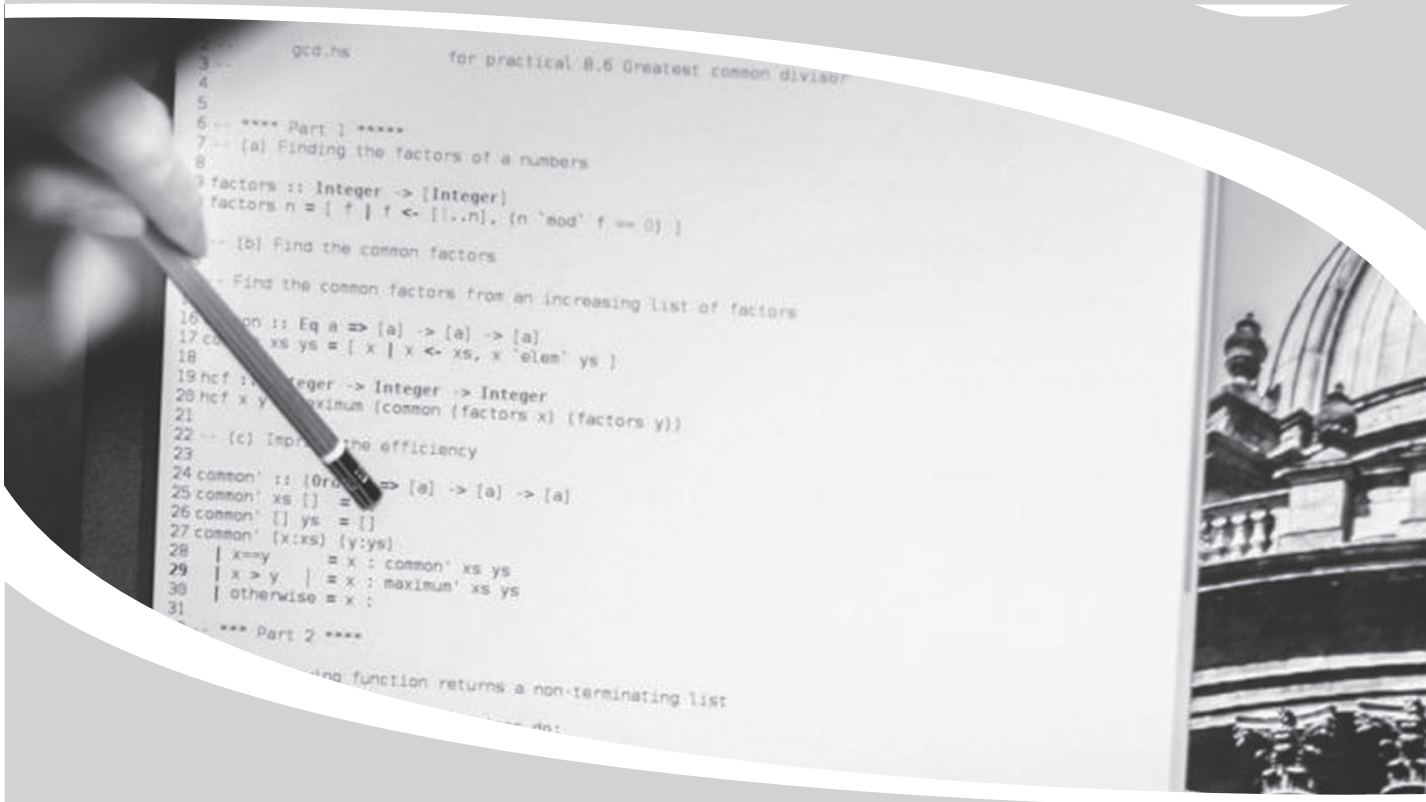
Unit 1

Computer Science



Learning Objectives

In this unit, you will:

- **acquire basic knowledge of Computer Science;**
- **learn to grasp key information of a passage;**
- **get to know public speaking.**

Background

The study of Computer Science encompasses a wide range of topics, including programming languages, data structures, algorithms, computer architecture, operating systems, databases, networks, security, artificial intelligence, machine learning, and more. With the rapid growth of the digital economy, Computer Science has become one of the most in-demand fields, offering exciting career opportunities in a variety of industries. A solid foundation in Computer Science is essential for anyone looking to succeed in today's tech-driven world.

Section A Listening

Pre-Listening

Work in pairs and discuss the following questions.

1. What is Computer Science?
2. What are some of the key challenges facing the field of Computer Science today?

Activity One

Match the words in Computer Science (1–5) with the definitions (A–E).

