

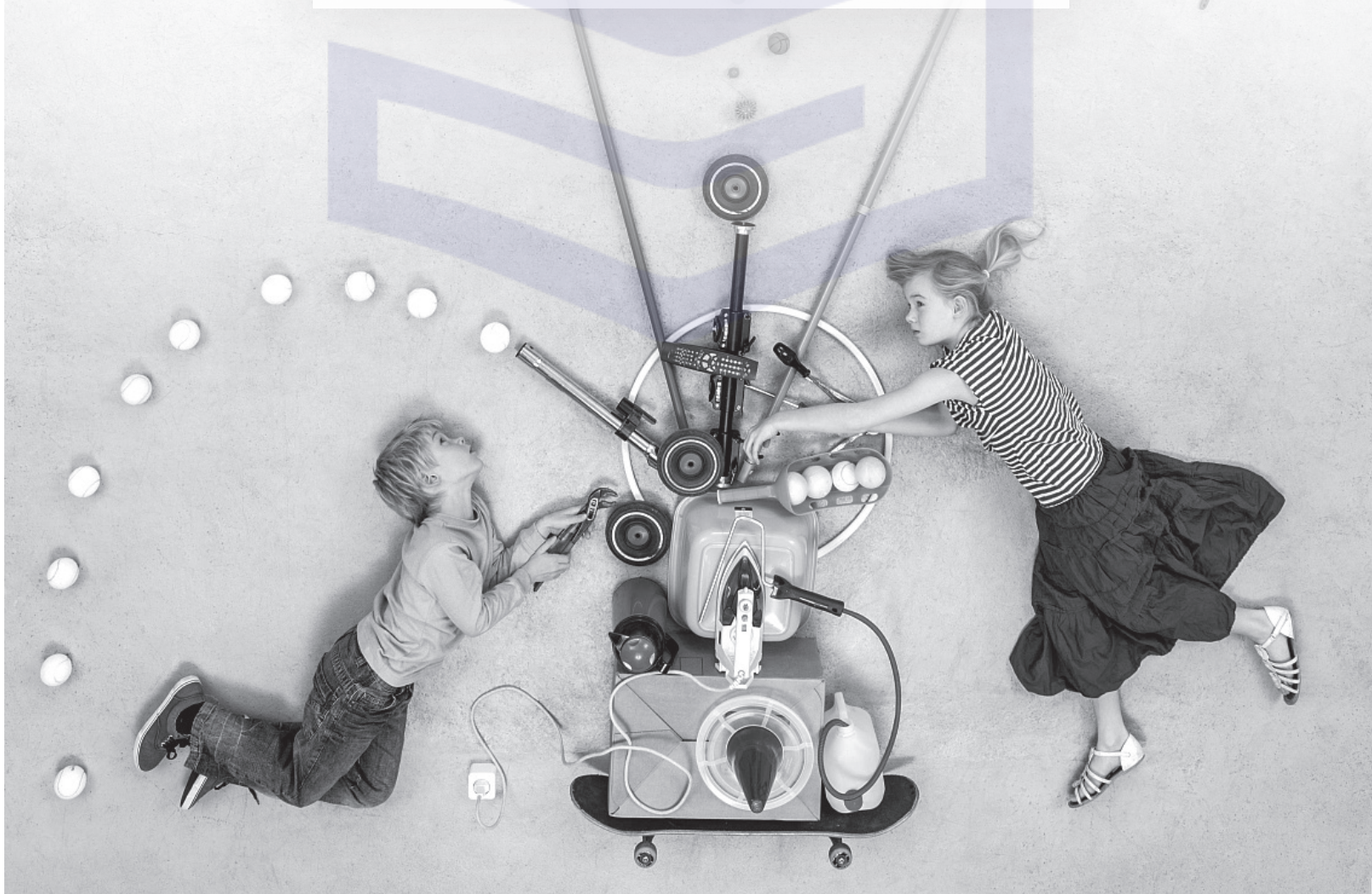
UNIT 7

Inventions

Introduction

In this unit, you will learn to

- Express intentions
- Talk about good / bad / cool inventions
- Talk about how inventions are made
- Talk about the patent protection



PART 1 Communicative Activities

1 Interactive Listening and Speaking



- A** In this audio, you will hear one of the middle school students talking about his inventions in the school activities at the Show and Tell Session in his class. Listen, and fill in the gaps with proper names of the inventions.

