

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ
«ХАРКІВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ»

МЕТОДИЧНІ ВКАЗІВКИ

для самостійної роботи студентів
спеціальності «Комп'ютерні науки» над розвитком
англомовних лінгвістичних компетенцій

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SELF-STUDY GUIDE

to developing English linguistic competences
for students of Computer Sciences

Харків
2019

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До друку дозволяю
Проректор

проф. Мигушенко Р.П.

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ПЕРЕДМОВА

Методичні вказівки призначені для самостійної роботи студентів ІТ спеціальностей над опануванням фахової термінології та мають на меті допомогти студентам І та ІІ курсів самостійно працювати над розширенням словникового запасу, розвитком вмінь здобування інформації з англomовних текстових джерел.

Методичні вказівки складаються з двох частин. Теоретичний матеріал та завдання першої частини націлені на набуття навичок ведення індивідуального словника, формування достатнього запасу як пасивної, так і активної лексики завдяки ознайомленню студентів із засобами словотворення та структурою термінів, тренуванню мовної здогадки та розпізнання сталих та ідіоматичних словосполучень. Вправи другої частини допоможуть студентам навчитись вилучати інформацію з текстового матеріалу та розвинути вміння пошукового та оглядового читання.

PART I

INTRODUCTION

LEARNING VOCABULARY – USEFUL TIPS

Each – language and English is not an exception – has an enormous number of words. Of course, it is impossible (and not necessary) to learn all of them. How many words do you need to know to be able to understand any written material you want or need to read and talk with any person you would like to communicate with?

Firstly, there are a lot of words that you don't need at all. Secondly, there are other words that you simply need to understand when you read or hear them. It is your passive vocabulary. Finally, there are words which you need to be able to use yourself. They comprise your active vocabulary. Clearly you need to spend some time learning the second group and most time learning the last group.

What does knowing a new word mean?

When learning a word you need to know the following: how it is pronounced and spelled; what part of speech it belongs to (e.g. noun, verb, etc.); its meaning (or meanings); whether it has any particular grammatical characteristics; what other words it is usually associated with.

You should try to learn new words not in isolation but in phrases (collocations). You will help yourself to learn English vocabulary not only by studying in class with your English teacher but also by reading and listening to English on your own.

When you are reading something in English, only look up words that are really important for understanding the text. There are a great number of words which have similar roots in your native language (the so-called ‘international words’). Knowing word-building elements also helps to understand the meanings of unknown words. Regular reading will develop your language intuition, so you will be able to guess the meanings of some words from context.

It is not necessary to learn or record every unknown word you come across. Be selective. Divide the list of words which frequently occur in the text

you read into new vocabulary items you just want to be able to recognize in context (your passive vocabulary) and those you want to reproduce yourself (your active vocabulary). Write short definitions or translations for the words you just want to recognize, and fuller definitions and examples of use for those you want to use actively.

Working with reference literature

Although a bilingual dictionary is a useful guide when learning new words, a monolingual dictionary will provide a more thorough understanding of a new word. It would be a good idea to use both.

A good dictionary can tell you a lot more about a word than just its meaning.

Example:

noise *n* [U] – 1) extra information, activity, etc. that is not what is needed:
e.g. In all the noise of the Internet, I eventually found something relevant.

2) extra electrical or electronic signals that are not part of the signal that is being broadcast or sent.

It will also provide information on:

- pronunciation and word stress (you should know some symbols which are different from the letters of the English alphabet);
- parts of speech (*n, v, adj, adv, prep, conj*, etc) and word class, e.g. whether a noun is countable [C] or uncountable [U], and whether a verb is normally transitive (used with an object) or intransitive (used without an object);
- usage, i.e. how the given word is used and any special grammatical pattern that goes with it;
- register, e.g. *newbie* ['nju:bi] *n* [C] (informal) – a person who has just begun to use a computer, a particular program or the Internet:
e.g. This website offers technical advice to newbies.
- synonyms and their differences;
- opposites (= antonyms);
- collocations, e.g. *above the fold* *adv* – in the top part of a web page that you see first on the screen:

e.g. Your ads are always shown above the fold.

- idioms.

Organizing your own vocabulary notebook

It would be a good idea to keep your own vocabulary notebook. You should think yourself about possible ways of doing so. Here are some examples.

1 Organizing words by meaning

Divide your vocabulary into topics using various types of diagrams. In this way you can build families of words related in meaning.

Words that can be grouped under a heading (or a more general word) can be drawn as a tree-diagram.

A bubble-network is also useful. You can make it grow in whatever direction you want it to.

Word forks and matrices are good ways of learning collocations.

a)

great	idea
original	
brilliant	

b)

	a program	a computer
to run	+	
to boot		+

2 Organizing by word-class

Making tables for word-classes is a good idea, since you can fill in the gaps over time.

verb	abstract noun(s)	personal noun	adjective	adverb
produce	production productivity	producer	(un)productive	(un)productively

MEANING

1. Match examples with the meanings.

computerize, -se v- 1) to use computers to run sth; 2) to store information on a computer.

1. The firm has computerized its records. 2. The factory has been fully computerized. 3. The data is all held on (the) computer. 4. His computer crashed and he lost the work he was doing. 5. The computers are down. (= not working)

pop-under *adj* – (only before noun) appearing on a computer screen quickly to display an advertisement, etc. behind sth that you are looking at on the Internet:

pop-under ads

pop-up *adj* – (only before noun) appearing on a computer screen quickly to display a list of choices, an advertisement, etc. while you are working on another document:

Select the appropriate item from the pop-up menu.

pop-up *n* [C] – an advertisement that appears in a small window on your computer screen while you are looking at sth else:

The software automatically blocks annoying pop-ups.

2. In what two senses is the word *digital* used in Columns A and B?

A	B
<p>Digital content is so easily stored and distributed that it is difficult to protect.</p> <p>a digital camera/ a digital phone/ digital television</p> <p>a digital broadcast/signal</p> <p>a digital image/photograph</p> <p>digital broadcasting</p> <p>digital technology</p> <p>convert from analogue to digital technology</p>	<p>The company has several digital brands (=products sold on the Internet). People need more computer skills to compete in today's digital economy. The government wants to switch all viewers from analogue to digital by 2020.</p> <p>a digital brand</p> <p>a digital business/company</p> <p>a digital strategy</p> <p>digital marketing/publishing</p>

3. Put the following words into one of the columns according to their meaning. Think of some more examples.

An e-book, an e-document, e-money, e-cash, e-currency, e-goods, e-ticket, e-zine.

E-banking, e-marketing, an e-poll, e business, e-commerce, e-lance work/economy, e-learning, e-recruitment, an e-tailing business, a furniture e-tailer, e-procurement, elancer.