1. Applet	A. A set of instructions that a computer follows to perform a task
2. Program	B. A Java-based intranet program
3. Network	C. A group of interconnected computer systems
4. Algorithm	D. The process of finding and fixing errors or bugs in software
5. Debugging	E. A step-by-step procedure for solving a problem or achieving a goal

While-Listening

Text A An Introduction to Computer Science

Language Bank

effectively	[ɪ'fektɪvli]	*adv.*	有效地
immense	[ɪ'mens]	*adj.*	巨大的
practical	['præktɪkl]	*adj.*	实际的
prove	[pruːv]	*v.*	证明
investigate	[ɪn'vestɪgeɪt]	*v.*	调查
laboratory	[lə'bɒrətri]	*n.*	实验室
considerable	[kən'sɪdərəb(ə)l]	*adj.*	相当多的
sponsor	['spɒnsə(r)]	*v.*	赞助
deliver	[dɪ'lɪvə(r)]	*v.*	传递

Activity Two

You will hear a course introduction to Computer Science. Listen and choose the best answer to each question.

1. Which of the following basic questions related to Computer Science challenges is NOT mentioned in the passage?
   A. How can we catch in a precise way what we want a computer system to do?
   B. Can we mathematically prove that a computer system does what we want it to do?
   C. What is the most effective way to learn Computer Science?
   D. What are the limits to computing?

2. What does the Computer Science course focus on?
   A. It focuses on creating more cutting-edge systems.
   B. It focuses on creating relations between theory and practice.
   C. It focuses on introducing technologies and applications.
   D. It focuses on developing math abilities.

3. What type of work will students be expected to do during the first part of the course?
   A. Practical sessions in the laboratory.
   B. Discussing ideas with experienced computer scientists.
   C. Working on their chosen individual project.
   D. Attending lectures and tutorials.

4. In which year of the course will students take part in a group design practical session?
   A. The first year.
   B. The second year.
   C. The third year.
   D. The fourth year.

5. Who delivers the tutorials, classes, and lectures in the Computer Science course?
   A. Postdoctoral researchers and postgraduate students.
   B. World-leading experts in their field.
   C. Industry professionals.
   D. A mix of experts, postdoctoral researchers, and postgraduate students.

Activity Three

Listen to the passage again and complete the answers to the questions with ONE WORD ONLY.

1. What is the practical application of emerging Computer Science theories?
   The theories that are now emerging to answer these kinds of questions can be immediately applied to design new computers, programs, networks and systems that are transforming _____, business, _____ and all other aspects of life.

2. What kind of ability are the course organizers looking for in students, and what can it be used for?
   We are looking for students with strong _____ ability, which you will develop into skills that can be used both for reasoning rigorously about the behavior of _____ and computer systems, and for applications such as scientific computing.

3. What skills can you get and what do the majority of the subjects feature?
   You will also gain practical _____ and program design skills; the majority of subjects within the course are linked with _____ work in our well-equipped laboratory.

4. What is the expectation for students during tutorials in the Computer Science course?
   In tutorials, you will discuss ideas in depth with an experienced computer scientist, usually with just one or two other students. You will be expected to spend a(n) _____ amount of time developing your own understanding of the topics covered in lectures, answering questions designed to check your understanding, and _____ for tutorials.

5. What happens as the course progresses?

As the course progresses, you will also begin to work in small classes of up to _____ people on more specialized topics. Class sizes may vary depending on the _____ you choose.

Text B Learning of Computer Science

Language Bank

decent	['di:snt]	*adj.*	相当好的
vacancy	['veɪkənsi]	*n.*	空缺
prevailing	[prɪ'veɪlɪŋ]	*adj.*	流行的
mindset	['maɪndset]	*n.*	观念模式
conference	['kɒnfərəns]	*n.*	会议
take into account			考虑

Activity Four

You will hear a lecture about learning Computer Science in college. Listen and complete the notes below within three words in each blank.

I. Advantages

◆ Numerous companies only hire people who have 1. _____.

Some companies demand employees must graduate from schools like Princeton, Cornell or 2. _____.

Many companies do not take into account employees' 3. _____ and skills.

Getting an education in college may offer students more 4. _____ that self-taught people may not get.

◆ Colleges provide students with a(n) 5. _____.

Universities help students make a(n) 6. _____ with famous companies and provide them with resources that students might not have access to on their own.

II. Disadvantages

◆ The most obvious one—7. _____.

College education is really expensive, especially for some popular majors such as 8. _____.

Living on campus is expensive. Renting your own 9. _____ also costs a lot.

◆ The second drawback is time.

College takes a(n) 10. _____ of four years.

Some activities in school will not directly benefit students.

Activity Five

Listen again and decide whether the following statements are true (T) or false (F).

( ) 1. Companies tend to label people into two categories: degree or non-degree.

( ) 2. In the writer's opinion, some companies are pretty short-sighted.

( ) 3. Nowadays, many schools may offer internships for their students; some companies even recruit directly from schools.

