Marta	I know. I feel terrible. I should have put it back in my pencil case straight away. If I hadn't gone to my nonna's by train, I'd have asked my dad to drive back for it.

Giulia	OK… calm down. Never mind. It could have been worse. Elena always has two calculators. I'll ask her.
Marta	Are you sure? I really didn't do it on purpose.
Giulia	Of course you didn't. Don't worry about it. It's not the end of the world.
Marta	My grandmother is posting it today. Or I'll buy you a new one, I promise.
Giulia	Don't be silly. Just bring it back next week. But next time, maybe write a list?
Marta	A list! Good idea. I'll start one… if I don't lose it.
Giulia	Ha! Come on, we'd better go in. Good luck!
Marta	You too. And thanks for being so nice about it.

Useful language. Tabella 11.6 collects the phrases from the two scripts and some more.

Tabella 11.6 Useful language: regret, apologies and sympathy

Function	Phrases
Expressing regret	*I should have… / I shouldn't have… · If only I'd… · I really regret (+ -ing)… · It was a big mistake.*
Apologising	*I'm (really / so / terribly) sorry. · Sorry about (+ noun / -ing)… · It was (all) my fault. · I didn't mean to… · I didn't do it on purpose. · It won't happen again.*
Formal apology	*I apologise for… · Please accept my apologies.*
Accepting an apology	*Don't worry (about it). · Never mind. · That's OK / all right. · It doesn't matter. · It's not the end of the world. · These things happen.*
Sympathising	*Oh no! · What a shame / a pity! · Bad luck! · That's awful. · Poor you! · I know how you feel. · It could have been worse.*
Expressing relief	*What a relief! · Phew! · Thank goodness! · That was a narrow escape / a close call.*

Watch out. *Sorry* is followed by *about* + noun or by *for* + *-ing*: *Sorry **about** the noise. I'm sorry **for** being late. I'm sorry to hear that* is for sympathy, not for apologising.

Speaking

1. **Role play.** Student A borrowed something from Student B (a bike, a jacket, a book) and lost or damaged it. A apologises and explains what happened; B is annoyed at first, then accepts the apology. Use *should have* and at least three phrases from the table. Then swap roles.
2. **Pair work.** Tell your partner about a lucky break or a narrow escape in your life (a bus you nearly missed, an object you found, a test that went better than expected). Your partner reacts and asks questions. Then say how things would have been different: *If I hadn't…, I would have…*

3. **Discussion.** In small groups: Are some people luckier than others, or do they just notice more opportunities? Give examples, and agree or disagree politely (Unit 4).

COLLEGAMENTI

Maths: chance and probability. In maths, *chance* becomes a number, the **probability**: the number of favourable outcomes divided by the number of possible outcomes. When you roll a die, the probability of a six is 1/6, about 17%; you can say *a one-in-six chance*. Something that is equally likely to happen or not has a *fifty-fifty chance*.

Coincidences are less surprising than they seem. How many people do you need in a room for a better-than-even chance that two of them share a birthday? Not 183, but only 23 (ignoring 29 February and supposing that all birthdays are equally likely). Figura 11.3 shows why: the number of possible pairs grows very fast (23 people make 253 pairs). In a class of 30 the chance is about 71%.

