

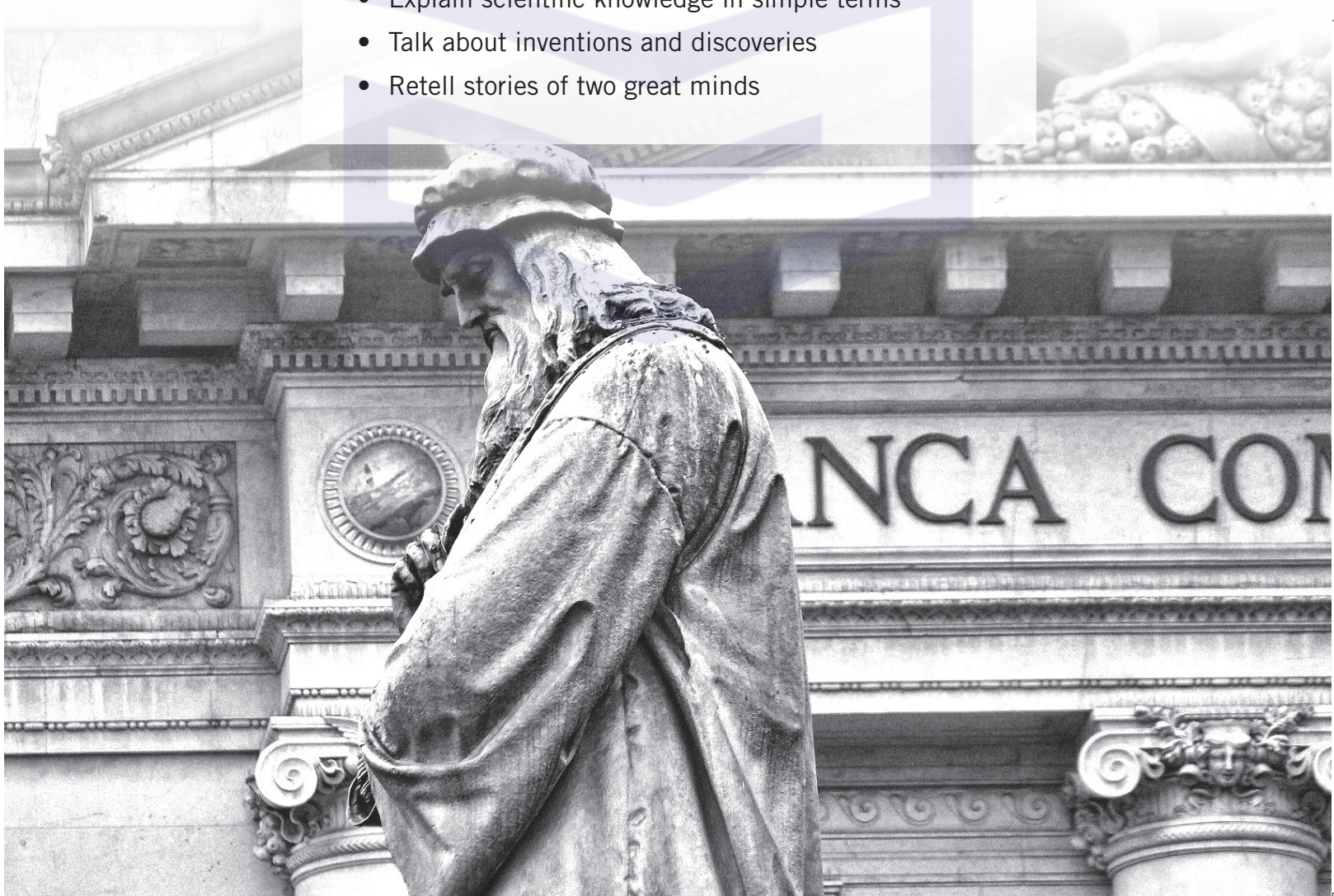
## UNIT 14

# The Great Minds

### Introduction

In this unit, you will learn to

- Talk about one's preferences and plans
- Explain scientific knowledge in simple terms
- Talk about inventions and discoveries
- Retell stories of two great minds