( ) 4. Everyone knows that a college degree is really expensive, especially for some popular majors such as Information Analysis and Information Management.

( ) 5. All the activities and time in school will directly benefit students.

Post-Listening

Work in pairs and discuss the following questions.

1. Have you ever enrolled in a vocational school?
2. Do you think self-study is necessary? why or why not?

Section B Public Speaking

Activity One

Read the passage below and get some knowledge about public speaking.

Introduction to Public Speaking

What is public speaking? Basically, it's a presentation that's given live before an audience. Public speeches can cover a wide variety of different topics. The goal of the speech may be to educate, entertain, or influence the listeners. Often, visual aids in the form of an electronic slideshow are used to supplement the speech. This makes it more interesting to the audience. Over the years, public speaking in communication has played a major role in education,

government, and business. Words have power to inform, persuade, educate, and even entertain the audience. And the spoken word can be even more powerful than the written word in the hands of the right speaker.

The truth is that speaking in public is a skill. And you can learn any skill. While some people may have more natural speaking ability than others, anyone can learn to be a better public speaker. It just takes some know-how and some effort.

First, write an effective speech. The first thing you'll want to do is work on writing a well-organized, engaging speech. Because only having a great speaking voice or a great deal of charisma isn't enough if your material isn't any good. Second, overcome the fear of speaking. Fear of public speaking is real and can hold you back if you let it. If you don't feel confident when giving your speech, your audience may pick up on that. This can make your presentation less effective. Last but not least, practice the speech. Even if you're not afraid of speaking in public, practice helps you give a more effective speech. If you're in a rush, you may be tempted to skip practicing your speech to save time. Practicing your speech improves your public presentation skills. It also increases your familiarity with the presentation.

Activity Two

Answer the following questions according to the passage above.

1. How does the passage achieve the thematic ends?
2. What is the truth about public speaking? And what does it mean?

Activity Three

Fill in the blanks and complete the outline below according to the passage.

Public Speaking	
Definition	It's a(n) 1. _____ that's given live before an audience, which can cover a wide variety of different topics.
Goals	It may be to 2. _____, entertain, or influence the audience.
Effects	It played a major role in 3. _____, government, and business.
Skills to be a good public speaker	First, write a(n) 4. _____ speech. Second, 5. _____ the fear of speaking. Third, 6. _____ the speech.

Activity Four

Give a speech related to artificial intelligence by using the information about public speaking above. Your speech should address the following questions.

- What is the main advantage that AI has over humans?
- What is the main advantage that humans have over AI?
- Is it threatening to further develop AI? Why or why not?

Section C Further Listening

Activity One

You will hear five people talking about their work. Which of the benefits and incentives is each person referring to?

1st speaker 1. _____	A. Parental leave
2nd speaker 2. _____	B. A company car
3rd speaker 3. _____	C. A pension
4th speaker 4. _____	D. Flexible working hours
5th speaker 5. _____	E. An impressive job title

Activity Two

You will hear two long conversations. Listen and choose the best answer to each question.

Conversation One

1. Why is the man watching television?
   A. He's taking a break from studying.
   B. He has already finished studying.
   C. He was assigned to watch a program by his professor.
   D. He's finding out some information for a friend.

2. Why does the woman want to study linear algebra with the man?
   A. She did poorly on a recent test.

B. She thinks the man has studied linear algebra well.

C. She thinks they may study more efficiently if they work together.

D. She wants to help the man with his linear algebra.

3. Why doesn't the man want to call Elizabeth?

A. He and Elizabeth argued recently.

B. He doesn't want to bother Elizabeth so late in the evening.

C. He heard Elizabeth did poorly on the last test.

D. He'd rather study in his own dormitory.

Conversation Two

4. What does the man want to do after he graduates?

A. He wants to become a cook.

B. He hopes to go on to graduate school.

C. He wants to travel around the world.

D. He'd like to work at a hotel.

5. What was the woman's major in the university?

A. Computer Science.

B. Engineering.

C. French.

D. English.

6. Where does the man work part-time?

A. At a bakery.

B. In a library.

C. At a restaurant.

D. At a travel agency.

Activity Three

Listen to a passage on Chinese culture and fill in each blank within three words.

Xi'an

In the 7th century, Xi'an was the greatest city in the world. Half a(n) 1. _____ people lived there, whereas the biggest European city only had a few 2. _____. It was a(n)

3. _____ place of new styles, new fashions, and new music. The city was said to be laid out like a vast 4. _____ board.

Xi'an was strictly 5. _____. That was the way Chinese cities have always been. Gated 6. _____ enclosure, where public access is controlled. Xi'an had 108 walls, all of them under 7. _____. This was the unseen world in the Tang Dynasty, between this area and great 8. _____ area over there. There were mansions of top 9. _____. A princess lived down the road. It looks like one can still buy some of that garden 10. _____ of them.