A Middle School Student's Inventions

Invention 5:

Name: _____

Major features: _____

Materials: _____

Invention 4:

Name: _____

Major features: _____

Materials: _____

Invention 3:

Name: _____

Major features: _____

Materials: _____

Invention 2:

Name: _____

Major features: _____

Materials: _____

Invention 1:

Name: _____

Major features: _____

Materials: _____

- B Suppose we want you to select five inventions that we can't live without today. What would you choose from the following list? Share your picks in the group. Then report to the class.**

The Inventions That We Can't Live Without Today

tea bag	telephone
dental floss	antibiotics
beer	cell phone
instant noodles	guitar
thermos	fridge
iPad	toothpick
shampoo	automobile
press printing	gun powder
tissue paper	timepiece
air-conditioner	

- C Here are some inventions that people have made in recent years. Discuss the question in small groups. Are they good, bad or just cool inventions?**

Inventions and Their Major Features / Functions	Good, Bad or Just Cool
Beer Launching Fridge It is able to launch a can of cool beer from the fridge to the person seated in the couch so that he doesn't need to stand up and walk over to open the fridge in order to fetch the beer. What he needs to do is to press the remote control, and the fridge will throw a can of beer in his direction.	
Smile Profile Software A company in Japan invented software to analyze its employee's smile every morning. It tells you whether your smile is cheerful enough. If you're not, you have to smile wider.	
Gas-mask Bras It is a pair of bras that can also be used as gas-masks when one meets a gas bomb attack. You can wear them every day, but in case a gas bomb attack happens, you can take them off, and wear them to protect you.	
Computer Essay Reader As there are too many essays to read, a university teacher invented computer software to read the essay by counting word frequency, or length of sentences, and even the total words you used in the essay. So the teacher doesn't need to mark your essays or write comments anymore because it is time-consuming. With this software, the job can be done by the computer.	

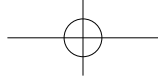
(Continued)

Inventions and Their Major Features / Functions	Good, Bad or Just Cool
Touchless Video Game Control It is one of the video gaming programs with a special device that can sense the movements of the gamers' body. So gamers are able to get rid of the gaming sticks. They can control the game just by waving their arms or kicking their legs around.	
LED Light Bulb An LED light bulb is invented to replace the traditional light bulb. A 10 watts LED light bulb can be as bright as a normal 60 watts light bulb, but uses only one sixth of electricity.	
Energy Hub It's a little box with a screen on it. You can put it in your house where you normally put your thermometer. It keeps track of all your appliances, TV, lamps, fridge, computers, etc. It can display real-time how much electricity is used by them, and how much it would cost you. If it costs too much, you can use this energy hub to keep your energy bill under control.	

2 What Are They for?

There are many ways to show one's intention. Read the actual words spoken and match them with the functions.

Actual Words Spoken	Functions
1. I intend to go back to work in my own country after I finish my studies here.	a. Say you don't want to buy a flat here.
2. Next time I see John, I'm going to tell him exactly what I think of him.	b. Say you don't want to remain in your present job for the rest of your life.
3. I'm planning to move to Beijing in a couple of months.	c. Say you want to go back and work in your own country after you finish studying here.
4. I don't intend to stay in this job all my life.	d. Say you are making arrangements to go to live in Beijing in one or two months.
5. I have no intention of buying a flat in this part of town.	e. Say you will tell someone your opinion of him if you see him again.
6. I have no plans to change my job in the foreseeable future.	f. Say you will not change your job in the not-too-distant future.



PART 2 Reading and Language Activities



Pre-reading Task

Discuss the questions.

1. What kind of dreams do you often have? And can you remember them afterwards?
2. Do you believe that dreams may have a special meaning or message to us?



Read the Text



Secret Messages to Ourselves

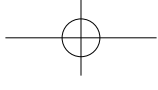
1 Early one morning, more than a hundred years ago, an American inventor named Elias Howe finally fell asleep. He had been working all night on the design of a sewing machine but he had run into a very difficult problem: it seemed impossible to get the thread to run smoothly around the needle.

