Unit 1

USES FOR COMPUTERS

1.1. Read the following words.

Electronic, according, literate, accomplish, purpose, fluent, powerful, pursuit, precise, extraordinary, massive, fundamental, tremendous, enormously, specific, detail.

1.2. Read and translate the following word-combinations.

An electronic device, the results of processing, computer literate, a problem-solving tool, fast and precise machines, specific operations, revolutionary technologies, massive amounts of detail, data processing, countless combinations, varied applications, highly complex questions, fundamental operations, personal and professional pursuits, tremendous speed, a human being, computer literacy.

1.3. Learn key words and word-combinations.

add (v) – додавати
apply (v) – застосовувати
carry out (v) – виконувати
computer (n) – комп'ютер, ЕОМ
data (n) – дані
delete (v) – вилучати; усувати; витирати
device (n) – пристрій
divide (v) – ділити
information (n) – інформація
input (n) – уведення; вхідні дані; пристрій введення; (v) уводити дані
instruction (n) – команда
multiply (v) – множити
output (n) – виведення (даних); вихідні дані; пристрій виведення; (v) виводити дані
process (v) – опрацьовувати; обробляти
processing – опрацювання; оброблення

set of instruction – набір команд
software (n) – програмне забезпечення
store (v) – зберігати; запам'ятовувати
substract (v) – віднімати

1.4. Read and translate the text.

What is a Computer?

As with any problem-solving tool, you must understand the purposes for which computers can and cannot be used. What is the value of computers to you? Over the last decade, computers have become more powerful, easier to use, and less expensive. Thus, the effort required to apply computers in personal and professional pursuits is much simpler than it was a decade ago.

Like all revolutionary technologies, such as electricity, telephones, and automobiles, computers have been embraced by individuals and organizations rather quickly. Thus, a certain amount of **computer literacy** is necessary to keep pace with rapid technological advances. Computers, although important, are not an end in themselves. They are simply tools. They are really nothing more than unusually fast and precise machines with an extraordinary ability to remember massive amount of detail. The computer's speciality is data processing, performing specific operations on data: adding, substracting, multiplying, and dividing numbers and comparing them and remembering them. These fundamental operations, conducted in countless combinations at tremendous speed, are the essence of all the computer's enormously varied applications. The computer can thus answer some highly complex questions, although the human being must tell it what to do and how to do it.

A computer is an electronic device that can accept input, process it according to a set of instructions, store the instructions and the results of processing, and produce results as its output.

The facts, numbers, letters, and images input to a computer are **called data.** The instructions that carry out the processing are called **computer programs** or software. The output, intended for use and interpretation by people, is called **information.**

Notes:

Remember that word "**data**" **takes a singular verb** (3rd person singular) when it refers to the information operated on in a computer program. – The data is ready for processing.

1.5. Give English equivalents of the following words and word-combinations.

Приймати вхідні дані, виконувати опрацювання, програмне забезпечення, зберігати (запам'ятовувати) команди, надзвичайно швидкі й точні машини, виконання специфічних операцій, основні операції, величезна швидкість, пристрій, вихідні дані, відповідно до, революційні технології, численні комбінації, порівнювати, застосовувати комп'ютери.

1.6 Match the terms to their definitions.

1. computer	a. Output, intended for use and interpretation by people.
2. data	b. The facts numbers, letters, and images input to a computer.
3. input	
4. output	c. An electronic device that can accept input, process it according to a set of instructions, store the instructions and the results of processing, and produce the results as its output.
5. software	
6. information	
7. instruction	
	d. A basic unit of a program that specifies what action is to be performed on what data.
	e. Programs that control the functions of a computer system.
	f. The results of computer processing.
	g. The process of transferring data into a computer system.

1.7. Answer the questions.

1. What is a computer?
2. What do we call facts, numbers, letters, and images input to a computer?
3. What do we call software?
4. What do we call the output intended for use and interpretation by people?
5. In what spheres are computers being used now?
6. What is the computer's specialty?
7. What is the difference between data and information?

1.8. Read and translate the following word-combinations.

Increased complexity, business environment, rapid growth, social pressure, business transaction, credit status, financial status, income statement,

balance sheet, human effort, office automation technology, two-way cable, repetitive tasks, a practical applications, humanlike capabilities, intelligent computer systems, the nature of intelligence, common sense, office automation technology.