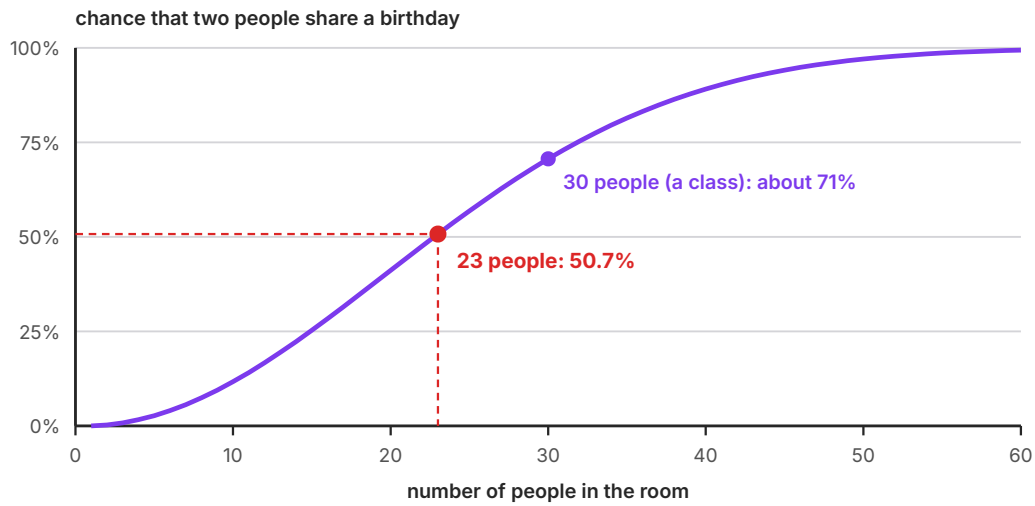


Figura 11.3 The birthday coincidence: the probability that at least two people in a room share a birthday, calculated for 1 to 60 people (365 equally likely birthdays). With 23 people it is just over 50%.

11.5 Writing: A For-and-Against Essay

A **for-and-against essay** discusses both sides of a question in a balanced way: first the arguments for, then the arguments against, and finally your conclusion. Unlike the opinion essay in Unit 4, you don't give your opinion from the start: the reader should feel that you have been fair to both sides. The register is neutral or formal, with no contractions. Read Giulia's essay, written for a Link debate.

Tabella 11.7 Model text — a for-and-against essay

Are great scientific discoveries a matter of luck?

Many famous discoveries, from X-rays to penicillin, seem to have happened by chance. But is luck really the most important ingredient in science?

On the one hand, there are many examples of happy accidents. Fleming would not have discovered penicillin in 1928 if a mould had not landed on one of his dishes. **In addition**, some discoveries came from results that nobody expected, such as the strange noise which led two astronomers to evidence for the Big Bang. Without these coincidences, science might have taken a very different path.

On the other hand, luck alone does not explain these stories. Fleming had studied bacteria for years, **whereas** most people would simply have thrown the dirty dish away. **Moreover**, an accident is only the beginning: it took more than ten years, and the hard work of Florey, Chain and their team, to turn penicillin into a medicine. **However** lucky a scientist is, a discovery needs knowledge, patience and teamwork.

In conclusion, chance can open a door, but only a prepared and curious mind walks through it. **In my view**, luck plays a part in science, but hard work plays a much bigger one.

Giulia Ferraro, 2B

ESEMPIO SVOLTO

Analysing the model.

1. **Paragraph 1 — Introduction.** It presents the topic and asks the question, without giving an answer.
2. **Paragraph 2 — For.** Two arguments for the idea, introduced by *On the one hand* and *In addition*, each with an example.
3. **Paragraph 3 — Against.** Two arguments against, introduced by *On the other hand* and *Moreover*, with a contrast (*whereas*).
4. **Paragraph 4 — Conclusion.** A summary (*In conclusion*) and, only now, the writer's opinion (*In my view*).
5. **Register.** No contractions (*would not, had not*), impersonal subjects (*there are many examples*), a third conditional to imagine a different past.

Linkers for balance. *On the one hand… On the other hand…* always come as a pair and introduce two different sides. ***Whereas*** joins two contrasting facts in the same sentence: *Some people think it is luck, whereas others believe it is hard work.* You know *however* and *although* from Unit 9. To add an argument, use *In addition, Moreover, Furthermore, What is more*; to conclude, *In conclusion, To sum up, All things considered.*

Watch out. ✗ *In the other hand* → ✓ ***On*** *the other hand.* Don't translate *da un lato… dall'altro* word for word: ✗ *From one side… from the other side…* → ✓ *On the one hand… on the other hand…*

And *whereas* joins two clauses, so it cannot stand alone at the start of a sentence followed by a comma: ✗*Whereas, luck is important.* → ✓*Luck is important for some people,* ***whereas*** *others rely on hard work.*

Checklist. ✓ four paragraphs: introduction, for, against, conclusion · ✓ at least two arguments on each side, with examples · ✓ *on the one hand / on the other hand, in addition, however, whereas, in conclusion* · ✓ your opinion only in the conclusion · ✓ no contractions · ✓ 140–190 words.