## PART 1 Communicative Activities

### 1 Conversation and Speech

**A** Study the conversation and then practice speaking in the role-play activity.

Conversation	Role-play Activity
<p>A: John, what are you going to do after leaving college?</p> <p>B: Well, I think I'd prefer to be a teacher.</p> <p>A: Wow, that sounds interesting. Why do you like teaching?</p> <p>B: Because ... well, you get long holidays, ... and ...</p> <p>A: Well, but a teacher's pay is nothing like office pay.</p> <p>B: Come on! Teachers used to be rather poorly paid, but things have improved a lot now, and I'm ... I'm pretty sure that it'll become better in the future.</p> <p>A: Certainly. But I mean, would you get bored with the same routine year after year, teaching the same materials to children?</p> <p>B: Well, for me, teaching is an exciting job. It's new every day. It's different each term because you have new students every year. It keeps you feeling young. You're back to happy childhood when you are with your pupils. A good teacher is loved by his students for life.</p>	<p>1. Suppose you're being interviewed by a student journalist, who is doing a survey about student's planning for their future career.</p> <ul style="list-style-type: none"> <li>• What would you like to go in for after graduation?</li> <li>• Where would you like to live and work?</li> <li>• What kind of career life can you visualize in ten years from now?</li> </ul> <p>2. Would you like to be a scientist or a teacher? And why?</p>
Useful Expressions	
<ul style="list-style-type: none"> <li>• I'd prefer to be ...</li> <li>• A teacher's pay is nothing like office pay.</li> <li>• You get bored with the same routine year after year ...</li> </ul>	

- B** One of the students made a speech to his classmates to explain why he chose to come to his university. His purpose was to create fun. Now, use his speech template to make yours, and see how well you can create fun activity for the class. You may use a word, or a group of words in each blank.

### Why I Came to University

In my grade (*number between 1–12*) \_\_\_\_\_, while I was in the middle of (*physical activity*) \_\_\_\_\_, the vice principal called me to (*location in a building*) \_\_\_\_\_. Worried I was going to be asked about (*reason for being arrested*) \_\_\_\_\_ that happened last Friday, I (*adverb*) \_\_\_\_\_ grabbed my (*article of clothing*) \_\_\_\_\_, and (*disease or medical condition*) \_\_\_\_\_ medication, and (*method of travel, past tense verb*) \_\_\_\_\_ there. Waiting for me, was my school's (*high school staff member*) \_\_\_\_\_ wanting to (*form of communication, verb*) \_\_\_\_\_ with me about my plans after graduation given my skill in (*unique ability*) \_\_\_\_\_. I was then (*past tense verb*) \_\_\_\_\_ about my interests in (*mostly video games making use of a (weapon)*) \_\_\_\_\_ and my favorite high school subject, (*area of study*) \_\_\_\_\_. Following this, several possible future (*plural noun*) \_\_\_\_\_ were suggested to me including (*military trade*) \_\_\_\_\_ to which I discovered apparently (*famous historian*) \_\_\_\_\_ had also done in (*time period in one's life*) \_\_\_\_\_. I decided to think it over at home. That night, while watching (*education oriented TV show*) \_\_\_\_\_, I realized between my fascination with (*scientific principle*) \_\_\_\_\_ and my desire to one day (*ambitious achievement*) \_\_\_\_\_ I still had to further my education. After some (*research method*) \_\_\_\_\_ showed that while (*a university*) \_\_\_\_\_ has been known to cost up to 8,000 (*form of currency*) \_\_\_\_\_ a year, it's still better than watching my (*family member*) \_\_\_\_\_ drop (*object weighing about 5kg*) \_\_\_\_\_ on their (*body part*) \_\_\_\_\_ every day at their job.



## 2 Listening

A group of visitors at the Science Museum are asking questions to a scientist. But the audio did not have the question part. You can only hear the scientist's answers. Listen to the audio and complete the tasks.

### Asking a Scientist

1. Listen to the part (0:00–5:36) of the audio and summarize the scientist's answers to these questions.

Answer to Question 1: \_\_\_\_\_

Answer to Question 2: \_\_\_\_\_

Answer to Question 3: \_\_\_\_\_

Answer to Question 4: \_\_\_\_\_

Answer to Question 5: \_\_\_\_\_

**2. Listen to the part (0:00–5:36) of the audio again and fill in the blanks with the details you hear.**

(1) One of the rules in quantum physics is that if you throw something in the quantum world,

\_\_\_\_\_.

(2) According to the scientist, the speed of light \_\_\_\_\_.

(3) Gravity has a special place in scientists' hearts because \_\_\_\_\_.

(4) The rainbow gets its colors \_\_\_\_\_.

(5) As advised by the scientist, \_\_\_\_\_.

But if important problems look scary, one can do one of the three things to begin with:

a. \_\_\_\_\_;

b. \_\_\_\_\_;

c. \_\_\_\_\_.