1	2
connected with the use of electronic communication for sending information, doing business, etc. e.g.	stored in electronic form on a disk, microchip, etc. e.g.

Now translate the following sentences.

A

1. Last year our e-sales totalled \$95 billion. 2. The company has decided to move into e-business. 3. E-businesses can fail if they don't have the right kind of security. 4. E-commerce has completely changed the way we buy goods and services. 5. The mail-order firm launched an e-commerce operation last year. 6. Our e-commerce sales have increased significantly. 7. Are you ready to e-lance? 8. E-learning helps workers develop new knowledge and skills. 9. They have a company-wide e-learning programme.

B

1. They offer a service to exchange cash into e-currency. 2. We accept payment by bank transfer or any of the following e-currencies. 3. Under the system, you will be able to store e-money in your mobile-phone account. 4. Customers who book on-line will be issued with an e-ticket. 5. They have introduced e-ticketing for all local flights.

INTERNATIONAL WORDS

International words are words in different languages that have similar spelling and meaning, e.g. computer, printer, scanner, etc.

Semi-international words are pairs of words in two languages that have the same meaning in some, but not all contexts. For example, the word ‘character’ can mean not only the particular combination of qualities that makes someone a particular type of person (as in *Openness is at heart of the American character.*), but also a letter, mark or sign used in writing, printing or on a computer: @, A, \$, etc.

False friends are pairs of words that appear similar but in fact they have different meanings in all contexts. Thus the English word ‘actual’ is used to emphasize that something is real or exact: In actual fact, there is little evidence to support this theory. You should not use ‘actual’ to mean ‘at the present time’. Use ‘current’ or ‘present’ instead: the present owner of the business, the current situation on the IT market.

TERM DEFINITIONS

Texts containing technical terminology are full of various definitions. Study some common ways of giving definitions and explanations:

is/are means is taken to be denotes	is/can be defined as by ... we mean/is meant in other words that is (to say)
--	---

e.g. A computer is an electronic machine. Scanners are input devices. The term computer refers to the CPU and internal memory. A microchip can be defined as a tiny piece of silicon carrying an integrated circuit. By peripherals are meant all those devices attached to the computer.

Definitions can give further distinguishing characteristics by means of a defining relative clause introduced with the following linking words: *who/that* for people, *which/that* for things, *where* for a place or location, *when* for a period of time.

e.g. A computer is an electronic machine which is used for processing information. A programmer is a person who creates programs to solve problems. The ALG is the part of the processor where arithmetic and decision-making operations are done.

Another way of explaining terms is to use a noun, a noun phrase, or a clause separated from the rest of the sentence by dashes or commas.

e.g. Computers – electronic devices for processing information – are used in practically every aspect of life. Turnkey systems, complete hardware and/or software products which are ready for use, are available from many suppliers.

A term definition usually consists of three parts: the term itself, the group it belongs to, and features distinguishing it from other members of the group. Study these examples:

Term to be defined	A system
Group the term belongs to	is a mixture of integrated parts
Distinguishing characteristics	working together to form a useful whole.

1. Analyze the following definitions and identify the different parts.

1. A WAN is a network connected over long-distance telephone lines.
2. A modem is a device which serves a dual purpose because it acts as a modulator and a demodulator.
3. Large computer systems, or mainframes, as they are referred to in the field of computer science, are those computer systems found in installations which process immense amounts of data.
4. The part of the processor which controls data transfers between the various input and output devices is called the control unit.
5. A computer virus – an unwanted program that has entered your system without you knowing about it – has two parts which can be called the infector and the detonator.

2. Read the explanations and examples of use of the following terms; then translate the terms into your native language.

a) fault *n* [C] – sth that is wrong with the machine or system that stops it from working correctly: a technical fault, faults in design

b) fault-finding *n* [U] – the act of looking for faults in sth: We provide computer servicing, fault-finding and repair.

c) fault tolerance *n* [U] – the ability of a computer or a network to continue to work even when there is an unexpected problem with the hardware or software

d) faulty *adj* – not perfect; not working or made correctly: The product was recalled because a part was faulty.

e) feature *n* [C] – sth important, interesting or typical of a thing: The new computer system is much more powerful and has more safety and security features.

feature *v* – to include a particular thing as a special feature: The latest models of notebook computers featured a much larger screen.

4. Explain the difference between the terms and supply an example of their use:

Model: file *n* [C] vs folder *n* [C]

The term ‘file’ denotes a collection of information stored together in a computer, under a particular name: You will find the document on the C-drive in a file called ‘Staff’.

collocations: to access/copy/create/delete/save a file
a computer file, a data file, a text file

folder *n* [C] – a way of organizing and storing computer files: Create a new folder for each topic. The program allows you to organize your emails into folders.

collocations: to create/delete/name/rename a folder; to close/open a folder

1. characteristic *n* [C] vs feature *n* [C], 2. upload *v* vs download *v*, 3. input *v* vs output *v*, 4. on line *adv* vs off line *adv*.

5. Complete the explanations/definitions below.

a) messenger *n* [C] – a computer program that allows ...

collocations: an instant messenger program/service

b) messaging *n* [U] – the activity of sending ..., especially by email or text message

collocations: an electronic messaging system

c) text message/text *n* [C] *syn* sms – a short written message sent to sb using ...

collocations: to get/receive/send a text message; text messaging/texting (informal) *n* [U] – An estimated 70 % of mobile phone owners use their phone for text messaging.

6. What is the difference between these words?

a) junk mail *n* [U] – bulk mail *n* [U] (esp AmE) – spam *n* [U] (informal)

e.g. Many groups are discussing ways to help reduce unsolicited bulk mail. There are filters to block spam from your inbox.

relative words: spam *v*, spamming *n*, spammer *n* [C]

e.g. There are plans to make spammers pay a fine for each item of junk mail they send.

b) utility *n* [C] – kit *n* [C, U] – wizard *n* [C] – unit *n* [C]

e.g. The laser printer is an expensive piece of kit. The computer comes with a starter kit of software. The package uses a wizard to guide you through the testing process. This is the central processing unit of a computer.