5 Despite his exhaustion, Howe slept badly. He tossed and turned. Then he had a nightmare. He dreamt that he had been captured by a tribe of terrible savages whose king threatened to kill and eat him unless he could build a perfect sewing machine. When he tried to do so, Howe ran into the same problem as before. The thread kept getting caught around the needle. The king flew into a rage and ordered his soldiers to kill Howe. They advanced towards him with their spears raised. But suddenly
10 the inventor noticed something. There was a hole in the tip of each spear. The inventor awoke from the nightmare with a start, realizing that he had just found the solution to the problem. Instead of trying to get the thread to run around the needle, he should make it run through a small hole in the center of the needle. This was the simple idea that finally enabled Howe to design and build the first really practical sewing machine.

15
20 Elias Howe was far from being unique in finding the answer to his problem in this way. Thomas Edison, the inventor of the electric light bulb, said that his best ideas came to him
25

in dreams. So did the great physicist, Albert Einstein. Charlotte Brontë also drew on her dreams in writing *Jane Eyre*. The composer, Igor Stravinsky, once said the only way he could solve his problems in musical composition was to “sleep on them.”





To appreciate the value of dreams, you have to understand what happens when you are asleep. Even then, a part of your mind is still working. This unconscious, but still active part digests your experiences and goes to work on the problems you have had during the day. It stores all sorts of information and details which you may have forgotten or never have really noticed. It is only when you fall asleep that this part of the brain can send messages to the part you use when you are awake. However, the unconscious part expresses itself through its own logic and its own language. It uses strange images which are sometimes called “secret messages to ourselves.”

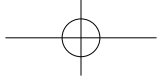
1 Comprehension Work

A Read the text again and discuss the questions.

1. What had Elias Howe been working on all night before he finally fell asleep?
2. Did he have a problem? What was it?
3. Why did Howe sleep badly despite his exhaustion?
4. What made him awake with a start?
5. What did Howe suddenly realize?
6. Was Howe unique in finding an answer to his problem in this way? Are there any other cases in history in which some people found the answers in their dreams?
7. What happens to your mind when you are asleep?
8. How does the unconscious part of the mind express itself?

B Fill in each blank with an appropriate word.

After years of unsuccessful 1._____ to work out the sewing machine, Elias Howe decided to give up his dream to become a great inventor. Depressed, and overwhelmed with strain, he went to bed one night, 2._____ that his goal was unattainable. It was then that he had a dream, a very odd 3._____, in which he was abducted by a tribe of savages. Through a jungle, he was carried to the tribe's king. “You have 24 hours to create a sewing machine for me!” shouted the 4._____ king. “If you fail to do so, you should be immediately struck to death by 5._____.” In this odd dream, Elias recalled all his failed 6._____, and with frantic effort, he constructed from prototype to prototype, desperate to satisfy his captors. Again and again, his 7._____ flopped. Soon the 24th hour arrived with his deadline 8._____. “No working sewing machine for me?” asked the king, “then 9._____ by spear”, he ordered. The savages arrived to surround him with raised spears. Looking up at the spears, he noticed a long hole at the pointed heads, and they 10._____ from the savages' hands towards his belly. Elias felt no fear, no pain, but a spark of 11._____. He had realized that if he created a prototype with a needle threaded at 12._____, rather than attempting to mimic the manual techniques, which involved the tail threaded needle he would at last achieve success. Soon after his awakening, he fulfilled his goal of 13._____ a sewing machine.



2 Language Work

A Fill in the following blanks with words or phrases from the text.

1. Igor Stravinsky, the great Russian-American _____, had such a _____ talent for music that he could _____ any tiny discord in a music performance.
2. In writing her novel *Jane Eyre*, Charlotte Brontë _____ her personal experiences as a governess.
3. In his experiment, Thomas Edison _____ a lot of difficulties, which almost drove him to despair and _____. But finally he found _____ to all those problems.
4. Sigmund Freud was very interested in interpreting dreams and their _____. He _____ them for thirty years and found out that dreams could _____ and process the information we got during the day.
5. _____ his financial troubles, Mr. Wilson insisted that he would _____ the small shop in town.
6. _____ employing a builder, the family repaired the house themselves, which _____ them to get much pleasure from "Do It Yourself."
7. The terrible earthquake, during which all his family members lost their lives, is a _____ to him.
8. The _____ of the new product will not win the manager's approval _____ it can bring profit to the firm.

B Rewrite the underlined parts with the words and expressions in the box.

unconscious
toss

threaten to do ...
with a start

fly into a rage
savage

appreciate
digest

1. The explosion of a bomb made such a noise at night that people nearby all awoke in fear and surprise.

2. When he realized that he had been cheated, the man became very angry.

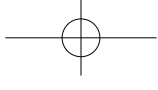
3. The employees warned that they would go on strike if they could not get a pay rise.