**3. Listen to the part (5:37–11:16) of the audio and write down the actual questions asked by the visitors.**

(1) Question 1: \_\_\_\_\_

(2) Question 2: \_\_\_\_\_

(3) Question 3: \_\_\_\_\_

(4) Question 4: \_\_\_\_\_

(5) Question 5: \_\_\_\_\_

### 3 What Are They for?

**There are more ways of expressing your likes, dislikes or plans for the future. Read the actual words spoken and match them with the functions.**

Actual Words Spoken	Functions
1. There is nothing I enjoy more than watching football games.	a. You feel that it doesn't suit your taste.
2. What I like most is playing table tennis.	b. You can't stand the noise any more.
3. It just isn't to my taste.	c. You are impressed with the first part of the symphony.
4. I'm fed up with this scratching noise.	d. Watching football is the thing you like most.
5. I've had enough of his rude manners.	e. Table tennis is your favorite sport.
6. I couldn't care less about it.	f. You appreciate the end part of the music.
7. The best part of the music is the finale.	g. You get angry at somebody's rude behavior.
8. What strikes me most is the first movement of the symphony.	h. You emphasize that you are not interested at all.

## PART 2

## Reading and Language Activities



## Pre-reading Task

Discuss the following questions.

What difficulty would blind students meet in everyday life but a normal person would take it for granted? What kind of thing would they want to do most, and why? Share your ideas with the class.



## Read the Text



## Louis Braille

*“The blind can now work, they can study, they can sing, they can add their share to the good and happiness in the world. And it was Louis Braille ... who found the golden key to unlock their prison door.”*

— Helen Keller

1 The instructor tapped on his desk, calling the reading class to order. But this was no ordinary reading class. The embossed books used by the French Royal Institute for Blind Youth in 1819 were so special that the school owned just fourteen of them. This was ten-year-old Louis's first day in class, and he was thrilled: he would finally be able to read on his own!

5 1. \_\_\_\_\_. To make them, large letters were pressed into thick sheets of waxed paper, leaving impressions. Then, when the page was turned over, a blind person could read the letters by tracing their outlines with a finger. The only problem was, each page could hold just a few sentences, so the books were big and fat. You couldn't even hold one; it had to be propped up on an easel.

Still ... it was reading, and after the seven years of darkness since he'd lost his sight, Louis was excited. 2. \_\_\_\_\_. Louis found that tracing each letter with his finger took so long that by the time he got to the end of a sentence, he couldn't remember what it said at the beginning. Even if he could remember what he was reading, what good did it do? In all of France, there were just a handful of embossed books. They were too expensive to print and too big to store.

15 3. \_\_\_\_\_. For years the problem occupied his mind, and it ultimately evolved into the greatest gift to blind people that has ever been invented: Braille, a reading system named for the boy who invented it. Without Braille, the blind would never know the joys of losing themselves in a good novel or even reading sports scores — the daily tasks that sighted people take for granted.

Louis Braille lost his sight at age three, when he accidentally poked his eye with a tool in his father's harness-making shop in Coupvray, a small village twenty-five miles from Paris. The eye became infected, and when little Louis rubbed it, he accidentally spread the infection to the other eye as well. Within weeks of the accident, he was totally blind in both eyes.

His father made him a cane that allowed him to explore his physical surroundings, but the cane

could only take him so far into the world. His blindness left him isolated: he couldn't play games, run through the woods, or climb trees with the other children. 4. \_\_\_\_\_. People figured that if a person couldn't see, he or she couldn't think either. Blind people weren't welcome in schools or taught any trade or skill. If you were blind in Europe back then, you'd probably end up a beggar on the streets.

Luckily, the village priest in Coupvray saw Louis for what he was: a normal boy who happened to be blind. Father Jacques Palluy taught Louis and convinced the schoolmaster to accept him as a pupil. As if to make up for his lack of vision, Louis's memory was phenomenal, and he learned rapidly — so rapidly that Father Jacques was able to get him into the Royal Institute for Blind Youth in Paris.



At the school Louis read his first books and acquired skills that would allow him to support himself. When he was thirteen, the institute had an important visitor, a man who would change Louis's life. Charles Barbier was a retired captain in the French army who had invented a military code based on dots and dashes punched with a stylus (a sharply pointed, pen-like tool) into strips of cardboard. The code allowed field commanders to silently give orders like "Advance" or "Withdraw" at night. When it occurred to Barbier that blind people might find it useful, he expanded his code so each word was broken into sounds and each sound was a different combination of dots and dashes. He called it sonography, or sound-writing.

5. \_\_\_\_\_. Louis became a sonography expert, but the more he learned about it, the more problems he found: since the symbols represented sounds, there was no way to show spelling, punctuation, or numbers. And many of the symbols were too big to read with the single touch of a finger. Sonography was so hard to use, many blind students gave up.

6. \_\_\_\_\_. From age thirteen to fifteen, his days were filled with classes and friends, but at night and on weekends he created patterns of dots, trying to find an easier system. Some nights, Louis lost track of time; as he sat on his bed punching dots, the rumbling of wagons outside told him that morning had come. His passion took a toll on his health, and he developed tuberculosis.