Your task. *Hillside Voice* is publishing essays by students from both Link schools. Write a for-and-against essay (140–190 words) on one of these titles: *Is it better to plan everything or to leave some things to chance?* · *Should students be allowed to retake every test they fail?* · *Do lucky people really exist?*

11.6 Culture: Science in Britain: Fleming and Penicillin

11.6.1 A dirty dish

Alexander Fleming was born on a farm near Darvel, in Ayrshire, Scotland, on 6 August 1881. He moved to London as a teenager and studied medicine at St Mary's Hospital Medical School in Paddington, where he stayed for the rest of his career as a researcher of **bacteria** (singular *bacterium*): tiny living cells, so small that you need a microscope to see them, some of which cause infections.

In the summer of 1928 Fleming went on holiday with his family and left some glass dishes with colonies of staphylococci, bacteria that cause skin and wound infections, on his laboratory bench. When he came back, on 3 September, he noticed that one dish had been contaminated by a **mould**, a kind of fungus. All around the mould there was a clear zone where the bacteria had died, while the colonies further away were growing normally (Figura 11.4). Fleming realised that the mould was producing a substance that killed bacteria. The mould belonged to the genus *Penicillium*, so in March 1929 he called the substance **penicillin**, and he published his results the same year.

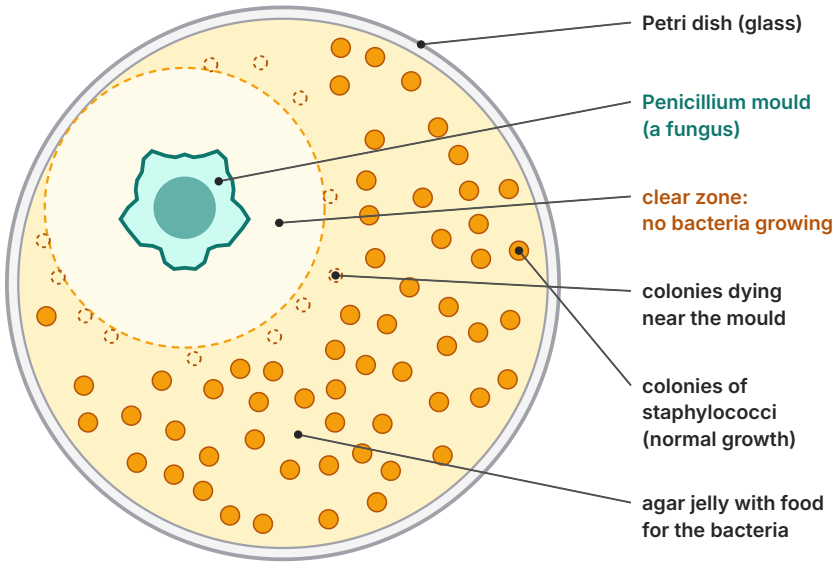


Figura 11.4 A schematic Petri dish like the one Fleming saw in 1928 (not to scale). Around the *Penicillium* mould, a clear zone has formed where the staphylococci cannot grow.

11.6.2 From a mould to a medicine

Fleming's discovery was a lucky break, but it was not yet a medicine. Penicillin was very difficult to produce and purify, and for about ten years little happened. In 1939 a team at the University of Oxford, led by the Australian Howard Florey and the German-born chemist Ernst Chain, started to study it again. In May 1940 they showed that penicillin could protect mice from a deadly infection, and in February 1941 they treated their first human patient, an Oxford policeman. He got better at first, but the team didn't have enough penicillin, and he died. If they had had more of the drug, he might have survived. Factories in the USA and Britain then learnt to produce it in huge quantities, and by D-Day in June 1944 there was enough for the Allied armies. Figura 11.5 shows the main steps.