SYNONYMS

Study the following words and make up sentences of your own to illustrate their use.

a) hotlink *n* [C] – *syn* hyperlink – a word or phrase in a hypertext document that when selected by mouse or keyboard causes information that has been associated with that word or phrase to be displayed;

e.g. There are hyperlinks to our partners' websites.

collocations: an email with embedded hyperlinks, a hyperlinked set of web pages.

b) voice recognition/speech recognition *n* [U] – a system that allows you to give a computer spoken instructions;

e.g. People who can't use a keyboard can use voice recognition for spoken commands.

collocations: voice recognition programs/software; voice recognition systems/technology

c) virtual memory/storage *n* [U] – a way of providing extra memory for a computer by moving data between the computer's memory and the disk;

d) compress/zip *v* – to make computer files smaller so that they use less space on a disk, etc.; unzip/decompress *v* – to return computer files to their original size after they have been made smaller (=zipped/compressed);

e) job/task *n* [C] – an item of work which is processed by a computer as a single unit; e.g. The job can be processed overnight.

f) drop-down/pull-down *adj* – (only before noun) used to describe a list of choices that appears on a computer screen below the place where you click;

e.g. Choose the 'New picture' option from the drop-down menu.

g) outfit/equip *v* - to provide sb/sth with equipment for a special purpose.

e.g. Our workstations are outfitted with the latest technology.

ANTONYMS

Explain the difference between the opposite terms:

a) download – upload *n, v*: data downloaded from the Internet; a popular download from bulletin boards;

e.g. You can look at one site while another is downloading.

The software is downloadable for free from the Web.

You can upload an image directly from a digital camera.

You can make future uploads easier if you tick 'Save Password' box.

b) high-tech/hi tech – low-tech *adj*

e.g. Today's clothing industry is very high-tech and computerized. Initially production was low-tech. They produced low-tech toys for kids.

c) encrypt – decrypt *v*

e.g. The system encrypts your email so that only the intended receiver can read it.

d) virtual – physical *adj*: the success of the virtual bookstore; a virtual assistant/team/worker;

e.g. We hold meetings that are part physical and part virtual – 20 people are in the room and 40 in their offices.

e) valid – invalid *adj*: a valid password;

f) uptime – downtime *n* [U]

e.g. We aim to achieve at least 99% uptime. A high percentage of system downtime is caused by software failure. The downtime results in loss production.

g) up – down *adj*

e.g. Our system should be up again by this afternoon. The system was down all morning.

h) connect – disconnect *v*

e.g. Disconnect the modem from the computer. I keep getting disconnected when I'm on the Web. My computer crashes all the time I disconnect from the Internet. We were suddenly disconnected. There can be a disconnect between boardrooms and IT departments when it comes to technology.

IDIOMS

Study the following idioms and try to guess their meaning from context.

make a killing (informal): The company made a killing by inventing the CD.

in operation: The system has been in operation for six months.

put into operation: It's time to put our plans of re-equipment into operation.

up and running (about a system): It will be a lot easier when we have the database up and running.

five nines *n* [U]: Most telephone companies are able to offer the five nines – or 99.999% reliability.

WORD FAMILIES AND COMPOUND WORDS

1. Study the following word family. This is one of the ways of arranging new words in a vocabulary notebook.

term	definition	example
key	<i>n</i> [C] any of the buttons that you press to operate a computer	Press the escape key to quit the program.
key sth (in); key sth (into sth)	<i>v, syn</i> enter – to put information into a computer using a keyboard	Key (in) your password.
keyboard	<i>n</i> the set of keys for operating a computer, etc.; <i>v</i> to type information into a computer	
keypad	<i>n</i> [C] the buttons on the right of the computer keyboard	Please press star on your keypad.

2. Now think of the best way to arrange this information in your vocabulary notebook.

COMPUTER: to boot up/log into/reboot/restart/start up a computer
to log off/shut down a computer

computer applications /files / games / hardware / programs / software

a computer network/system

computer-aided (or computer-assisted) design/engineering/manufacturing

computer-aided (or computer-assisted) learning

computer analyst/systems analyst – a person whose job is to analyse the needs of an organisation and then design processes for working efficiently using computer programs.

computerate=computer-literate

computer-based training

a graduate in computer science

a computer-generated image of a bridge

e.g. Computer-generated presentations have become very popular. The data is all held on (the) computer. His computer crashed and he lost the work he was doing.

The computers are down. (=not working)

WEB:

the World Wide Web/the Web/ WWW – a multimedia system of sound, pictures and video for finding information on the Internet: to browse a site on the Web

web address/URL: I must have typed in the wrong web address.

webinar =web-based seminar

webcast – a live broadcast that is sent out on the Internet: The event will be viewable via a webcast. He works as a web designer.

web development

web hosting business/company/group/activities/services

web log file

web page

webmaster – a person who is responsible for particular pages of information on the Web.

web site

e.g. Customers can visit our website to see the progress of their orders. Details of all our products are available on our website. Our website address is <http://www.oup.com>.

to log into/log onto/look at/visit a website

to build/create/design/develop/make/set up a website

a company/ an e-commerce/ a group/ an office website

MAIL:

mailbox *n* [C] – an area of a computer's memory where email messages for a particular user are stored:

e.g. They limit the size of your mailbox to 20 MB.

mailing list *n* [C] – a list of names and email addresses kept on your computer so that you can send a message to a number of people at the same time:

e.g. The software makes it easy to build a mailing list.

mail merge *n* [U] – the process by which names and addresses are automatically added to a document on a computer, so that the same letter can be sent to many people.

mail-merge *v*: a mail-merged document

3. Complete the lists by adding some more examples of collocations with the words in bold type.

1) **data** *n* [U] – information that is stored by a computer;

to access/enter/process/retrieve/store **data**;

data management/processing/retrieval/storage.

2) **databank** *n* [C] – a large amount of data on a particular subject that is stored in a computer;

establish a **databank** of customers

a pay **databank**

3) **database** *n* [C] – an organized set of data that is stored in a computer and can be looked at and used in various ways;

to build/create/establish/set up a **database**;

to add to/store sth in/maintain/manage/update/use a **database**;

database marketing, a client/customer **database**;

a central/ an online **database**

4. Study the following terms and give your own examples of their use.

data capture *n* [U] – the process of putting information into a computer system:

e.g. We use a portable bar-code scanner for the data capture. a data-capture system

data centre *n* [C] – a safe place at which a number of computers that store or process data are kept:

e.g. Backups of all our data are transferred to a secure data centre.

data entry *n* [U] – the work of putting information into a computer, for example from paper documents:

e.g. I've got a new job doing data entry for a mail-order company. Data entry clerks were paid by how fast they could key data.

data mining *n* [U] – using software to look at large amounts of information that has been collected on a computer and find new patterns, etc:

e.g. Credit-card companies can use data mining to detect fraud (=the crime of deceiving sb in order to get money or things illegally), by looking for unusual spending patterns.

data processing *n* [U] – a series of actions that a computer performs on data to analyse and organize it; the part of a company where this is done: the people in accounting and data processing

data protection *n* [U] – legal restrictions that keep information stored on computers private and that control who can read it or use it: a breach of the Data Protection Act

e.g. In terms of the data protection laws, you can find out what information the company has about you.

data warehouse *n* [C] – a collection of business information, for example about costs and profits, that a company keeps on a single computer system, so it can be analysed and used to make decisions:

e.g. The firm built a data warehouse to help improve financial management.