4. Do you fully understand the importance of his suggestion?

5. The ship was rocking from side to side on the rough sea.

6. During a war, human beings sometimes behave like wild animals.

7. It took him quite a long time to comprehend what was said in the report.



8. A car crashed into a lamppost. The driver who was badly injured lost consciousness and lay on the road.
- _____

④ Give the meanings of the words or expressions below used in the text. You may use an English-English Dictionary. Then give a sentence to illustrate their meanings and usage.

1. capture _____
2. find the solution to _____
3. enable ... to do _____
4. be far from _____
5. despite _____
6. express oneself _____

⑤ Each of the following clues has an example sentence. Use the prompts to produce other sentences with the same pattern as the example.

1. **Prompt:** he / dream / he / capture / tribe

Example: He dreamt that he had been captured by a tribe of terrible savages.

- a. thief / intend / run away / capture / policeman
- b. soldier / try / rescue / woman / capture / hostage
- c. you / capture / this moving scene / in words

2. **Prompt:** inventor / realize / he / find solution to

Example: The inventor realized that he had just found the solution to the problem.

- a. think over / problem / he / find solution to
- b. countries / serious / find solution to / climate changes
- c. we / must / find solution to / technical problem

3. **Prompt:** idea / enable / Howe / design / build / sewing machine

Example: This was the simple idea that finally enabled Howe to design and build the first practical sewing machine.

- a. academic background / enable him to / find
- b. communication facilities / enable people to / communicate
- c. good vocabulary / enable / one / speak / write / more effectively

4. **Prompt:** Elias Howe / be far from / unique in

Example: Elias Howe was far from being unique in finding the answer to his problem in this way.

- a. he / diligent / be far from / top student
- b. quality / product / be far from / perfect
- c. mother / be far from / please / your examination results

5. **Prompt:** despite / exhaustion / Howe

Example: Despite his exhaustion, Howe slept badly.

- a. despite / difference / they / close friends
- b. despite / lack / bombs / soldiers still
- c. despite / bad climate / expedition team / go on / research work / in Antarctic

6. **Prompt:** unconscious part / express itself / through

Example: The unconscious part expresses itself through its own logic and its own language.

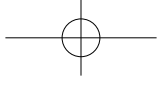
- a. dumb people / express themselves / by
- b. you / free / express yourself / with him
- c. student / express herself / in good, clear English

PART 3 Extended Activities

1 Dictation



Listen and write.



2 Read More

Unlucky Inventors Against the Thieves

1 America had a long tradition of productive tinkering. Jefferson¹ invented a plow, which secured him a *prix d'honneur*² from a French agricultural academy (though in fact it didn't work very well), and filled Monticello³ with self-invented contrivances designed to thwart small everyday irritants. Franklin⁴, as everyone knows, was a manic inventor. He gave the world bifocals, the lightning rod, 5 extendable grippers for taking items off high shelves, possibly the rocking chair, and certainly the Franklin stove (though for its first forty years it was more generally known as the Pennsylvania fireplace) — and always, always with a practical bent. “What signifies philosophy that does not apply to some use?” he asked. Like Jefferson, he never profited from any of them.

10 It was at Jefferson's insistence that the US Patent Office was set up in 1790. At first, the patent board consisted of the Attorney General, the Secretary of State, and the Secretary of War, who were given the job of vetting inventions as an extra little something to keep them occupied between more pressing assignments. They don't appear to have been run off their feet. In the first year just three patents were issued. (For the record, the first American patent went to a Samuel Hopkins for a new way of making potash.) But by 1802, patents were pouring in so fast that a proper patent board had 15 to be organized. Suddenly the country teemed with tinkerer-inventors. In other nations, inventions emerged from laboratories. In America they came out of kitchens and toolsheds. Everyone, it seemed, got in on the act. Even Abraham Lincoln⁵ found time to take out a patent (No. 6469: A Device for Buoying Vessels over Shoals).

20 Typical of the age was Charles Goodyear, the man who gave the world vulcanized rubber. Goodyear personified most of the qualities of the classic American inventor — total belief in the product, years of sacrifice, blind devotion to an idea — but with one engaging difference: he didn't have the faintest idea what he was doing. Described by one biographer as a “gentle lunatic,” Goodyear in 1834 became fascinated with rubber. It was a wonderfully promising material — pliant, waterproof, rugged, and durable — but it had many intractable shortcomings. For one thing, it had 25 a low melting point. Boots made of rubber were fine in winter, but at the first sign of warm weather they would gooly⁶ decompose and quickly begin to stink.