2.2 Read and learn key words and word-combinations.

accomplish manually – виконувати вручну
artificial intelligence – штучний інтелект
database program – програма бази даних
expert system – експертна система
fax machine – факс
keep track of – слідкувати за
office automation – автоматизація діловодства
production and distribution of information – виробництво і поширення інформації
spreadsheet (n) – електронна таблиця
withhold taxes – утримувати податки
word processing – опрацювання текстів

2.3 Read and translate the text.

Computer in Business

Computers are used to help businesses automate the collection and processing of data, and the production and distribution of information. Of course, these tasks can be accomplished manually, but factors such as increased complexity of the business environment, rapid growth, increased competition, the value of information, and even social pressure are encouraging businesses to adopt computers as solutions to many problems. One of the earliest applications for computers was accounting and bookkeeping, activities that are concerned with recording and processing the basic business transactions of an organization. An order entry system accepts customer orders, checks the customer's credit status, and verifies that the ordered items are in stock. An accounts receivable system keeps track of money received or owed by customers. An accounts payable system keeps track of money owed to suppliers. In a business that produces goods, an inventory system keeps track of the goods on hand for sale or shipment to

customers. A payroll system calculates employee pay checks and keeps track of withholding taxes, employee benefits, insurance, and dues. A general ledger system summarizes all of the basic transactions and is used to produce the information concerning the financial status of the business, such as the chart of accounts, income statements, and balance sheets.

Office automation is technology that reduces the amount of human effort necessary to perform tasks in the office. Today's businesses have a wide variety of office automation technology at their disposal. The list includes telephones, fax machines, and computers; word processing, spreadsheet, and database programs; and two-way cable and satellite communication systems. Each of these components is intended to automate a task or function that is presently performed manually.

In the period from the 1960s to the present, offices were expanding so rapidly that it was assumed that more productive ways of producing and distributing paperwork were needed. Attention began to focus on automating the repetitive tasks of the clerical worker, and the result was the evolution of office automation.

An **expert system** is a computer system that solves specialized problems at the level of a human expert. Expert systems are a practical application of **artificial intelligence** (AI), the branch of computer science that attempts to (1) understand the nature of intelligence and (2) produce new classes of intelligent computer systems by programming computers to perform tasks that require humanlike qualities, such as reasoning and perception.

There is still debate whether computers will ever exhibit intelligence equivalent to that of a human being. Certainly, few would argue that computers are good at manipulating data and arithmetic, often exceeding human capabilities when solving specific problems in these areas. However, computers that can exhibit intuition, understanding, insight, or common sense are still far in the future.

2.3. Give English equivalents of the following words and word-combinations.

Перевищувати здібності людини, здоровий глузд, спеціалізовані проблеми, автоматизація діловодства, ділова операція, утримувати податки, штучний інтелект, у розпорядженні, на рівні людини галузь комп'ютерної науки, значення (цінність) інформації, збір даних,

продуктивний спосіб, розвиток, виконувати завдання, вирішувати специфічні проблеми.

2.4. Put the verb into the correct form.

1. Computers _____ in business since the 1960s. (use)
2. Scientists _____ still, if computers ____ ever intelligence equivalent to that of a human being. (debate, exhibit)
3. Accounting and bookkeeping _____with recording and processing the basic business transactions of an organization. (concern)
4. As a result, office automation _____ the amount of human effort necessary to perform tasks in the office. (reduce)
5. Increased complexity of the business environment _____ computer application in office automation. (make for)

2.6. Answer the questions.

1. What factors promoted a wide computer application in businesses?
2. In what business spheres were computers first applied?
3. What does the term "office automation" mean?
4. What components of office automation are at the disposal of today's businesses?
5. Are modern computers able to solve any problems at the level of human expert?
6. In what cases do computers exceed human capabilities?

3.1. Translate the following word-combinations from English into Ukrainian.

Meet the pressure of competition, the flow of goods, change the structure, computer-based devices, examine a pattern, reduce labour costs, handle customer service, deal with customers, needs and wants, make accessible, apply computers, a human teller, mundane tasks, place more emphasis, eliminate misreading.