WORD FORMATION

There are various ways of building new words in the English language: conversion, abbreviations, blending, compounding, affixation.

Conversion is a way of word-building when words that originate in one part of speech are converted to another part of speech, e.g. upload *n/v*, online *adv/adj*, back *n/adj/adv/v*.

filter *n*: You can set up filters to manage your incoming and outgoing emails. We use a web filter to block access to certain websites.

filter *v*: The program filters web pages for unsuitable contents. Incoming emails are filtered into different mail boxes based on their subject.

pirate *n* [C] – a person who makes illegal copies of video tapes, computer programs, books, etc. in order to sell them: pirate copies of CDs, software pirates

pirate *v* – to copy and use or sell a product without permission and without having the right to do so: pirated computer games

Translate these sentences. Pay attention to the words in bold type.

1. Our thoughts have been occupied with **ups** and **downs** of the project.
2. I won't go into **whys**, **whats** and **hows**. All I want is that the equipment is **up** again as soon as possible.
3. His appointment was **timed** for 11 o'clock.
4. When are we going **to face** the facts?
5. I don't think they will be able **to stomach** the news.
6. He wanted to explain the situation to the boss but wasn't allowed **a say** for one single minute.
7. Should I **empty** the basket?
8. They made a vain attempt **to better** the program.
9. Let me try **to smooth** the difficulties.
10. If you are planning to take part in the next week's conference, you'd better **book** the tickets today.

Abbreviations are the shortening of words or phrases. There are five basic types of abbreviation. Three of them are used for abbreviating a single word.

1) The first type consists of the first letter of the word; when read aloud, it is usually pronounced like the full word, e.g. m – metre, p – page (plural form pp – pages).

2) The second type consists of the first few letters of the word; when read aloud, it is usually pronounced like the full word, e.g. cont. – continued, vol. – volume.

3) The third type consists of the word with several letters missed out; when read aloud, it is usually pronounced like the full word, e.g. dept – department, jct – junction, kW – kilowatt. Some abbreviations of these type have capital letters, then each letter is said separately, e.g. TV – television, HQ – headquarters.

4) The fourth type consists of the first letter of each word; when read aloud, each letter is said separately, with the main stress on the last letter, e.g. CD – compact disk, VIP – very important person, rpm – revolutions per minute.

5) The fifth type, called an acronym, uses the first letter of each word to form a new word; it is usually pronounced as a word, e.g. BASIC = Beginner's All-purpose Symbolic Instruction Code, TEFL - teaching English as a foreign language.

Sometimes abbreviations have more than one meaning, e.g. PC – personal computer, politically correct, m – metre, mile, million. Some abbreviations are common in writing, especially in emails: FYI – for your information; e.g. – for example; i.e. – that is; 2 – to, two, too; asap – as soon as possible.

1. How are these abbreviations pronounced? What do they stand for?

Model: dpi – dots per inch, e.g. a 600 dpi laser printer

Sci-fi, high tech, VDT (AmE), P2P (p2p, P-to-P), killer app, NO, DOS.

2. Decipher the following abbreviations and supply your example of use.

Model: WAN=wide area network – a number of computers and other devices that are far apart but are connected together so that equipment and information can be shared, e.g. Gathering market information can be done over a WAN.

HTML, HTTP, WP, LAN, WAP, VR, URL, CAM, OCR.

Blending is a way of forming words by combining parts of two words, e.g. motel – motor hotel, heliport – helicopter airport.

What words were combined to make these blends? What do they mean?

Model: webzine – an electronic magazine (for computer users)

Infomercial, infomercials, infotainment, educainment, cybrary, funtastic, docusoap, guesstimate, webinar, telematics, ginormous, vlogger, netiquette.

Compound words (nouns, adjectives, verbs) are formed by combining two or more roots, e.g. career-minded people, additive-free food. A compound noun is a fixed expression which is made up of more than one word and functions as a noun. Compound nouns can be written as two words, e.g. assembly line, with a hyphen, e.g. data-processing; as one word, e.g. cellphone.

Compound nouns can be countable (a credit card), uncountable (mail order) or only used in either the singular (brain drain) or the plural (traffic lights). A compound adjective as an adjective which is made up of two parts and is usually written with a hyphen, e.g. never-ending, well-done. The second part of the compound adjective is frequently a participle, e.g. first-hand knowledge, long-distance call, time-consuming processes, remote-controlled devices, machine-readable passwords. Another special group of compound adjectives are those where the second part is a preposition, e.g. a broken-down vehicle.

1. What is the difference between these terms?

Model: Hardware is the machinery and electronic parts of a computer system, while software is the programs used to operate a computer.
firmware, freeware, groupware, shareware, vapourware, shovelware

2. Fill each of the blanks to form a compound adjective.

top	computer	user	non	flat
-----	----------	------	-----	------

- The email feature has been made more ... -friendly.
- They provide a ... -notch aftersales service.
- We have sold a lot of ... -screened TVs that year.
- Email messages from ... -approved addresses will be placed in quarantine.
- My area of expertise (=what I have expert knowledge of and skill in) is ... -aided design.

Affixation (=using prefixes and suffixes) is a most productive way of building new words in English, e.g. predictable results, underestimate the consequences.

1. Study the following word families and translate the sentences that illustrate their use.

function *n* [C] a part of a program, etc. that carries a basic operation:
the function keys

functional *adj* 1) working; able to do the job for which it is intended:
The device is a fully functional computer. The system is only 80% functional.

2) practical and useful, often with little or no decoration: The design is simple and functional.

functionally *adv*: Both versions of the software are visually and functionally similar.

functionality *n* [U,C] 1) the range of functions that an electronic system can perform: People generally use only 10% of a program's functionality. All mobile phones now have email functionality. 2) [U] the quality in sth of being very suitable for the purpose it was designed for: We carry out extensive tests to prove the functionality and reliability of the system.

1. The following prefixes are used to form words with negative or opposite meanings: *a-*, *anti-*, *contra-*, *counter-*, *de-*, *dis-*, *un-*, *non-*, *in-*, *il-*, *im-*, *ir-*, *ill-*, *mal-*, *non-*, *mis-*. Look at the lists of words given below. Choose the right prefix for each list and translate the words into your native language.