30 Goodyear decided to make it his life's work to solve these problems. To say that he became obsessed only begins to hint at the degree of his commitment. Over the next nine years, he sold or pawned everything he owned, raced through his friends' and family's money, occasionally resorted to begging, and generally inflicted loving but untold hardship on his long-suffering wife and numerous

¹ Thomas Jefferson (1743–1826): Author of *The Declaration of Independence* and the third US president, was a leading figure in America's early development.

² *prix d'honneur*: (French) prize of honor

³ Monticello: home of Thomas Jefferson in Virginia

⁴ Benjamin Franklin (1706–1790): American printer and publisher, author, inventor and scientist, and diplomat. One of the foremost of the Founding Fathers, Franklin helped draft *The Declaration of Independence* and was one of its signers, represented the United States in France during the American Revolution, and was a delegate to the Constitutional Convention. He made important contributions to science, especially in the understanding of electricity, and is remembered for the wit, wisdom, and elegance of his writing.

⁵ Abraham Lincoln (1809–1865): the 16th president of the United States, who preserved the Union during the American Civil War and brought about the emancipation of enslaved people in the United States.

⁶ gooly: softly and stickily

children. He turned the family kitchen into a laboratory and with only the most basic understanding of the chemistry involved, frequently filled the house with noxious gases and at least once nearly asphyxiated himself. Nothing he tried worked. To demonstrate the material's versatility, he took to wearing a suit made entirely of rubber, but this merely underlined its acute malodorousness⁷ and its owner's faltering grip on reality. Amazingly, everyone stood by him. His wife did whatever he asked of her, and relatives gladly handed him their fortunes. One brother-in-law parted with \$46,000 and never whimpered when all it resulted in was tubs of noisome slop. With implacable resolve, Goodyear churned out one product after another — rubber mailbags, life preservers, boots, rainwear — that proved disastrously ineffective. Even with the lavish support of friends and relatives, Goodyear constantly lived on the edge of penury. In 1840, when his two-year-old son died, the family couldn't even afford a coffin.

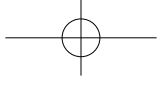
Finally in 1843, entirely by accident, he had his breakthrough. He spilled some India rubber and sulfur on the top of his stove and in so doing discovered the secret of producing a rubber that was waterproof, pliant, and resistant to extremes of heat and cold, made an ideal insulator, didn't break when dropped or struck, and, above all, was practically odorless. Goodyear hastily secured a patent and formed the Naugatuck India-rubber Company. At long last he and his family were poised for the fame and fortune that their years of sacrifice so clearly warranted.

It was not to be. Goodyear's process was so easily duplicated that other manufacturers simply stole it. Even the name by which the process became known, vulcanization, was coined by an English pirate. He had endless problems protecting his patents. The French gave him a patent but then withdrew it on a technicality, and when he traveled to France to protest the matter, he found himself tossed into a debtors' prison. He made more money from his autobiography — a book with the less than compelling title *Gum-Elastic* than he ever did from his invention. When he died in 1860, he left his family saddled with debts. The company that proudly bears his name, the Goodyear Tire and Rubber Company, had nothing to do with him or his descendants. It was named Goodyear by two brothers in Akron, Ohio, Frank and Charles Seiberling, who simply admired him.

Many of the most prolific and important inventors of the age are now almost wholly forgotten. Consider the fate of poor Elias Howe, a young Boston native who in 1846 produced the first workable sewing machine. So revolutionary was Howe's machine that he couldn't find a clothing mill willing to try it. Depressed by his failure, Howe suffered a nervous breakdown and traveled to England where he hoped his ingenious invention might be given a more congenial reception. It was not. After two years tramping the streets, he was so destitute that he had to work his passage home on a merchant ship. Arriving penniless in Boston, he discovered that in his absence one Isaac Singer had stolen his patent and set up a sewing machine factory and was making money hand over fist. Howe took Singer to court, where two things became clear: Singer was nothing more than a thief, but now an extremely rich one who could afford to hire the sharpest lawyers. After a protracted fight, Singer was eventually compelled to pay Howe a handsome royalty on every machine built. (Having thus secured his fortune, Howe promptly enlisted in the Union Army as a common foot soldier; it was an age of eccentrics as well as of inventors.) Nonetheless, it is Singer's name, not Howe's, that is indelibly associated in the popular mind with the sewing machine.