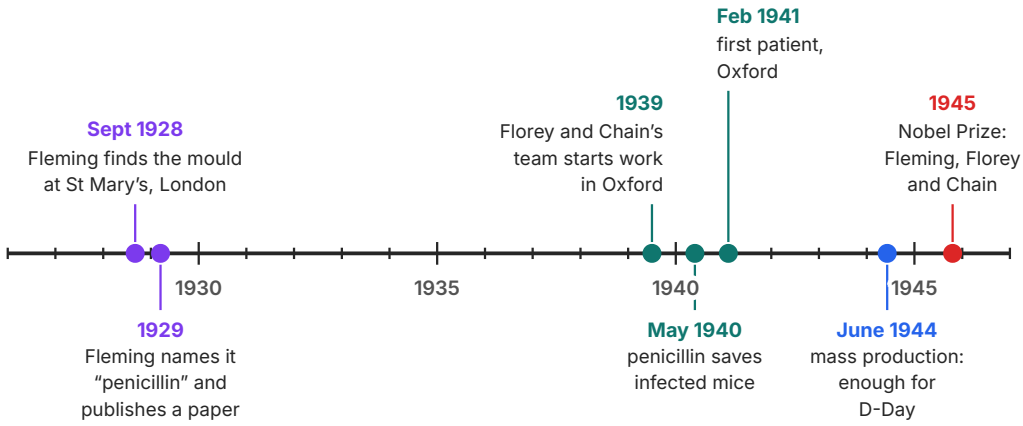


Figura 11.5 Penicillin from discovery to medicine, 1928–1945 (proportional time axis).

In 1945 the Nobel Prize in Physiology or Medicine was shared by Fleming, Florey and Chain: the discovery was Fleming's, but the medicine was the work of many people. In 1945 Fleming also gave a warning that sounds very modern: if people used too little penicillin, or used it the wrong way, bacteria could learn to resist it. He died in London on 11 March 1955.

COLLEGAMENTI

Biology: bacteria and antibiotics. Penicillin was the first widely used **antibiotic**, a medicine that kills bacteria or stops them from growing. Antibiotics do **not** work against viruses, so they cannot cure a cold or the flu. When antibiotics are used too often or in the wrong way, the bacteria that survive can multiply and pass on their resistance: this is **antibiotic resistance**, one of today's big health problems. That is why you should take antibiotics only when a doctor prescribes them, and exactly as the doctor tells you. Both words are Greek: *antibiotic* is from *anti*, "against", and *bíos*, "life"; *bacterium* is from *baktérion*, "a small stick", because the first bacteria seen under the microscope were shaped like little rods.

11.6.3 Compare with Italy

Italy has its own lucky breaks in science. In Bologna in the 1780s, the doctor and anatomist Luigi Galvani (1737–1798) was studying frogs' legs in a room where an electrical machine was in use. In his book of 1791 he explains that the first observation happened by chance: someone lightly touched a nerve of a frog with the point of a scalpel (a surgeon's knife) at the moment when a spark came from the machine, and the leg muscles suddenly contracted. Galvani's experiments on "animal electricity" led Alessandro Volta, who disagreed with his explanation, to

build the first electric battery in 1800. And there is a link with penicillin too: from 1948 Ernst Chain worked for more than ten years in Rome, at the Istituto Superiore di Sanità, where he directed a research centre and helped Italy produce penicillin.

Compare with Italy. Do you know any other Italian scientists whose discoveries began with a surprise? Why do you think so many discoveries are remembered with a story about luck?

SINTESI

- Luck and chance: *luck, lucky, coincidence* /kəʊˈɪnsɪdəns/, *by chance / by accident, by mistake, on purpose, breakthrough, lucky break, discovery, experiment*.
- Feelings: *regret, relief (What a relief!), disappointed, guilty, a narrow escape, apologise for*.
- *-able / -ible* make adjectives meaning "that can be done": *predictable, believable, possible, visible*. Negatives: *un-* with most *-able* words (*unpredictable*), *in- / im- / ir- / il-* with most *-ible* words (*invisible, impossible*).
- False friends: *sensible* = *ragionevole*; *casual* = *informale*; *be lucky*, not ✗ *have luck*.
- Third conditional: *if* + past perfect, *would have* + past participle, for an imaginary past: *If I had left earlier, I would have caught the bus.* Also *could have / might have*.
- *'d* + past participle = *had*; *'d have* = *would have*. Never *would* in the *if*-clause.
- Four conditionals: zero (always true), first (real future), second (imaginary present or future), third (imaginary past).
- *Should have / shouldn't have* + past participle for regrets and criticism: *I should have checked my pockets.* = *Avrei dovuto…*
- Apologising and accepting: *I'm so sorry. It was my fault.* — *Never mind. Don't worry about it. It could have been worse.* Sympathising: *What a shame! Bad luck!*
- A for-and-against essay: introduction, arguments for, arguments against, conclusion with your opinion; *on the one hand / on the other hand, in addition, whereas, however, in conclusion*.
- Fleming found the mould in September 1928 at St Mary's, London; Florey and Chain's Oxford team made penicillin a medicine; the three shared the 1945 Nobel Prize.