- a) calculate, direct, information, interpret, management, place, print, use, lead;
- b) typical, formal;
- c) adapted, chosen, designed, equipped, informed, prepared, timed;
- d) burglar, car-thief, fraud, clockwise;
- e) connect, continue, mount, place, use, satisfied, advantage, order, similar, integrate;
- f) ability, adequate, audible, capable, comprehensible, security;
- g) act, measure, plan, proposal;
- h) classify, compression, bug, cipher, skill, form;
- i) regular, relevant, replaceable, responsible;
- j) change, competitive, essential, problem;
- k) diction, flow;
- l) adjusted, distribution, function, treatment;
- m) legal, legitimate, literate, logical;
- n) perceptible, perfect, practical, probable.
- o) acceptable, alterable, predictable, acceptability, interrupted, tested, plug, damaged, needed, learn, screw.

2. The suffixes in the following list combine with nouns and verbs

a) that refer to people and their occupations, professions or nationalities: *-ant, -ent, -er, -or, -ist, -ian, -ee, -ess, -ese*;

b) that refer to things: *-ant, -ent, -er, -or* . Using one of these suffixes form the corresponding nouns from the words given below

A	<p><i>-ant</i>: apply, assist, consult, participate;</p> <p><i>-ent</i>: correspond, depend, study, respond;</p> <p><i>-er</i>: employ, lead, lecture, manage, observe, program, research;</p> <p><i>-or</i>: administrate, advise, compete, coordinate, create, distribute, instruct, invent, investigate, invest, manipulator, operate, supervise;</p>	<p><i>-ist</i>: cycle, journal,</p> <p><i>-ian</i>: politics, technics, physics, mathematics;</p> <p><i>-arian</i>: library, parliament;</p> <p><i>-ee</i>: address, employ, examine, interview, train;</p> <p><i>-ess</i>: author, manager;</p> <p><i>-ese</i>: China, Japan, Lebanon, Portugal, Vietnam;</p>
B	<p><i>-ant</i>: accelerate, determine, pollute;</p> <p><i>-er</i>: compute, blend, cook, hold, mix, print, record, receive;</p>	<p><i>-or</i>: calculate, compress, detect, elevate, react.</p>

3. The following suffixes combine with verbs to form adjectives:

***-able/-ible, -ant, -ent, -ed, -ful, -ive, -ing*. Form the appropriate adjective from each of the following verbs:**

Accept, dominate, harm, access, differ, construct, qualify, convert, help, use, predict, create, depend, abound, vary, identify, compete, exist, interest, recur.

4. The suffixes in the following list are used to form nouns that refer to an activity, a process, a state or condition: *-al, -ance/-ence, -cy, -dom, -hood, -ing, -(at)ion, ism, -ity, -ment, -ness, -ship, -ure*. Use these suffixes to form the corresponding nouns from the words given.

Proficient, assess, renew, guide, replace, popular, fail, owner, attractive, real, wise, conclude, acknowledge, accurate, partner, creative, criticize, equal, insufficient, citizen, press, explain, possess, relation, aware, attach, student.

5. These suffixes combine with nouns and adjectives to form other adjectives: -able/-ible, -(ic)al, -ary, -ful, -ic, -ish, -ive, -ous (-eous, -ious, -uous), -y, -ular, -less. What do these words mean in your native language?

Knowledgeable, practicable, available, compatible, feasible, flexible, reversible.

Accidental, additional, conventional, experimental, global, mechanical, professional, vocational, technological.

Fragmentary, precautionary, probationary, secondary, supplementary.

Forceful, powerful, successful, fruitful, lawful.

Magnetic, photographic, symbolic, automatic, graphic, periodic.

Amateurish, oldish, smallish, biggish, whitish, greenish; Swedish, Spanish, Scottish.

Effective, massive, productive, excessive, extensive, intensive

Advantageous, ambiguous, ambitious, anonymous, cautious, continuous, dangerous, enormous, famous, obvious, previous, serious, simultaneous, various.

Dirty, dusty, mighty, sketchy, worthy, greeny, pinky, handy, roomy.

Cellular, modular, molecular, circular, angular, rectangular, quadrangular, tabular, triangular.

Endless, flawless, helpless, powerless, spotless.

6. The suffixes -en, -(i)fy, -ize combine with nouns and adjectives to form verbs. Look at the following list of words and form the corresponding verbs.

Class, broad, rational, ample, emphasis, length, identity, symbol, less, false, specifics, light, economy, quick, diversity, sharp, short, general, simple, strength, tight, intensity, weak, standard, character, wide, summary, worse, special, modern, stable, industry.

7. These suffixes are used to form adverbs: -ly, -most -ward(s), -wide, -wise. Translate the adverbs below into your native language.

-ly: clearly, directly, easily, equally, exactly, finally, frequently, gradually, immediately, normally, perfectly, properly; daily, quarterly, yearly, hourly, monthly, weekly.

-most: topmost, uppermost, lowermost.

-ward, -wards: backward(s), downward(s), inward(s), onward(s), upward(s), outward(s), afterward(s), forward, toward(s).

-wide: area-wide, countrywide, nationwide, industry-wide, system-wide, worldwide.

-wise: clockwise, anti-clockwise, machine-wise, step-wise, crosswise, lengthwise.

8. Study the list of words below and group them into the classes they belong to: *nouns, verbs, adjectives, or adverbs*. Which of these words have a negative meaning?

Imperfection, marvelous, frequently, apologize, unpredictable, upwards, satisfy, acquaintanceship, hostess, investigator, boredom, proficiency, immaturity, non-residential, mismanagement, distrustful, openness, unwillingly, disadvantage, identify, harmfully, feasible, guidance, displeasure, educationalist, lessen, artistic, illiteracy, adulthood, thoughtless, youngish, untidy, delivery, comprehensive, accessible, irregularity, employee, childish, researcher, accidental, enlarge, indifference.

9. Divide the following words into two groups depending on the class (part of speech) they belong to (*nouns or adjectives*):

1) *-ant*: accountant, constant, instant, redundant, inhabitant, dependant, immigrant, relevant, significant, vacant, servant, tolerant, applicant, assistant, dominant, immigrant, attendant, elegant, extravagant, ignorant, important, pleasant, distant, descendant, contestant, emigrant, consultant, informant, pollutant, reluctant;

2) *-al*: additional, arrival, conventional, educational, denial, approval, experimental, global, institutional, withdrawal, national, renewal, original, political, signal, statistical, traditional, removal, vocational;

3) *-ary*: arbitrary, boundary, anniversary, auxiliary, honorary, centenary, imaginary, legendary, commentary, summary, library, voluntary, missionary, secondary, monetary, fragmentary, extraordinary, literary, temporary, dictionary, itinerary, beneficiary, intermediary, preliminary, primary, contemporary, contrary, secretary.