Equally unlucky was J. Murray Spangler, who invented the vacuum cleaner — or electric suction sweeper, as he called it — at the turn of the century in New Berlin, Ohio. Unable to make a success of it, he turned for advice to W.H. Hoover, a local leather-goods maker who knew nothing about

⁷ malodorousness: 恶臭, 难闻



75 electrical appliances but did recognize a business opportunity when it fell in his lap. Before long there were Hoover factories all over the world, Hoover was credited with a great invention he had nothing to do with, the British were even turning his name into a verb (to this day they don't vacuum a carpet but hoover it), and J. Murray Spangler was forgotten.

A Decide whether the statements are true (T), false (F) or not mentioned (NM) according to the text.

1. Both Jefferson and Franklin were great inventors in America and made much money from their inventions.
2. Without Jefferson's insistence, the U.S. Patent Office would not have been set up in 1790.
3. With patents pouring in so fast, a proper patent board had to be organized and suddenly tinkerer-inventors emerged in large numbers in America, including some American presidents.
4. Charles Goodyear was the reprehensive inventor, while different from other American inventors, he had the clearest idea of what he was inventing.
5. After years of his sacrifice, Charles Goodyear succeeded in producing vulcanized rubber and secured a patent.
6. Charles Goodyear profited a lot from his invention and left a generous legacy for his descendants.
7. After he invented the sewing machine, Howe hastily set up a sewing machine factory and earned money very quickly.
8. J. Murray Spangler sold his new invention — the vacuum cleaner or electric suction sweeper to a local businessman called William H. Hoover whose Hoover Suction Sweeper Company produced the first "hoover."
9. People could have been vacuum-cleaning their floors or they might even have vacuum-cleaning their rugs and curtains, but in Britain, people still talk about hoovering their carpets.

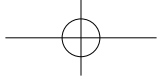
B Discuss the topics.

1. What hardships did Charles Goodyear, Elias Howe and J. Murray Spangler go through during the process of their inventions? What do you learn from their experiences?
2. Is patent protection important? Why or why not?
3. What personalities do you think are the most needed for an inventor? Why?

3 Grammar Work

Correct the mistakes in the sentences.

1. I have read the first English novel is *Jane Eyre*.
2. As soon as she came into the classroom that she began to read English.
3. Countries their banking systems were not well-developed suffered greatly in the recent economic crises.
4. The snow is very soft that I can hardly walk on it.
5. She went to bed until she had finished her homework.
6. Mary is the most intelligent student who I have ever known.
7. The boy studies music plays the piano well.



4 Word Formation

Fill in the blanks with derivatives of the words in brackets.

1. Nobody knows who were the oldest _____ (inhabit) on this island.
2. She became a _____ (Buddha) when she migrated to the _____ (Buddha) country.
3. I've just asked the sales _____ (assist) where the household appliances department is.
4. After thirteen years of hard work, he is now a world-famous _____ (piano).
5. Although he is a _____ (Vietnam), he can speak fluent _____ (Korea).
6. As most of the _____ (interview) are very nervous in front of the _____ (interview), we try to make them feel as relaxed as possible.
7. The _____ (host) of today's program is a distinguished _____ (act), Miss Elizabeth Wood.

The suffixes *-ist*, *-ian*, *-ese*, *-ee* and *-ant* are used to form nouns which refer to nationality, people doing particular work, or people of a special kind. For instance: physics — physicist; China — Chinese; inhabit — inhabitant; employ — employee and Australia — Australian.

5 Vocabulary Work

Fill in the blanks with suitable words.

awake, waking

1. What he has said sounds like a _____ dream.
2. I drink a lot of coffee to keep myself _____.

afloat, floating

3. He managed to stay _____ by holding on to the side of the boat.
4. We spent a lazy afternoon _____ along the river.

frightened, afraid

5. She was _____ that he might be upset if she told him about it.
6. The police succeeded in rescuing the _____ girl at last.

sleeping, asleep

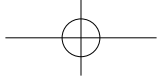
7. I was so tired that I fell _____ during the lecture.
8. A _____ bag is a large thick bag for _____.

live, alive

9. We were walking along a path in the forest when we suddenly saw a real _____ bear.
10. The city center comes _____ on Friday and Saturday evenings.

alone, lone

11. Entering the competition as the _____ outsider does not worry him in the least.
12. He likes being _____ in the house.