3.2. Learn key words and word-combinations.

accessible (adj) – доступний
automatic teller machine (ATM) – банкомат
bar code – штриховий код
collect data – збирати дані
computer screen – екран комп'ютера
computer-based device – автоматизований пристрій

convert (v) – перетворювати
eliminate (v) – усувати
flow of information – потік інформації
information system – інформаційна система
input device – пристрій уведення
leverage technology – використовувати технологію
mundane (adj) – повсякденний
pattern (n) – зразок; зображення; графічний шаблон
point-of-sail system – система для касових розрахунків
reader (n) – пристрій читання
representation (n) – подання; зображення
retrieve (v) – (знову) знаходити
retrieval (n) – пошук; вибірка
scanner (n) – пристрій сканування; сканер
touch screen – сенсорний екран

3.3. Read and translate the text.

Computers in Retailing

Almost all retailing organizations from department stores to supermarkets are extremely competitive. To meet the pressure of competition, retail organizations are changing their structure from being organized around the flow of goods and services to being organized around the flow of information. Computers are helping to accomplish that change.

Increasingly, retailers such as department stores and supermarkets are using computers to collect data about their sales and customers at the point of sale. **Point-of-sale systems** are **computer-based devices** located at the point at which goods and services are paid for. Scanners are **input devices** that examine a pattern such as a **bar code** and convert it into a **representation** suitable for processing. Supermarkets have long used scanners at checkout counters to record sales. In such an application, scanners reduce labour costs, make the checkout process more accurate by eliminating misreading of price tags and improper cash register reading, and move customers through the checkout line faster, thus enhancing customer ser-vice.

The nature of customer service is not only changing, but it is becoming an ever more important part of the competitive retailing industry. Not only

must a company employ friendly people to handle customer service, but it must also leverage technology to deal with customers. Computers help companies become more familiar with their customers' needs and wants.

For example, in addition to salespeople listening to and reacting to complaints about merchandise, some companies have information systems that permit salespeople to consult a computer while talking to a customer or drafting a letter of response. The computer can determine whether correct items are in stock and how soon they can be delivered, and can answer questions about how to use specific products. By storing customer, inventory, and product information and making it accessible for viewing on a computer screen, customer service is faster and more efficient.

Hotels and restaurants also use computers to become familiar with their customer's needs and wants. In hotels, front-desk systems retrieve a guest record when a credit card is passed through a special **reader**. Some larger hotels keep guest preference profiles on computer. When the guest checks in, everything is ready.

The fast-food industry is beginning to apply computers to the task of improving the preparation, cooking, and delivery of food. Taco Bell is testing a taco-making robot and a touch-screen ordering system that allow customers to order meals in much the same way that an automatic teller machine lets a bank customer bypass a human teller. Managers in the fast-food industry believe that automating mundane tasks will free employees to place more emphasis on the customer-service side of the business.

3.4. Find synonyms.

Help, change, accomplish, collect, examine, convert, reduce, accurate, faster, talk, determine, begin, allow, alter, gather, permit, speak, transform, check, exact, quicker, cut, decide, fulfill, assist.

3.5. Put the verb into the correct form.

1. Point-of-sale systems __ _____ at the point where goods and services _____ (be located, pay for)
2. Scanners _____ at checkout counters to record sales. (use)
3. Computers _____ in fast-food industry. (apply)
4. A taco-making robot and a touch-screen ordering system _____ by Taco Bell. (test)
5. A pattern such as a bar code _____ by scanners. (examine)

3.6. Answer the questions.

1. What structural changes are taking place in retailing? Why?
2. What purposes are retailing organizations using computers for?
3. What input devices have been long used in supermarkets?
4. What are the results of scanner application in supermarkets?
5. What problems are solved with help of the computer in customer service?
6. What technology is applied in the fast-food industry?

4.1. Translate the following word-combinations from English into Ukrainian.

Graphic tools, a powerful tool, the evolution of printing technology, computerized typesetting, electronic tools, make possible, ancient culture, contemporary culture, high-technology tools, convey meaning, imaginary scenes, realistic images, still frames, the illusion of motion, artificial background, produce high-quality sound, dominant role, generate sound, a condensed description of the composition, three-dimensional colour graphics, virtual-reality research.