Then one night, as his classmates snored away, a brainwave hit Louis: the *sounds* were the problem. He had been stuck trying to work within Barbier's system when it was the system itself that was wrong. Instead of representing sounds, Louis created symbols that stood for the *letters* of the alphabet. Just like the alphabet sighted people use. His code was made up of six dots, like this:

1 • • 4

2 • • 5

3 • • 6

This code unit, called the Braille cell, has space for six dots: two across and three down. For each letter of the alphabet, mark of punctuation, symbol, and number, Louis worked out a different arrangement of dots. Here's how his first name looks in Braille:

L O U I S

Every letter and symbol could fit within the space of a fingertip. When he demonstrated his invention for the school's director, Dr. Pignier, he asked him to read aloud a paragraph from any book: "Read slowly and distinctly, as if you were reading to a sighted friend who was writing down your words." As Pignier read, Louis punched holes with his stylus onto a sheet of paper. It was so easy to do that he told Dr. Pignier, "You can read faster." Pignier finished reading and Louis finished "writing" at almost the same time. Then, as the amazed director watched, Louis turned the paper over and read, with his fingertips, the raised bumps his stylus had left — every word Dr. Pignier had dictated. The man was overwhelmed with emotion. 7. \_\_\_\_\_.

During the next few years, Louis improved and added to his system. At twenty, his system perfected, he wrote a book explaining it, called *Methods of Writing Words, Music, and Plain Song by Means of Dots, for Use by the Blind and Arranged by Them*. The Braille system solved the main problems of the earlier embossed books. Since Braille letters could fit under a person's fingertip, it was possible to read much faster. Braille letters took up about the same space as printed letters, so the books weren't so huge and expensive to produce. And best of all, because Braille was like the regular alphabet that sighted people used, it was easy to learn.

Despite Dr. Pignier's enthusiasm, government officials were slow to change. They didn't want to give up their old embossed letter system and asked, "Why should blind people learn a different alphabet than the rest of us?" Obviously, they never had to read their embossed books! When Louis's school got a new director, even he refused to use Braille. But so many students were smuggling styluses into the school and teaching one another Braille, the new director had to give in.

Louis stayed at the institute his entire life, teaching and playing music. When tuberculosis overtook him at forty-three, his last words were, "I am convinced that my mission on earth is finished."

Imagine a life without reading: no Internet, no computer games, no *Harry Potter*. Thanks to the invention of a teenage boy, millions of blind people only have to *imagine* that kind of a life. ... They don't have to *live* it. Thanks to Louis, they can open a book, anytime, and read whatever they want. The horrible accident that blinded Louis Braille also gave him the will to create one of mankind's most humanitarian inventions.

## 1 Comprehension Work

**A Choose the appropriate sentence in the table for each blank in the text and explain why.**

No.	Sentences	Positions
A	Sonography looked complicated, but the school's director agreed to try it with the students.	
B	He knew what this meant: a fifteen-year-old boy had just switched on the light of learning for blind people forevermore.	
C	Embossed books for the blind had been invented thirty years earlier.	
D	<i>There must be a better way</i> , Louis thought.	
E	And two hundred years ago, the blind were thought to be mentally handicapped.	
F	Louis didn't give up but began experimenting with sonography.	
G	But his excitement soon turned to disappointment.	

**B Read the text carefully again and discuss the questions.**

1. In which ways were the old embossed books difficult for visually impaired people to use?
2. What were the immediate reasons urging Louis Braille to invent a new reading system for visually impaired people?
3. How did Louis Braille go blind?
4. In which way did Charles Barbier change Louis Braille's life?
5. What toll did Louis Braille take in his passion for the creation of Braille?
6. What salient features did the Braille cell have compared with the previous ones?
7. Why were government officials at that time slow to accept Braille?

**C Work in groups. Study the quotation and discuss the question. Then share your discussion with the class.**

Helen Keller (1880–1968) once said “When one door of happiness closes, another one opens; but often we look so long at the closed door that we do not see the one which has been opened for us.” How do the people with disabilities find new doors in their lives?