PART II
TEXT 1

These Gadgets Could Transform the Lives of Visually Impaired People

by Emma Kennedy

1. Read the article and decide whether the following statements are True or False.

1. The number of people who have eyesight problems exceeds 200 million.
2. It was impossible for Mario Percinic to perform financial operations without outside help.
3. eSight converts textual information into words.
4. The OrCam MyEye 2.0 supports more than 20 languages.
5. Devices for visually impaired people include both smart phones and wearable technology.

A wave of new technology could soon improve everyday life for many of the 250 million people with impaired vision. “Years ago, I couldn’t do financial things without help,” said Mario Percinic, a blind IT professional and accessibility expert. “Now I use a screen reader with my online banking,” said Percinic, who co-hosts a podcast on technology and accessibility called EBU Access Cast.

Apps, including one that recognizes money, are an essential part of Percinic’s everyday life, and he believes smart phones are “one piece of technology that a person with disabilities can’t live without.” And smart phones look set to continue to offer new services to people with vision impairment.

London-based not-for-profit Wayfinder, a subsidiary of the Royal Society for Blind Children (RSBC), has developed a benchmark standard for using mobile devices to help people navigate indoor spaces. Using these guidelines, Wayfinder works with transport providers, shopping malls and visitor attractions to help them introduce “turn by turn indoor navigation” to ensure independent mobility for visually impaired people. “It’s the same principle as using GPS for

your car,” said Tiernan Kenny, head of communications, public affairs and standards at Wayfinder.

Wave of wearables

Beyond smart phones, new wearable technology could prove life-changing for visually impaired people.

Israeli company OrCam launched the second iteration of its device to aid visually impaired people late last year.

The OrCam MyEye 2.0, which weighs just 22 grams, is a wearable device that clips on to any pair of glasses. Its smart camera captures text information, barcodes and faces and converts the information instantly to words spoken into the user’s ear. The device supports almost 20 languages, retails for about \$4,500 and is currently available in more than 20 countries. For some of the “tens of thousands of users,” the costs are covered, or partially covered, by insurers or veteran’s organizations, explained OrCam’s chief executive and co-founder Ziv Aviram.

Aviram said that the device can also recognize money, bus numbers and colors. “It is all done real-time and offline, therefore our users have full privacy,” he said.

OrCam plans to introduce a speech to text function later this year. “Users will be able to ask the device questions, ask it to find specific information in a newspaper for example, or ask it to just read the headlines,” Aviram said. “They’ll be able to point to a menu and ask the device what type of food is available.”

A level playing field

Canadian company eSight launched its vision assistance headset last year. “It is designed to be used just like a pair of glasses, with the user choosing when to wear the device,” explained Jeff Fenton, eSight’s director of outreach and communications.

The device is mounted with a digital camera that captures live footage and presents it in front of the user’s eyes. It sells for \$9,995, but eSight offers payment options and an affordability program to help more people access the device.

“Everything you need is in the device. There’s no need to connect to the internet to use it,” Fenton said, adding that the device does not collect user data.

“This sort of technology really levels the playing field for visually impaired people,” he said.

from CNN Money

2. Read the article again and answer the following questions.

1. What apps have improved Mario Percinic’s life?
2. What company has developed standards for using mobile devices to help blind people?
3. What are the benefits of OrCam MyEye 2.0 made by an Israeli company?
4. What is eSight’s contribution to devices for visually impaired people?
5. Are the prices for devices for visually impaired people affordable?

3. Write an essay giving possible solutions to the problem of integrating visually impaired people with the help of modern gadgets.

TEXT 2

How 5G Could Change Everything from Music to Medicine

by Katy Scott

1. Read the article and decide whether the following statements are *True or False*.

1. A group of scientists thinks it is possible to transfer physical skills via the Internet.
2. Surgeons have already performed operations using haptic gloves.
3. Using 5G in remote surgery removes delays.
4. Future pianists will be able to learn playing the piano by downloading the necessary information from the web.
5. The creators of this technology believe it is absolutely harmless.

5G is going to be a really big deal. The lightning quick next generation wireless technology is expected to power self-driving cars, virtual reality, smart cities and networked robots. But what else can it do?

Ericsson has joined up with researchers from King's College London to dream up futuristic applications for 5G. They're looking at everything from music to medicine. The team is focused on using the technology to transfer physical skills across networks, creating something they call the "Internet of Skills."

One example: A surgeon with virtual reality equipment and haptic gloves, which sense motion and pressure, could operate on a patient on the other side of the world via a robot.

Remote surgery has been possible for a while, but 5G speeds should eliminate all delays and lag. That means the surgeon could get instant feedback via the gloves. "With 5G and the new networking architecture we're building, we're hoping to get this delay down to just the speed of light," said Mischa Dohler, a professor of wireless communications at King's College.

Dohler, who moonlights as a composer and pianist, also plans to digitize his piano skills and teach people remotely to master the instrument.

Haptic gloves can be used to track and record the movement of Dohler's fingers, and the position of his hands. The data would be stored on the skills database, ready to be downloaded by an aspiring pianist. "They would download that in real time onto an exoskeleton, which would start to move their fingers until the muscle memory is trained," said Dohler. "They could actually practice their muscle memory anywhere they want," he added.

Dohler also imagines a surgeon could upload their skills to a database to train students around the world. But he said it might take another decade for this "Internet of Skills" to be fully functional. "We need to get security rights and the best practice of this technology right, because the moment you start moving things on the other side of the planet, you can do a lot of harm," he said.

2. Read the article again and answer the following questions.

1. How can 5G change the way surgeons operate?
2. What can help people learn to play the piano via the Internet?
3. What is the function of haptic gloves?
4. How long might it take to create the "Internet of Skills"?
5. Why is security important before the "Internet of Skills" works at full capacity?

from CNN Money

3. Write a “for and against” essay to consider the potential of traditional surgery and remote surgery.

TEXT 3

The Sound of Secrets

1. Read the article and decide whether the following statements are *True or False*.

1. A shield of a conversational system is made of metal.
2. Special bubbles are built into loudspeakers and sensors to prevent you from being listened to.
3. Special software reproduces a set of chaotic sounds to prevent people from being listened to.
4. The sound bubble protecting people from being listened to is freely movable.
5. The human’s ear identifies no sound at all when air pressure becomes normal.

Shhh, it’s a secret! Who knows who could be listening? There are many occasions when you might want to keep something a secret, from national security to business confidentiality.