4.2. Learn key words and word-combinations.

beep (n) – звуковий сигнал
capture (n) – збирання (даних); (v) – збирати
computer graphics – комп'ютерна графіка
computer-generated – сформований (створений) з допомогою комп'ютера
computerized presentation – комп'ютеризоване зображення
computerized typesetting – комп'ютеризоване складання (тексту)
digital signal – цифровий сигнал
dimension (n) – вимір
display (n) – дисплей; пристрій відображення; зображення; (v) відображати, показувати
edit (v) – редагувати
feedback (n) – зворотний зв'язок
fiber-optic cable – волоконнооптичний кабель
graphics software – програмні засоби машинної графіки
hologram (n) – голограма
imaging system – система формування зображення

laser (n) – лазер
LCD (liquid crystal display) – дисплей на рідких кристалах
permutation (n) – перестановка
photocopier (n) – фотокопіювальний пристрій
playback (n) – відтворення
sequencer (n) – контролер послідовності команд
synthesizer (n) – синтезатор
virtual reality – віртуальна реальність/середовище

4.3. Read and translate the text.

Computers in the Arts and Entertainment

Historically, the dubious aesthetic quality of computer-generated images and sounds coupled with the high cost of computer graphic tools had been the primary barrier to widespread adoption of computers by artists and designers. The computer was often a high-priced specialized tool on which the artist or designer rented time or shared time among a group of users.

But for many people, art and design are a business, not a hobby. The most widespread and rapid advances in using computers are in art and design made for commercial purposes. Commercial artists and designers quickly realized that computer technology is a powerful tool that can reduce the cost and time involved in producing the medium in which they work. For example, the evolution of printing technology from movable type to computerized typesetting and imaging systems opened up myriad new cost-effective communication possibilities for graphic designers. The computer has become a medium that integrates print, television, music, and other communication media of the past and present.

For example, presentations at meetings were once synonymous with slides and transparencies. The computer was simply a tool used to produce slides and transparencies. Today, complex computerized presentations that incorporate sound, animation, and colour, along with still images, are an entirely new form of communication made possible by computer technology.

The **visual media**, such as print, film, television, and photography, demand visual problem-solving skills. The tools to help solve problems visually can be grouped together under the broad term **computer graphics**.

Computer-assisted art takes many forms. It replaces pen and pencil as the drawing tool, mixes colours by manipulating light on a display screen,

and creates many possible **permutations** of basic forms and shapes. In addition to computers, some contemporary artists use high-technology tools such as lasers, holograms, photocopiers, and facsimile machines to help convey meaning or to explore themes related to technology.

In science-fiction films and television shows, we are often treated to spectacular images of outer space and dramatic shots of distant worlds. Yet there is no navigation of outer space behind these images, let alone a camera to photograph them. Today's graphic software makes imaginary scenes and realistic images indistinguishable from photographs, yet they exist only as information stored in a computer.

Sound is a communication medium that expresses ideas in ways that cannot be approached by any of the other arts. Sound can include the human voice, music, non-musical sounds such as those found in nature, or synthetic sounds such as the beep of a computer or home appliance to give you **feedback**. In entertainment, sound is essential to music and is an important part of television and film. The ability to produce high-quality sound has always existed in musical instruments, but only since the invention of the synthesizer have computers played a dominant role in the production of music.

A **synthesizer** is a device that electronically generates sound instead of picking it up with a microphone. Many music synthesizers come with a piano like keyboard.

When coupled with a **sequencer** – software that can capture, edit, and play back music-complex electronic arrangements are made possible through a wide variety of editing options.

A technology called the **musical instrument digital interface (MIDI)** connects synthesizers, musical instruments, and computers. The information passed between MIDI devices is not sound. Rather, it is a condensed description of the composition (e.g., what notes were played, when, and with what nuance). On playback, MIDI controls the creation of sound on a synthesizer. A musician can interact with a composition while it is playing to make changes and enhancements.

In live performances, such as rock concerts, live and recorded sound are often indistinguishable, thanks to the use of computerized backing tracks.

Three-dimensional colour graphics, animation, simulations, and special effects combined with sound and tactile input and output create the next major development in human-computer interfaces, **virtual environment**.

A virtual reality, also called a virtual environment, is an information environment generated by computer technology that combines visual, audi-

tory, and tactile interaction to create the illusion of realistic objects and sensory experiences.

The most advanced virtual reality research can be found in the defense and aerospace industries. At NASA's Ames Research Center in the Aerospace Human Factors Research Division, scientists have created a virtual reality workstation based on a stereo-viewing headset, a microphone, earphones, a head tracking device, and DataGloves – gloves instrumented with fiber-optic cables that convert mechanical motion into digital signals suitable for processing. To enter a virtual world the user dons the headset, which contains goggles that display images on small LCDs. The display for each eye is slightly different, creating the illusion of three dimensions. As the user's head moves, the computer adjusts the view accordingly. A user viewing a virtual object would see a different view of the object if, for example, he or she walked around to see the other side. The DataGloves permit the user to pick up and manipulate virtual objects.