## 2 Language Work

**A Do you remember how the writer said the parts in italics? If not, find them in the text.**

1. His daughter was *very excited and pleased* to pick out her own nail polish color, lipstick, and have her eyes done.

2. The tubes were *pushed with force into* the cement paste and couldn't be pulled out when the paste got hardened.  
\_\_\_\_\_
3. Put an upturned eggcup in the middle of the dish to *support* the pastry.  
\_\_\_\_\_
4. There are *a small number of* banks deemed to have handled the financial crisis better than others.  
\_\_\_\_\_
5. Those electronic communications have *developed gradually into* our modern communications systems.  
\_\_\_\_\_
6. From the way he behaved, I *thought* that he was drunk.  
\_\_\_\_\_
7. If you don't know what you want, you might *come to an end with* getting something you don't want.  
\_\_\_\_\_
8. Are you becoming complacent and *fail to stay aware of* your goals?  
\_\_\_\_\_
9. He found that sleepiness has *brought harm on* effective decision-making.  
\_\_\_\_\_
10. After the outbreak of the pandemic, the hospitals even in those developed countries *were crowded without control with* the infected people.  
\_\_\_\_\_

**B Work out the meanings of the expressions in the box according to the context. Then use them to rewrite the sentences.**

take ... for granted

experiment with

occur to

take a toll on

occupy

be made up of

work out

ultimately

thanks to

1. He later quit youth films and started trying out new dramas.  
\_\_\_\_\_
2. He paused for a moment, as if a new thought had come across his mind.  
\_\_\_\_\_
3. Mining without restraint in many poor countries has brought much damage to landscapes and animal habitats.  
\_\_\_\_\_
4. The so-called well-designed project in the end proved unpopular and was later discontinued.  
\_\_\_\_\_
5. For most of the college students, study has taken up all their time in the school.  
\_\_\_\_\_

6. The team consists of approximately 40 local cycling enthusiasts.
7. Most children would think that the love from their parents is without question.
8. The harvest went quickly as a result of recent dry weather.
9. Despite difficulties, everything went smoothly as predicted in the project.

### 3 Cloze

Read the following passage and fill in each blank with one suitable word or phrase in the box. Change forms if necessary.

flatten

inclusive

attach

expiration

highlight

post

serve as

adopt

bid

version

penetrate

conventional

co-host

disability

#### Braille in Paralympic Winter Games

The Paralympic Winter Games Beijing 2022 used an energy-efficient printing technology for the Braille version of the manual for athletes and officials, spectators' guide, venue introduction and maps. It's the largest use of Braille in the history of the Winter Olympics.

Song Yanlin, a scientist from the Institute of Chemistry at the Chinese Academy of Sciences, whose team developed the green printing technology for Braille, told the *Global Times* that the Paralympic Winter Games 1. \_\_\_\_\_ a window to show the world China's technological development and progress, especially in caring for people with 2. \_\_\_\_\_.

Song's team printed the spectators' guide for the Olympic and Paralympic Winter Games Beijing, service manual for athletes and team officials, introduction book for the National Biathlon Center and inspection terms for anti-doping, which have large-print and Braille 3. \_\_\_\_\_.

The introduction, maps and spectators' guide in the large-print and Braille formats were 4. \_\_\_\_\_ at the ticket-checking point of the National Biathlon Center in Zhangjiakou, 5. \_\_\_\_\_ city of Beijing 2022.

According to the Beijing Organizing Committee for the 2022 Olympic and Paralympic Winter Games, the fundamental purpose of holding the Paralympic Winter Games is to promote a(n) 6. \_\_\_\_\_ society that integrates people with disabilities and those without.

The organizing committee 7. \_\_\_\_\_ the importance of technology in building a barrier-free environment. Beijing 2022 provided sign language commentary services using an artificial

intelligence image in a 8. \_\_\_\_\_ to help people with different degrees of hearing impairment.

The green printing technology for Braille has been described by Song as “revolutionary,” because it is energy-efficient and low-cost, and allows Braille to be printed on more materials, including paper, glass, stainless steel and pottery, which will last longer than 9. \_\_\_\_\_ printing, Song said.

He said the conventional process for Braille printing is 15–20 times more expensive than ordinary books, as Braille has to be printed on special paper. The dots easily become 10. \_\_\_\_\_ by touch, so they don't last long.

Chinese scientists use antibacterial nanomaterial that is able to form a film after 11. \_\_\_\_\_ the surface of the paper, and it firmly 12. \_\_\_\_\_ to the paper so that dots printed through the material are abrasion-resistant.

The green printing technology also allows Braille text to be printed along with Chinese or text in other languages so that the book can be read even by people with visual impairment, Song said. The green printing technique for Braille has been 13. \_\_\_\_\_ by nine cities and provinces including Beijing, Shanghai and Tianjin.

Children at the Beijing School for the Blind started to use Braille books printed with the green technology as early as 2018. In China's Zhejiang Province, Braille documents and community maps are posted at the entrance of residential communities. Shanghai subways provide direction information for people with visual problems using the green printing technology.

Next, Chinese scientists plan to use the printing technology on food and medicine packaging, so that people with visual impairment can learn 14. \_\_\_\_\_ dates and read medication guides, Song said.