ESERCIZI

Vocabulary

1. ● Match the words (1–6) with the definitions (a–f). 1 coincidence · 2 breakthrough · 3 on purpose · 4 relief · 5 by mistake · 6 lucky break — a because of an error · b an important new discovery · c the good feeling when something bad doesn't happen · d deliberately · e two things that happen together by chance in a surprising way · f a piece of good luck that helps you succeed

2. ● Complete with the words in the box: *chance · lucky · experiment · regret · accident · discovery*. a I met Aoife's cousin by _____ in a shop in Galway. b The car _____ happened at a dangerous crossing. c You were _____ : the bus was late too! d In the lab we did an _____ with magnets. e The _____ of X-rays changed medicine. f I _____ not saying goodbye to her.

3. ● "I didn't break your glasses _____ , I promise!"

   A. by chance
   B. on purpose
   C. by luck
   D. for accident

4. ● Two students in our class have the same birthday. What a _____ !

   A. coincidence
   B. fortune
   C. occasion
   D. chance

5. ●● Word formation. Write the adjective in *-able* or *-ible*, then its opposite. a predict → _____ → _____ b believe → _____ → _____ c possible → _____ d visible → _____ e accept → _____ → _____ f responsible → _____ g avoid → _____ → _____ h notice → _____

6. ●● Choose the correct word. a It was a very *sensible / sensitive* decision to wear a helmet. b I don't like formal clothes: I prefer *casual / random* ones. c Don't worry, it was a *narrow / near* escape and nobody was hurt. d Sorry, I took your pen *by mistake / on mistake*. e You're so *lucky / luck*! f She *apologised / excused* for being late.

7. ●● Collocations. Which verb does NOT go with the noun? a ___ an experiment: do · carry out · run · write · b ___ a discovery: make · do · announce · report · c ___ a mistake: make · correct · do · learn from · d ___ an apology: accept · make · give · do

Grammar

8. ● Complete the third conditional sentences with the verbs in brackets. a If Sam _____ (put) his phone in his bag, he _____ (not / lose) it. b If David _____ (not / be) in the office, he _____ (not / see) the phone. c We _____ (win) the match if Callum _____ (not / miss) the penalty. d If you _____ (ask) me, I _____ (help) you. e If Fleming _____ (clean) his dishes, he _____ (not / notice) the mould. f _____ you _____ (come) to the party if I _____ (invite) you?

9. ● What does *'d* mean in each sentence: *had* or *would*? a If I'd known, I'd have called you. (two answers) b She'd already left when we arrived. c I'd love to come. d If we'd had more time, we'd have visited the museum. (two answers) e You'd better hurry.

10. ● If it _____ so cold, we would have gone to the beach.
    A. wasn't
    B. wouldn't have been
    C. hadn't been
    D. isn't

11. ● I'm sorry I was rude. I _____ said that.
    A. shouldn't have
    B. mustn't have
    C. didn't have to
    D. shouldn't

12. ● If I find your keys, I _____ you a message.
    A. would send
    B. will send
    C. would have sent
    D. sent

13. ● You look tired. If I _____ you, I'd go to bed early tonight.
    A. am
    B. had been
    C. would be
    D. were

14. ●● Which conditional? Complete with the correct form of the verbs in brackets (zero, first, second or third). a If you _____ (mix) blue and yellow, you get green. b If I _____ (have) a million pounds, I'd travel round the world. c If it _____ (rain) tomorrow, we'll stay at home. d If Giulia _____ (not / study) so hard, she wouldn't have passed. e Plants die if they _____ (not / get) water. f If I _____ (be) you, I'd apologise.

15. ●● Write one sentence with the third conditional for each situation. a I didn't have an umbrella. I got wet. b Marta forgot the calculator. Giulia had to borrow one. c The driver found Sam's phone. Sam got it back. d Callum saw a van nearly hit a Year 7. He started the crossing campaign. e We didn't know about the concert. We didn't go. f Fleming noticed the clear zone. He discovered penicillin.