4.4. Find antonyms.

High, primary, hobby, rapid, reduce, forbid, impossible, simple, exclude, low, minor, business, slow, real, difficult, complicate, cheap, a lot of, raise, imaginary, outer, create, open, few, complex, ancient, destroy, realistic, inner, expensive, begin, artificial, simplify, contemporary, end, close, easy, include, possible, permit.

4.5. Find synonyms.

Couple, rapid, powerful, evolution, convert, exact, assist, include, dear, begin, fast, broad, replace, generate, modern, research, change, expensive, development, help, fully, multiple, traditional, combine, transform, incorporate, explore, start, numerous, produce, wide, permutation, completely, conventional, mighty, contemporary, precise, substitute.

4.6. Make up sentences using the following words.
1. ancient, artists, have, images, in, always, cultures, created, even.
2. many, takes, art, forms, computer-assisted.
3. modern, tools, addition, computers, in, to, some, high-technology, use, some, artists.
4. commercial, realize, computer, is, their, technology, artists, that, contemporary, work, necessary.

4.7. Put the verb into the correct form.

1. High-technology tools such as lasers, holograms, photocopiers _____ by contemporary artists.(use)
2. Printing technology _____ by computer typesetting. (replace)
3. Imaging scenes and realistic images _____ with help of graphic software. (make)
4. The creation of sound on a synthesizer _____ by MIDI. (control)
5. Synthesizers, musical instruments and computers _____ with help of the technology called MIDI. (connect)
6. Computers _____ a dominant role in the production of music only since the advent of the synthesizer. (play)

4.8. Answer the questions.

1. In what sphere of art are the most widespread and rapid advances in using computers? Why?
2. What high-technology tools, in addition to computers, are used by contemporary artists?
3. In what way has a computer application influenced the film industry?
4. What changes have taken place in the production of music since the invention of the synthesizer?
5. What do we call a technology connecting synthesizers, musical instruments and computers?
6. In what spheres can virtual reality be applied except the defense and aerospace industries?

4.9. Summarize the text in 60-70 words.

5.1. Read and translate the following word-combinations.

Powerful assistants, imaginative approach, information gathering and learning, computer-assisted instruction, language skills, curriculum developer, similar problems, basic skills, drill and practice, individual instruction, interactive education, sequential and linear, create multiple paths, dynamic types of data, multimedia products, learning embedded into games, the entire range of education, skill-training material.

5.2. Learn key words and word combinations.

CAI (computer – assisted instruction) – комп'ютеризоване навчання
computation (n) – обчислення

direct link – прямий зв'язок

embed (v) – вкладати, уставляти

flash card – проекційна картка

hypertext (n) – гіпертекст (універсальний текст)

imaginative approach – творчий підхід

interactive (adj) – інтерактивний, діалоговий

multimedia (n) – комплексне зображення середовища; мульти-середовище

nonlinear (adj) – нелінійний

option (n) – варіант; версія; можливість, вибір, режим; пункт меню

sequential (adj) – послідовний

5.3. Read and translate the text.

Computers in Education

Learning can occur without computers, or, for that matter, without pencil and paper. But computers can serve as powerful assistants that allow imaginative approaches to teaching traditional subjects and motivate teachers and students to try new ways of information gathering and learning.

The oldest instructional application of computers is **computer-assisted instruction** (CAI), which provides instruction and drill and practice in basic computation and language skills. The basic philosophy of CAI involves a direct link between student and computer and the transfer of basic instructional decisions from teacher to curriculum developer. By using CAI, information is presented on a computer, students are asked to respond, and their responses are evaluated. If the student is correct, he or she moves on; if incorrect, similar problems are given until the correct response is elicited. CAI allows students to learn topics at their own pace through a series of computer displays.

Advocates of CAI argue that students who have not mastered basic skills can benefit from drill and practice, the computer helps to motivate the students, and it frees the teacher to provide individual instruction. Critics of CAI argue that drill-and-practice tasks can be done just as easily without computers, using, for example, flash cards or some other form of drill. Hundreds of studies have been conducted to determine the effectiveness of CAI; although the results concerning the effects of CAI are generally favourable,

the research conducted provides little insight into how, what, and why students learn when they use CAI.