## PART 3 Extended Activities

### 1 Dictation



Listen and write.

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## 2 Read More

### Scientist Leonardo da Vinci<sup>1</sup>

By Kathleen Krull

1 In ancient Greece and Rome, in China, and in Arab countries, scientists had discovered much about astronomy, medicine, mathematics, and more. Islamic scholars translated the work of ancient Greek scientists into Arabic, keeping their discoveries alive, adding their own ideas to them. But in Europe, much of this body of knowledge was lost for a long time — centuries in fact. “Sciences” in medieval times did include astronomy and mathematics, but it was still an age when people believed in magic. So “pseudo-sciences” were taught as well — the study of angels; physiognomy, the link between a person’s character and what he or she looks like; astrology, the belief that the planets influence human behavior; and alchemy, the “study” of how to make gold out of other metals.

Learned men argued whether or not angels supplied the force that kept the planets in motion. And they counted only seven planets — of which the earth was not one. Instead, the earth occupied the center of the universe, with other astronomical bodies like the sun revolving around it.

But a great wave was splashing across Europe, changing how people thought in some very fundamental ways. The result was a new confidence in human achievement, what was possible to do in one’s lifetime here on the earth. This led to an explosion of new information and exchange of new ideas. All this coincided with a wonderful rediscovery of the ancient knowledge that had been lost.

Atop the wave of change was Leonardo da Vinci. He was born at the right time in the right place: in 1452 and in Italy. Because by then, it was officially the Renaissance, a glowing burst of fireworks in art, architecture, literature, and science. And nowhere was the Renaissance spirit brighter than in Florence, Italy.

20 People hear the name Leonardo da Vinci, and they think “artistic genius of the Renaissance.” And sure, he created the *Mona Lisa* and *The Last Supper*, two of the world’s most famous paintings.

Yet for thirty years — the whole last half of his life — he spent most of his time doing research in fields ranging from astronomy to anatomy, zoology to geology, and botany to paleontology. “Scientist” wasn’t even a word Leonardo would have known — people didn’t start using the term until the early nineteenth century. (He might have called himself a natural philosopher — someone who wants to make sense of the natural world.) But he would have known the Latin word *scientia*, which means “knowledge” — knowledge that explains the universe and the principles that make it work. Leonardo was *very* interested in *scientia*.

30 As Leonardo grew up, he looked around him. He had an amazing flair for looking, like no one else in history before him. “So many things unknown!” he wrote one day. But he wanted — and was determined — to find answers for himself. His method was to start questioning everything. His

<sup>1</sup> Leonardo da Vinci: (1452–1519), Italian painter, draftsman, sculptor, architect, and engineer whose skill and intelligence, perhaps more than that of any other figure, epitomized the Renaissance humanist ideal. *The Last Supper* and *Mona Lisa* are among the most widely popular and influential paintings of the Renaissance.

method was scientific.

When he was four, a powerful storm bombarded the area around Vinci, with flooding, fierce winds, and immense destruction. “Against the fury [of water], no man can prevail,” Leonardo later wrote. “An act of God” was how most people explained such a storm, but Leonardo came to think otherwise. He developed a lifelong interest in storms and water, which he saw as natural forces.

By age five Leonardo was living with his grandparents. His grandmother was sixty-four, his grandfather almost eighty-five. Truly ancient!

From what is known, Leonardo’s childhood sounds like the loneliest of childhoods. Children in the 1400s were not coddled or entertained. They were thought of as miniature adults. The only one to show interest in Leonardo was his uncle, Francesco. Sixteen years older than his nephew, he farmed the family’s land. He coaxed it into producing olives, wheat, and grapes.

Francesco was a bit of a scientist-farmer, brimming with practical knowledge, always experimenting with different crops. Leonardo spent many hours helping his uncle with farm chores and taking long walks in the hills. The boy observed all creatures with equal fascination, even the lizards and worms in the vineyard. He learned the names of plants and herbs and all about variations in weather. Francesco loved nature and seemed to pass this on to his nephew.

The area around Vinci is one of the most gorgeous spots in the world — both then and now. Streams and waterfalls intersect fairy-tale forests and faraway mountains with castles perched on top. Fields of glowing wheat melt into groves of silvery olive trees. Rolling hills in every shade of green, all dotted with the red-tiled roofs of farmhouses, are bathed in misty light that shimmers and glows.

There are stories that young Leonardo carried a drawing pad with him at all times — that he drew constantly and sculpted models out of clay. Most people had little access to pencils or expensive paper, but he had them in his house because of the family’s business. It was said that he collected everything — flowers, leaves, pieces of wood, animals.