16. ●● Write a regret or a criticism with *should have* or *shouldn't have*. a I ate three pizzas. Now I feel ill. b You didn't tell me about the test! c Lily left Biscuit's hutch open. d We didn't book a table, and the restaurant is full. e Josh stayed up until 3 a.m. and now he's exhausted. f I didn't save my work, and the computer crashed.

17. ●● Find and correct the mistake in each sentence (✗). a ✗ If I would have known, I would have helped. b ✗ She would of come if you had asked her. c ✗ If they had took a taxi, they would have arrived on time. d ✗ I had to study more: my mark was terrible. (regret) e ✗ You should had called me. f ✗ If I hadn't missed the bus, I wouldn't be late yesterday.

18. ●●● Translate into English. a Se fossimo partiti prima, non avremmo perso il treno. b Avrei dovuto ascoltarti. c Se non avessi trovato il telefono, Sam sarebbe stato molto preoccupato.

Reading and Listening

19. ● Read "Happy Accidents" again. True (T), false (F) or doesn't say (DS)? a Röntgen's tube was covered with black cardboard. b Röntgen knew immediately what the rays were. c Percy Spencer was a doctor. d Spencer Silver wanted to make a very strong glue. e Art Fry sang in a choir. f Penzias and Wilson removed the pigeons, but the noise continued.

20. ●● Answer the questions on "Happy Accidents". a Why did Röntgen call the rays "X"? b What did Spencer do after he noticed the melted snack? c What problem did the Post-it Note solve for Art Fry? d What did the strange noise turn out to be? e According to Callum, what did these scientists have in common?

21. ●● Listening 1 (Tabella 11.4). Why was it a coincidence that Sam got his phone back?

    A. His dad was driving the number 72.

    B. Lily found it under a seat.

    C. His dad was in the depot office when the driver brought it in.

    D. The driver was a friend of Sam's.

22. ●● Listening 2 (Tabella 11.5). Answer. a Where did Marta leave the calculator? b What does Marta say to show it was her fault? c Which phrases does Giulia use to accept the apology? d How will Giulia solve the problem for the test?

23. ●●● Culture. Answer. a Where did Fleming work, and what did he see in September 1928? b Why was Fleming's discovery not yet a medicine? c Who turned penicillin into a medicine, and where? d What warning did Fleming give? e What links Ernst Chain to Italy?

Writing and Speaking

24. ●● Write about yourself. Complete the sentences so they are true for you. a If I had been born a hundred years ago, … b Last year I should have… c I shouldn't have… d If I hadn't started studying English, … e My luckiest moment was when…

25. ●● Write a short email (100–130 words) to a friend to apologise. You borrowed his or her bike and something went wrong. Explain what happened, say what you should have done and offer to solve the problem.

26. ●●● Speaking. With a partner, discuss: “Is it better to be lucky or to work hard?” Prepare two arguments for each side, then give your opinion. Use *on the one hand / on the other hand*, *whereas* and at least one third conditional.

Towards B1

27. ●● Multiple-choice cloze. Choose the correct word (A, B, C or D) for each gap. *Last week I had a real (1)* _____ *break. I was late for my bus, and I (2)* _____ *left home earlier, I know. When I got to the stop, the bus had already gone. While I was waiting for the next one, I met my old teacher by (3)* _____ *. She told me about a summer job at the museum. If I (4)* _____ *missed the bus, I would never have heard about it! I applied, and (5)* _____ *my surprise, I got the job.* 1 A lucky B luck C fortunate D chance · 2 A must have B should have C would have D could · 3 A mistake B purpose C chance D accident · 4 A didn’t B hadn’t C wouldn’t D haven’t · 5 A for B with C at D to

28. ●● Open cloze. Write ONE word in each gap. *Penicillin was discovered (1)* _____ *chance in 1928. If Fleming (2)* _____ *noticed the mould, he would not (3)* _____ *discovered it. However, he could not produce enough of it, so a team in Oxford, (4)* _____ *was led by Howard Florey, turned it into a medicine. Fleming, Florey and Chain shared the Nobel Prize (5)* _____ *1945.*

29. ●●● Sentence transformation. Complete the second sentence so that it means the same as the first. Use the word in capitals and between two and five words. a I regret not taking an umbrella. SHOULD → I _____ an umbrella. b I didn’t know your number, so I didn’t call you. HAD → If I _____ your number, I would have called you. c It was wrong of you to shout at her. SHOULDN’T → You _____ at her. d We lost because it rained. IF → We wouldn’t have lost _____ rained. e Nobody predicted the ending. UNPREDICTABLE → The ending _____ .