Now, rapidly evolving computer technologies are creating more options for interactive education. The term **hypertext** was coined in 1965 by computer populist Ted Nelson. Hypertext describes writing done in **nonlinear** fashion. Unlike print text, which is essentially sequential and linear, hypertext can link pieces of information and create multiple paths through text. When the non-linear text, along with still photos and illustrations, is combined with dynamic types of data such as sound, animation, and video, it is called multimedia.

Whereas CAI often stresses meeting specific needs, such as reading, spelling, math, or science, by asking students to answer questions correctly, multimedia products often feature games with learning embedded into them. Students are provided with clues that require a knowledge of history, science, or geography to solve problems.

Multimedia products now span the entire range of education from pre-school to higher education to in-house corporate training. Interactive titles include storybooks for children, math and science games, reference encyclopedias, and various levels of skill-training material ranging from maintenance and mechanics to anatomy and medicine.

5.4. Find antonyms.

Allow, respond, opponent, difficult, link, powerful, old, similar, create, weak, wrong, modern, destroy, break, still, advocate, ask ,correct, different, easy, dynamic, forbid.

5.5. Find synonyms.

Span, occur, permit, collect, answer, right, for instance, different, entire, connection, allow, gather, link, personal, embrace, take place, estimate, whole, various, for example, correct, individual, respond, evaluate.

5.6. Translate into English the following word-combinations.

Визначити ефективність комп'ютеризованого навчання, динамічні типи даних, задовольняти специфічні потреби, забезпечити індивідуальне навчання, подібні проблеми, мовні навички, включати прямий зв'язок, нові способи збору і вивчення інформації.

5.7. Translate from Ukrainian into English.

1. Засоби мультимедіа дають людині змогу спілкуватися з комп'ютером, використовуючи звук, відео, графіку, тексти, анімацію та ін.
2. Мультимедіа-комп'ютери особливо привабливі для навчання.
3. В поєднанні з гіпертекстовою та гіпермедійною формою навчальної інформації навчальний процес стає ефективним.
4. Прихильники комп'ютеризованого навчання доводять, що засоби мультимедіа забезпечують багате середовище для навчання і дослідження.
5. Засоби мультимедіа дають вчителям можливість звертатися до різних методик навчання, використовуючи одну технологію.

5.8. Answer the questions.

1. What is the basic philosophy of CAI?
2. What are the computer capabilities in CAI?
3. What are the pros and cons in applying computers in education?
4. What new computer technologies are creating more options for interactive education?
5. What range of education do multimedia products span?
6. Is classroom instruction more effective than computer-based training?
7. Are teachers more valuable then computers?

6.1. Supplementary reading.

Computers in Health Care and Medicine

Doctors, nurses, and other medical practitioners have adapted to computers because they already depend heavily on specialized information to perform their jobs. Having a computer to store and retrieve that information is a natural extension of an already complex and information-intensive process. In addition, with today's emphasis on government involvement and large-scale health-care providers, controlling costs requires technology to improve the efficient of administrative and patient record keeping and reduce expenses without sacrificing the overall quality of health care.

Intensive care units are an early example of computer-controlled patient monitoring. At the bedside, critically ill patients are connected to a wide

variety of sensors that measure vital signs such as heartbeat, breathing, and brain activity. If any of these vital signs change dramatically, an alarm is sounded and the appropriate life-saving techniques are administered.

Patient monitoring is not confined to the bedside. Some persons with illnesses that require constant medication can benefit from portable of implanted monitoring and control devices. Diabetics, for example, can wear an implanted insulin pump that monitor their blood sugar and releases precise doses of insulin to control the blood-sugar level.

Therapists who treat the needs of speech-, hearing-, and cognitive-impaired persons can use computer technology to assist in the rehabilitation process. Such computer-assisted therapy is getting a big boost from products that are designed to run on personal computers. For example, Speech Viewer is a clinical tool for use by therapists who treat speech disorders or hearing disabilities that affect speech. By letting client and therapist view speech, SpeechViewer provides interactive feedback between speech sounds and the display. Clients can also practise manipulations components of speech in a game like environment.
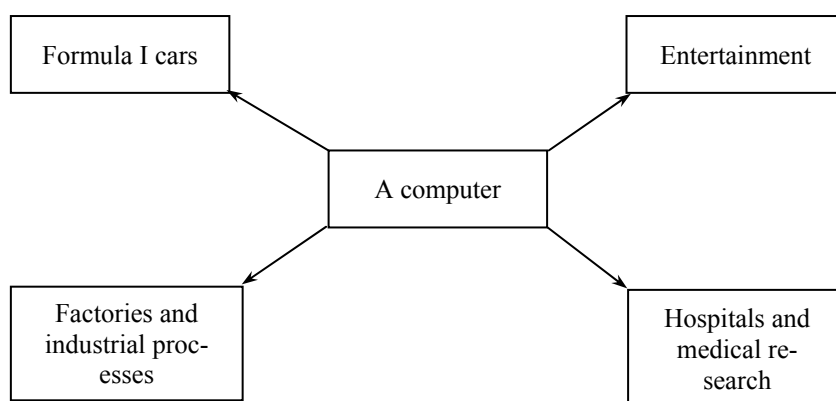
Another product, Thinkable, is used to treat cognitive impairment or memory loss. Using computers, clients are prompted through clinical practice sessions that help improve memory, attention, discrimination, and sequencing. Such products can help individuals with disabilities achieve greater personal and professional independence.