6 Translation

Put the sentences into English, using the words and expressions in brackets.

1. 新的教育体制使大学生能够在学习的同时获得工作经验。(enable)

2. 作家必须利用他的想象力和生活体验来进行写作。(draw on)

3. 这家公司一开始显得很有希望，但不久便负债累累。(run into)

4. “那份名单你写好了吗？”“还没有，我正在写呢。”(work on)

5. 尽管他们年龄差别很大，却成了好朋友。(despite)

6. 除非他更努力，否则他是通不过考试的。(unless)

7. 因为这些高质量的产品，这个公司的盈利情况非常好。(hand over fist)

7 Writing

Comment on the ideas about future inventions.

Example

animal language

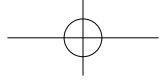
I hope that someone can invent an animal language in the not-too-distant future.

With this linguistic invention, we would be able to communicate with dogs, cats and even birds.

Or I don't think this is possible.

Animals don't have a well developed brain necessary for processing a complicated language system.

1. amphibious vehicles (flying and land cruising)
2. energy from water
3. medicine to cure cancers
4. computerized teacher
5. government system (the whole world becomes one family)
6. speedy vehicle (much faster than light)



PART 4 Cultural Information

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

Plato

Plato (427–347 B.C.E.) is regarded as the founder of Western philosophy. He was born in Athens and later studied under another famous philosopher called Socrates. When he was in his thirties, Plato decided to travel abroad. He visited many of the lands bordering the Mediterranean Sea and met other philosophers.

By the time he returned to Athens in 388 B.C.E., Plato had decided to become a teacher. The following year he founded a school called the Academy which became famous throughout the Greek world. It lasted for over 900 years until it was closed by the Roman emperor Justinian in 529 C.E.

Plato developed a set of teachings known as the Doctrine of Ideas, which were handed down to us via the Arabs. They were very important for later thinkers because they linked scientific thought with religion and philosophy. Although he had a great influence on later philosophers and scientists, today his views are often regarded as a hindrance to modern experimental science. This is because Plato did not encourage experiment, thinking that observation only confused the search for pure theoretical knowledge.

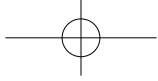


Aristotle

Aristotle (384–322 B.C.E.) was born in Macedonia in northeastern Greece. His parents died when he was a boy and he was sent by his guardian to study at Plato's Academy. On Plato's death, he left Athens and journeyed for twelve years in Greece and Asia Minor. He returned to Macedonia in 343 B.C.E., and for three years he served as tutor to the young Prince Alexander of Macedonia (later Alexander the Great). After Alexander succeeded his father as king, Aristotle moved back to Athens and set up his own school, the Lyceum. After Alexander's death in 323 B.C.E., Aristotle left Athens for the last time and retired to his estate at Chalcis on the island of Euboea where he died.

Aristotle's beliefs were very different from Plato's. Unlike Plato, he thought it was necessary to gather as much information as possible. His writings, passed down to us through the ages via the





Arabs, laid many of the foundations of modern scientific study. His main contribution to science was his emphasis on careful observation and very detailed classification. His system was not in itself rigid. But it was used by many people in the Middle Ages to justify and maintain the feudal system, a strict order by which kings ruled over lords, who in turn ruled over peasants.



Archimedes

Archimedes (287–212 B.C.E.) was born in the Greek colony of Syracuse in Sicily. He was a brilliant mathematician and studied at a famous school of learning in Alexandria in Egypt called the Museum. He was killed in 212 B.C.E. when the Romans captured Syracuse.

He is best known for a law called Archimedes' Principle. This states that when an object is immersed in a fluid it is subject to an upward force equal to the weight of the fluid displaced. It is said that Archimedes shouted

"Eureka!" (I have found it!) when he saw that his body displaced the water as he climbed into his bath.

Archimedes used geometry to measure curves and areas and volumes of solids. He designed leverage systems such as the Archimedean screw for removing water from flooded ships. This principle is still used to raise water from one level to another.

Cultural Study Task

What do you think of the role of science, technology and innovation in human progress? How do they change our lives? Make a list of at least five aspects in our lives and provide an explanation. What will you do to inherit the scientific spirit?