30. ●● Short message. You borrowed a book from an English-speaking friend and spilt coffee on it. Write a message (35–45 words): apologise, explain what happened and offer to do something.

31. ●●● Story. Write a story (about 100 words) that begins: *If I hadn’t missed the train that morning, I would never have met…* Use narrative tenses, at least one other third conditional and one phrase of relief or regret.

PER APPROFONDIRE

- SWA
- EGU
- CGE
- RED

Glossario del capitolo

A narrow escape
uno scampato pericolo — a situation where you nearly had an accident

Antibiotic
antibiotico — a medicine that kills bacteria (not viruses)

Apologise (for)
scusarsi (di) — *He apologised for being late.*; noun *apology*

Bacterium (pl. bacteria)
batterio — a very small living cell; some cause infections

Be lucky
avere fortuna, essere fortunato — *You're lucky!* (✗ *You have luck*)

Breakthrough
scoperta decisiva, svolta — an important new discovery or development

By chance / by accident
per caso — without planning it

Coincidence
coincidenza — two things that happen together by chance in a surprising way

Error log
registro degli errori — a list of your frequent mistakes, with corrections

For-and-against essay
saggio argomentativo con pro e contro — an essay that discusses both sides of a question

Lucky break
colpo di fortuna — a piece of good luck that helps you succeed

On purpose
apposta — deliberately: *She didn't do it on purpose.*

Regret
rimpiangere, pentirsi; rimpianto — *I regret not calling her.*

Relief
sollievo — *What a relief!*

Sensible
ragionevole, assennato — false friend: *sensibile* = *sensitive*

Serendipity
serendipità — making a lucky discovery by accident

Should have + past participle
avrei dovuto… — regret or criticism about the past: *I should have asked.*

Sympathise
mostrare comprensione, solidarietà — show that you understand how someone feels

Third conditional
periodo ipotetico dell'irrealtà nel passato — *if* + past perfect, *would have* + past participle

Whereas
mentre (invece) — joins two contrasting facts: *I'm tall, whereas my sister is short.*

Soluzioni

1. 1 e · 2 b · 3 d · 4 c · 5 a · 6 f

2. a chance · b accident · c lucky · d experiment · e discovery · f regret

3. B — *on purpose* (= deliberately)

4. A — *coincidence*

5. a predictable → unpredictable · b believable → unbelievable · c impossible · d invisible · e acceptable → unacceptable · f irresponsible · g avoidable → unavoidable · h noticeable (the *e* stays after *c*)

6. a sensible · b casual · c narrow · d by mistake · e lucky · f apologised

7. a *write* (*do / carry out / run an experiment*) · b *do* (*make a discovery*) · c *do* (*make a mistake*) · d *do* (*accept / make / give an apology*)

8. a had put · wouldn't have lost · b hadn't been · wouldn't have seen · c would have won · hadn't missed · d had asked · would have helped · e had cleaned · wouldn't have noticed · f Would · have come · had invited

9. a had · would · b had · c would · d had · would · e had (*had better*, Unit 5)

10. C — *hadn't been* (past perfect in the *if*-clause)

11. A — *shouldn't have* (regret)

12. B — first conditional: a real possibility

13. D — *were* (second conditional, advice; *was* is also heard informally)

14. a mix (zero) · b had (second) · c rains (first) · d hadn't studied (third) · e don't get (zero) · f were / was (second)

15. a If I had had an umbrella, I wouldn't have got wet. · b If Marta hadn't forgotten the calculator, Giulia wouldn't have had to borrow one. · c If the driver hadn't found Sam's phone, Sam wouldn't have got it back. · d If Callum hadn't seen a van nearly hit a Year 7, he might not (wouldn't) have started the crossing campaign. · e If we had known about the concert, we would have gone. · f If Fleming hadn't noticed the clear zone, he wouldn't have discovered penicillin. (The *if*-clause can also come second, without a comma.)