6.2. Speak on.

1. Computers in Military.
2. Computers in Manufacturing.
3. Computer-Aided Engineering (CAE), Design(CAD), and Manufacturing(CAM).

6.3. Other applications.

In small groups choose one of the areas in the diagram below and discuss what computers can do in this area.

```
┌─────────────────┐                        ┌─────────────────┐
│ Formula I cars  │                        │  Entertainment  │
└─────────────────┘                        └─────────────────┘
          ↖                                      ↗
               ┌──────────────┐
               │  A computer  │
               └──────────────┘
          ↙                                      ↘
┌─────────────────┐                        ┌─────────────────┐
│  Factories and  │                        │  Hospitals and  │
│ industrial proc-│                        │   medical re-   │
│      esses      │                        │     search      │
└─────────────────┘                        └─────────────────┘
```

Useful words:

Formula I: racing car, car body, design, mechanical parts, electronic components, engine speed.

Entertainment: game, music, animated image, multimedia, encyclopedia

In factories: machinery, robot, production line, computer-aided manufacturing, software.

In hospitals: patient, medical personal, database program, records, scanner, diagnose, disease, surgery.

Useful constructions:

Computers are used to…

A PC can also be used to…

Computers can…

help…make…control…store…keep…provide…manage…give… perform…measure…test…provide access to…

Now write a short paragraph summarizing your discussion. Then ask one person from your group to give the summary of the group's ideas to the rest of the class.

Examples:

In business, computers are used for financial planning, accounting and specific calculations.

In office, computers are used to write letters and keep records of clients, suppliers and employees.

Test Yourself

Match the following key terms to the appropriate definition:

A.
1. Computer
2. Data
3. Computer program
4. Information
5. Office automation
6. Expert system
7. Artificial intelligence
8. Point-of-sale system
9. Scanner
10. Synthesizer

a. Computer input devices located at the point at which goods and services are paid.
b. An electronic device that can accept input, process it according to a set of instructions, store the instructions and the results of processing, and produce results as its output.
c. A device that electronically generates sound instead of picking it up with a microphone.
d. Technology that reduces the amount of human effort necessary to perform tasks in the office.
e. Output, intended for use and interpretation by people.
f. The facts, numbers, letters, and images input to a computer.
g. A computer system that solves specialized problems at the level of a human expert.
h. Input devices that examine a pattern such as a bar code and convert it into a representation suitable for processing.
i. Instructions that carry out the processing.
j. The branch of computer science that attempts to understand the nature of intelligence and produce new classes of intelligent computer systems.

B.
1. Sequencer
2. Musical instrument digital interface (MIDI)
3. Virtual reality
4. Computer-assisted instruction (CAI)
5. Hypertext
6. Multimedia

7. Geographical information system (CIS)
8. Simulation
9. Biometric device
10. Full-text-retrieval software

a. Equipment that provides instruction and drill and practice in basic computation and language skills.
b. A computerized representation of a real-world event or series of actions.
c. Software that can capture, edit, and play back music.
d. Writing done in a nonlinear fashion.
e. Instruments that perform mathematical analysis of biological characteristics.
f. The combination of digitized maps and images of distributions of statistical data.
g. The combination of nonlinear text with dynamic data types such as sound, animation, and video.
h. A technology that connects synthesizers, musical instruments, and computers.
i. Software that allows text to be indexed, edited, annotated, linked, and retrieved.
j. An information environment generated by computer technology that combines visual, auditory, and tactile interaction to create the illusion of realistic objects and sensory experiences.