Researchers at the MIT Media Lab in the US have applied for a patent on a new way to keep secrets in the office. Called a conversational shield, the system works by having your office filled with hidden loudspeakers and sensors, perhaps built into the ducts that carry the power for computers round the office. If you are worried that what you’re saying is better kept a secret you can simply call up your sound bubble to conceal your chat.

Building a sound bubble

Software locates all the other people in the office who are within earshot and then plays a masking sound through the loudspeakers closest to them. This masking sound can be a combination of general office background sounds mixed with white noise, a kind of special hiss that’s good for covering sounds up but is rather annoying on its own. The researchers found that this bubble of

masking sound greatly reduces the ability of any potential eavesdroppers to make out what is being said.

Moving on

Better still, your sound bubble can move with you. As you wander through the office the smart software can ensure that the area of masking sound follows, switching on loudspeakers to frustrate any new eavesdroppers who have moved into range. Your bubble is exactly where it's needed for maximum effect.

The conversation shield is one example of using audio technologies to help keep things secret, but there are other technologies that can be used in improving the world around us. This technology is called antisound. It works by canceling out soundwaves. Sound is a pressure wave in the air – when we speak, for example, the vibrations from our mouths either increase or decrease the air pressure. These puffs then travel through the atmosphere to the ears of others, who are able to detect the changes in pressure. The brain decodes them back into speech. With antisound we want to make this noise vanish!

Nothing to hear here

To create antisound is simple. You record the sound that's being produced then quickly play it back, but sneakily you invert it: the loud bits get soft and the soft bits get loud. The sound and the antisound pressure waves mix, and where the original sound wave had a high-pressure area, there is a corresponding antisound low-pressure area. When combined, the two produce an area of normal pressure. Normal air pressure is, well, it's just air. Nothing to hear here.

Sound can be horrible, pleasant or even secret. Today we are able to use digital technologies to capture sound waves and manipulate them in real time. This gives us new ways to change the soundscape around us and create new ways to listen (or not, as the case may be). Through understanding how to manipulate one of our basic senses, hearing, researchers can change our world.

2. Read the article again and answer the following questions.

1. What is the purpose of the technologies discussed in the article?
2. How many sound masking technologies have been discussed in the article?
3. How does a conversational shield work?

4. What is the working principle of an antisound system?
5. What are the possible areas where sound manipulating technologies could be effectively used?

from www.cs4fn.org (Queen Mary University of London)

3. Write an opinion essay to discuss the necessity of the technologies described in the text.

TEXT 4

The Red Special: Creating Your Own Unique Sound

1. Read the article and decide whether the following statements are *True or False*.

1. One of the reasons Brian May made the guitar himself was that he didn't have enough money to buy an electric guitar.
2. May bought the parts for the guitar in a motorbike shop.
3. May adapted the ready-made pickup for his special purposes.
4. May's Red Special is easily tuned.
5. Everybody can buy Red Special if he's got a lot of money.

What does it take to get started on the road to being a major rock star? Some skill in singing or playing an instrument and a unique sound, of course, but an interest in electronics might help too. That's what got Brian May of Queen up and running.

His guitar, 'the Red Special', was unique. It defined his style and he has used it when recording and touring throughout his career. He didn't buy it though. He made it himself with help from his dad. You could make your own electronic instrument too if you wanted...

Brian May decided to make an electric guitar partly because he couldn't afford to buy one and partly for the fun of it. He wanted one with a unique sound that was better than anything that existed at the time.

What do you need to make a serious musical instrument? Well, for May's the parts were scavenged from junk and things around the house. The wooden

parts were from a mantelpiece being thrown out, so his guitar comes complete with wormholes. He also used bits of shelf edging, a knife for the tremolo, some old motorbike springs, a knitting needle and some bits from a bike! For the electronics he adapted bought circuitry, such as using a commercial pickup that he modified to improve it.

A pickup is a gadget that converts the vibration of the strings into an electrical signal that can then be amplified. It's essentially just an electromagnet made of a coil of wire round a permanent magnet. When the string (a metal wire) vibrates nearby it affects the magnetic field of the magnet and that changing field creates a current in the coil. For the Red Special, May rewound the coil and covered it in glue as a way of reducing unwanted noise generated by the pickup, leaving just the good sounds.

As it's partially hollow, the Red Special is a semi-acoustic guitar that gave him a new sound. It was more tunable with more sounds than anything else out there at the time and also allowed him to control the feedback effects guitarists like Jimi Hendrix were having to force from their guitars.

You can now buy a replica Red Special if you have the money, but then that sound is no longer unique, of course. You'd need a more novel instrument to do that. May had help from his father to make his. If you want to have a go at making your own novel electronic instrument and need help getting started, why not have a go at making our Arduinitar first: an electric guitar with a difference (<https://www.eecs.qmul.ac.uk/~andrewm/arduinitar.html>). After that you could perhaps experiment and build something of your own design that has a completely new sound. Rock stardom may then be in sight. You will just then need to put in the hours and hours of practice to become a virtuoso musician.

www.cs4fn.org (Queen Mary University of London)

2. Read the article and answer the following questions.

1. Why is Red Special considered to be unique?
2. Where did Brian May get the parts for his hand made guitar?
3. How does a pickup work?
4. Why is Red Special considered to be a semi-acoustic guitar?
5. What is the purpose of Augmented Instruments Laboratory?

3. Write a for and against essay discussing the pros and cons of creating your own musical instruments.

TEXT 5

Can You Hear That Diagram?

1. Read the article and decide whether the following statements are *True or False*.

1. Listening to diagrams and feeling sounds is nonsense.
2. There are a lot of technologies helping visually impaired people to work with information.
3. The diagram editor transforms visual information into sound.
4. The flowcharts, circuit diagrams, tube maps, mind maps, etc. are represented by coloured chalks on a chalk board in order visually impaired people could see them clearly.
5. The shape of geometric figures is conveyed by means of short and long sounds of different pitch.

What does a diagram sound like? What does the shape of a sound feel like? At first sight listening to diagrams and feeling sounds might sound like nonsense, but for people who are visually impaired it is a practical issue. Even if you can't see words, you can still listen to them, after all. Audiobooks were originally intended for partially-sighted people, before we all realised how useful they were. Screen readers similarly read out the words on a computer screen making the web and other programs accessible. Blind people can also use touch to read. That is essentially all Braille is: replacing letters with raised patterns you can feel.

The written world is full of more than just words though. There are tables and diagrams, pictures and charts. How does a partially-sighted person deal with them?