16. a I shouldn't have eaten three pizzas. · b You should have told me about the test! · c Lily shouldn't have left Biscuit's hutch open. (She should have closed it.) · d We should have booked a table. · e Josh shouldn't have stayed up until 3 a.m. · f I should have saved my work.

17. a If I **had known**… · b She would **have** come… · c If they had **taken** a taxi… · d I **should have studied** more… · e You should **have called** me. · f …I **wouldn't have been** late yesterday.

18. a If we had left earlier, we wouldn't have missed the train. · b I should have listened to you. · c If I hadn't found the phone, Sam would have been very worried.

19. a T · b F (he called them "X" because he didn't know what they were) · c F (an engineer) · d T · e T · f T

20. a Because he didn't know what they were. · b He did an experiment: he put popcorn in front of the machine. · c The paper bookmarks kept falling out of his song book. · d Radiation left over from the early universe (evidence for the Big Bang). · e Curiosity: they didn't ignore the unexpected result, they asked why.

21. C — David was having a cup of tea in the office when the driver walked in.

22. a At her grandmother's in Pinerolo. · b "It was completely my fault." / "I should have put it back in my pencil case straight away." · c "Never mind." "It could have been worse." "Don't worry about it." "It's not the end of the world." · d She will borrow a calculator from Elena.

23. a At St Mary's Hospital (Medical School) in London; a mould in a dish of staphylococci, with a clear zone around it where the bacteria had died. · b It was very difficult to produce and purify. · c A team at the University of Oxford led by Howard Florey and Ernst Chain. · d If people used too little penicillin or used it the wrong way, bacteria could learn to resist it. · e From 1948 he worked in Rome, at the Istituto Superiore di Sanità, for more than ten years.

24. Open answers. Example: a If I had been born a hundred years ago, I probably wouldn't have gone to a liceo. · b Last year I should have read more books in English. · c I shouldn't have spent so much time on my phone. · d If I hadn't started studying English, I wouldn't have met my friends from Bristol. · e My luckiest moment was when I found my lost keys in the snow.

25. Model answer: *Hi Noah, I'm really sorry, but I've got some bad news about your bike. Yesterday I rode it to the sports centre and left it outside for an hour. I locked it, but I only locked the frame, not the front wheel — and when I came out, the wheel had gone! I should have used the long chain, as you told me. If I had listened to you, it wouldn't have happened. I feel terrible about it. I've already reported it at the sports centre, and I'm going to buy you a new wheel this weekend. Could you tell me which one you need? Again, I'm so sorry. I hope you're not too angry! Sam* (≈ 115 words). Check: apology phrases, *should have*, a third conditional, an offer.

26. Traccia: *On the one hand, lucky people sometimes get chances that others don't, for example meeting the right person at the right time. On the other hand, hard work lasts longer than luck: if Fleming hadn't studied bacteria for years, he wouldn't have understood the mould. Some people wait for luck, whereas others create their own chances. In my opinion, hard work is more important, because…* Assess: balance, linkers, accuracy of the conditional, interaction.

27. 1 A · 2 B · 3 C · 4 B · 5 D

28. 1 by · 2 hadn't · 3 have · 4 which (or who: a non-defining clause, Unit 9; never *that* after a comma) · 5 in

29. a should have taken · b had known · c shouldn't have shouted · d if it hadn't · e was unpredictable

30. Model answer: *Hi Lucy, I'm so sorry! I was reading your book at breakfast and I knocked my coffee over it. Some pages are stained. I should have been more careful. I'll buy you a new copy this weekend — is that OK? Sorry again! Luca* (42 words)

31. Model answer: *If I hadn't missed the train that morning, I would never have met Anna. I was running along the platform when the doors closed in front of me. I was furious with myself: I should have left home earlier! I sat down on a bench to wait, and a girl next to me dropped her phone. I picked it up and we started talking. She had just moved to my town and didn't know anybody. We talked for an hour and found out that we liked the same music. What a lucky break! Today she is my best friend. If I had caught that train, we would still be strangers.* (≈ 110 words)