The natural world was Leonardo’s first laboratory. In the hills around Vinci, he spent hours observing — the movement of birds’ wings in flight, how a frog’s legs allowed it to leap so far, water running in a river — which in turn led to a greater understanding of the forces of nature and to a fascination with sciences like biology, botany, and geology.

For years he had been in the habit of writing down his ideas — doodles, observations, to-do lists — on stray scraps of precious paper. But now, in Milan, he got serious, especially about his interest in the natural world, and began his famous series of notebooks.

Into these notebooks went all of his nature drawings, experiments, and theories about the world. He worked by candlelight, sometimes all through the night. With the intense curiosity of a small child, he asked questions about *everything*: What is milk? What causes tickling or vomiting or sneezing? Why is the sky blue? What kind of machine could fly? Where do tears come from? Why do we urinate and defecate? What exactly is drunkenness, madness, dreaming ... ?

These are not diaries, though every once in a while, a morsel of personal detail slips through. The notebooks are professional, businesslike (for him). Leonardo listed the subjects that were of most passionate interest to him — and came up with twenty. They included botany, optics, hydraulics, astronomy, geology, physics, and anatomy — he was doing the first of his amazing drawings of the human body. The notebooks show the birth and development of Leonardo the natural philosopher,

Leonardo the scientist.

75 Leonardo did not compartmentalize his interests. To him, all knowledge was related. What he could learn in one field would help shed light on others. This attitude allowed him to cross-fertilize ideas in unusually creative ways. He thought of architecture, for example, as related to human anatomy. Buildings resembled bodies; the more he could learn about anatomy, the better an architect, or “building doctor,” he would be.

80 In his notebooks, Leonardo’s goal was the direct study of nature.

“Nothing can be found in nature that is not part of science,” he wrote. “Science is the captain, and practice the soldiers.” He decided early on that firsthand experience — using the five senses — was the means of discovering scientific truths. Experience to confirm theories was absolutely crucial: “The greatest deception men suffer is from their own opinions.” And direct experience was certainly  
85 more important than reading about others’ experience: “The grandest of all books, I mean the Universe, stands open before our eyes.”

Leonardo valued knowing what great minds before him had thought, hence his ongoing self-education. But he didn’t necessarily accept their views. He called some scholars “stupid fools” for relying solely on the works of other men, for not thinking for themselves — investigating,  
90 questioning. The people who impressed him most were those inventors who discovered ways to control nature.

In books about scientists, Leonardo isn’t always included. Perhaps that’s because, in the history of science, Leonardo is like a bridge. He stands right between the medieval view of the world and the modern view based on observation and experimentation. He looks backward to a time when nature seemed illogical, magical. He looks ahead to a time when nature is viewed as operating by rules and  
95 laws that can be discovered.

**A Read the text carefully again. Judge whether the statements are true (T) or false (F).**

1. True scientific knowledge in medieval times was lost for centuries while Islamic scholars kept it alive with addition of their own ideas.
2. Learned men in medieval Europe argued there were seven planets, including the earth which was viewed as the center of the universe.
3. An explosion of new information and exchange of new ideas in Leonardo’s time took the name from the rediscovery of the ancient knowledge that had been lost.
4. It was Leonardo da Vinci who officially initiated Renaissance in Florence, Italy.
5. Leonardo didn’t call himself a scientist because he knew the Latin word *scientia*.
6. As Leonardo grew up, he was curious about many things unknown to him.
7. A powerful storm, in Leonardo’s understanding, was not an act of God but a natural force.
8. The natural world was Leonardo’s first laboratory in which to do scientific experiments.
9. Leonardo’s famous notebooks reflect how he turned into a natural philosopher and a scientist.
10. In Leonardo’s views, direct experience of the natural world might lead to deception men suffer from their own opinions.

- B** Zu Chongzhi was a great Chinese ancient scientist during the time of Northern and Southern Dynasties. Work in small groups to search online to find how he finally turned into a scientist. Share your story in the group.

### 3 Translation

Translate the sentences into English, using the expressions in the brackets.

1. 她因见到了自己最喜欢的作者本人而兴奋不已。(thrill)  
\_\_\_\_\_
2. 一些极度贫困的国家需要国际货币基金组织 (IMF) 的现金来支撑他们摇摇欲坠的经济。(prop up)  
\_\_\_\_\_
3. 她从包里抓了一把糖果, 给了表现好的孩子们。(a handful of)  
\_\_\_\_\_
4. 这家公司已逐步发展成科技创新领域的杰出代表。(evolve into)  
\_\_\_\_\_
5. 人类花了近 1 万年的时间, 才学会种植我们现在习以为常的大部分农作物。(take ... for granted)  
\_\_\_\_\_
6. 如果他继续这样开车, 早晚会出车祸的。(end up)  
\_\_\_\_\_
7. 张华从未想过有一天他会成为班上的尖子生。(occur to)  
\_\_\_\_\_
8. 过量的课程安排会给孩子们的身心健康带来很多伤害。(take a toll on)  
\_\_\_\_\_
9. 秀丽的风景令她深深陶醉。(overwhelm)  
\_\_\_\_\_
10. 由于有了汽车, 人们获得了前所未有的行动自由。(thanks to)  
\_\_\_\_\_

### 4 Language Work

- A** Fill in the blanks with the prepositions in the box. You may choose a preposition more than once.

in

on

by

for

about

1. The doctor said that he should stay \_\_\_\_\_ bed for the time being.
2. \_\_\_\_\_ the time we get home, this pizza will be cold!
3. We got there just \_\_\_\_\_ time for lunch.

4. \_\_\_\_\_ eleven o'clock, Brady will be back in his office.
5. He learned his job \_\_\_\_\_ three weeks and then he could do it! Isn't it amazing?
6. Look, we have studied English \_\_\_\_\_ more than five years, how much can we speak the language now?
7. A book \_\_\_\_\_ rabbits is probably more formal and scientific than a book \_\_\_\_\_ rabbits for children.

**B Fill in the blanks with the words in the box. Use their singular or plural forms or add a determiner if necessary.**

wash  
picture

belonging  
feeling

move  
refreshment

go  
expense

drink

1. There was a short break for \_\_\_\_\_.
2. The children are covered in dirt. They need \_\_\_\_\_.
3. What's on at the cinema? I haven't been to \_\_\_\_\_ for ages.
4. This is a thirsty world. Let's stop for \_\_\_\_\_.
5. You can't succeed if you don't have \_\_\_\_\_ at it.
6. He's very unhappy. You must have hurt his \_\_\_\_\_.
7. It's time to go. Let's make \_\_\_\_\_.
8. He carries all his \_\_\_\_\_ with him in an old suitcase.
9. They have agreed to pay for travel and \_\_\_\_\_.

## 5 Writing

**A Read the statements and respond to them. The example has been given for reference.**

**E.g.**

I enjoy reading newspapers on the computer.

Me, too. It's fun, isn't it? You just turn on the computer and browse at leisure on the screen.

Or: Well, I hate reading newspapers on the machine. Much of the fun in turning newspaper pages is lost.

1. I was fascinated by the robot doctor in a film.

---

2. The electronic voice from the computer made me feel sick!

---

3. Many young students are crazy about computer games.

---

4. What do you want to do this evening?

---

5. I like swimming. What about you?

---

**B Computers in our lives often take diverse forms within different equipment and devices. Think about the things you do every day and list at least five activities in which a computer could possibly work. The first one has been done for you as an example.**

No.	What Is the Activity?	What Is the Device?	How Does the Computer Work Inside?
1	Get money from the bank	ATM	ATM means automated teller machine. It has a small built-in computer that recognizes bank cards / credit cards. The ATM manages money transactions, such as dispensing or receiving money.
2			
3			
4			
5			

## PART 4 Cultural Information

Read the information below and then complete the cultural study task.



### The National Spelling Bee

The National Spelling Bee in America is a spelling competition that was launched in 1925 by the *Courier Journal* newspaper of Louisville, Kentucky. The meaning of the word “bee” in this sense means a gathering for work or amusement or to pursue a specific activity. The Spelling Bee, aimed at schoolchildren, was devised to feature a series of competitions, cash prizes and a trip to the nation’s capital. The idea was to stimulate interest among pupils in

a subject that was normally considered dull and to give studious children the opportunity to become celebrities. In 1941 the E.W. Scripps Company took over the Spelling Bee and has run it ever since.

Today the Spelling Bee is a major competition in the United States, with the number of national finalists (from whom the winner is selected by vigorous competition) having grown over the years from just 9 in 1925 to more than 200 in 2022. The first prize in the 2021 Bee was a total of \$52,500 in cash and a variety of other valuable prizes. The 2021 winner of the Scripps National Spelling Bee was the Louisiana teenager Zaila Avant-garde, 14 years old, making history as first African American champion. And her winning word was “murraya.” Here is a list of champions’ winning words for the years of 2000–2010.

Years	Winning Words	Years	Winning Words
2000	demarche	2001	succedaneum
2002	prospicience	2003	pococurante
2004	autochthonous	2005	appoggiatura
2006	ursprache	2007	serrefine
2008	guerdon	2009	laodicean
2010	stromuhr		

### Cultural Study Task

Visit the official website of Scripps National Spelling Bee to write a report on the following topics:

1. What is its history?
2. What is the origin of the term “Bee”?
3. What are the winning words of the last 10 years?