The solution is a diagram editor with a difference. It allows people to edit 'node-and-link' diagrams. The diagram editor converts the graphical part of a diagram, such as shapes and positions, into sounds you can listen to and textured

surfaces you can feel. It allows people to work together exploring and editing a variety of diagrams including flowcharts, circuit diagrams, tube maps, mind maps, organisation charts and software engineering diagrams. Each person, whether fully sighted or not, ‘views’ the diagram in the way that works for them. The tool combines speech and non-speech sounds to display a diagram. For example, when the label of a node is spoken, it is accompanied by a bubble bursting sound if it’s a circle, and a wooden sound if it’s a square. The labels of highlighted nodes are spoken with a higher pitched voice to show that they are highlighted. Different types of links are also displayed using different sounds to match their life style. For example, the sound of a straight line is smoother than that of a dashed line. The idea for arrows came from listening to one being drawn on a chalk board. They are displayed using a short and a long sound where the short sound represents the arrow head, and the long sound represents its tail. Changing the order they are presented changes the direction of the arrow: either pointing towards or away from the node. For the touch part, the team use a PHANTOM Omni haptic device, which is a robotic arm attached to a stylus that can be programmed to simulate feeling 3D shapes, textures and forces. For example, in the diagram editor nodes have a magnetic effect: if you move the stylus close to one the stylus gets pulled towards it. You can grab a node and move it to another location, and when you do, a spring like effect is applied to simulate dragging. If you let it go, the node springs back to its original location. Sound and touch are also integrated to reinforce each other. As you drag a node, you hear a chain-like sound (like dragging a metal ball chained to a prisoner!). When you drop it in a new location, you hear the sound of a dart hitting a dart board.

www.cs4fn.org (Queen Mary University of London)

2. Read the article and answer the following questions.

1. In which way sound technologies help partially-sighted and even blind people?
2. How does the diagram editor work?
3. How do different types of graphical images sound?
4. What is the purpose of PHANTOM Omni haptic device?
5. How does it work?

3. Write an essay giving possible solutions to the problem of integrating visually impaired people with the help of modern technologies.

TEXT 6

Flip Side to the Coin

1. Read the article and decide whether the following statements are True or False.

1. Information technologies change the concepts of death of a human.
2. Projects like LiveOn are aimed at quitting twitter accounts after death.
3. Synthespian is a digital reproduction or a replica of an actor.
4. Special people are assigned to manage the dead people online activity traces.
5. Headstones with QR codes are built to maintain appropriate pressure and humidity in the graves.

Back (page) from the dead

We all know that eventually everyone dies, but it's what we do with our life that counts. Computer scientists are starting to look at ways that they can make death just that little bit different, reshaping the one fixed point in human existence, and sometimes in rather strange ways. RIP can go from 'Rest In Peace' to 'Right, Investigate Possibilities'!

Twitter from beyond

Social networks are a vital part of many people's lives, but what happens when you're dead? Do your tweets need to stop? Does the world need to lose your views? Well no, according to the LiveOn project. It aims to create an artificial intelligence program that learns how you tweet, and the sorts of things you tweet about, like and dislike, and can continue to mimic your online presence even after you depart this earth. As their slogan says, "When your heart stops beating, you'll keep tweeting". RIP = Replicating Individuals Preferences

Dead actors: I'll be back!

Today's computer graphics can help dead actors rise again. Research is being undertaken to generate lifelike synthespian: synthetic actors who look and act like the real thing. Using old movie footage computer systems can learn

the shapes of actors' faces, their characteristic movements and even their voice patterns. This process of digital cloning is often referred to as Schwarzeneggerization, after the idea was first introduced in a book where a customer asked that Arnold Schwarzenegger be digitally substituted to replace other actors in classic films. There was, not surprisingly, concern about how these resurrected characters could be used. RIP = Relive Innovative Performances

The afterlife

We live our lives in the cloud. Our photos, blogs, and so on live on the Internet, protected by our passwords. But what happens to all of this intellectual property when we die? Google has thought about this. They are providing a service that will send your login and password details to a chosen person in case your online activity stops for too long, which they consider indicates you are dead. This way someone else can look after all your lovely images and ideas, keeping them safe for the future RIP = Repurpose Intellectual Property.

Grave situations

When Chinese computer fan Hu Chuang died, his parents decided to commemorate his love of computing in a novel way. His headstone was carved in the form of a computer and monitor. It even included a mouse. This isn't the first time that graves have incorporated a love of technology. There are headstones that carry QR codes you can scan to be taken to a memorial website to find out more about the occupant. But to get even more personal, people have been buried with their mobile phones. In the days before wireless, some were buried with phone lines running to their coffins, in case of premature burial. They never called back though. Wonder why...RIP = Really, I've Passed?

from www.cs4fn.org (Queen Mary University of London)

2. Read the article and answer the following questions.

1. What is the purpose of the LiveOn project?
2. How can the idea of digital cloning be realized?
3. Can there be any ethical problems in digital cloning of famous actors?
4. What problems can you see in after life management of people's accounts?
5. Have the grave situations described in the last paragraph surprised you?

3. Write an opinion essay to discuss ethical aspects of cloning a human being.

TESTS

Read the following texts and answer the questions.

I

The Rise and Fall of Working From Home

By Rebecca Greenfield

Last year, Richard Laermer decided to let his employees work from home on a regular basis. “We hire adults, they shouldn’t be tied to the office five days a week,” said Laermer, who owns a New York-based public relations firm. “I always assumed that you can get your work done anywhere, as long as you actually get it done.”

Turns out, he was wrong.

Employees took advantage of the perk, Laermer said. One was unavailable for hours at a time. Another wouldn’t communicate with co-workers all day, which Laermer found suspicious. The last straw, he said, was when someone refused to come in for a meeting because she had plans to go to the Hamptons. “That was the most unbelievably nervy thing I’d heard in years,” he said.

Ten months in, he scrapped the benefit and now requires all of his employees to come into the office every day.

While telecommuting, the umbrella term for any work occurring outside the traditional office, has ballooned over the last 20 years, some offices are rethinking overly broad policies. Flexible work remains popular at many organizations, but most companies want workers at work at least some – if not most – of the time. More than 60 percent of organizations surveyed by the Society of Human Resource Management said they allow some type of telecommuting. But telecommuting comes in many flavors, and 77 percent of organizations don’t let people work from home on a full-time basis. Most

employers allow ad-hoc remote work for the person who needs to stay home for the plumber or wait for a package.

Technology such as chat programs and collaboration software made remote work feasible for many white collar workers in the last couple of decades. Employees love flexibility, often rating it high on benefits surveys. Parents in particular say it's "extremely important", a 2013 Pew survey found. Researchers have argued that unconventional work hours could even help close the pay gap. In a bid to attract and retain employees – and cut down on real estate costs – companies permitted more remote work, and employees took advantage.

At the same time, work has also become more team-based. Only 38 percent of companies are "functionally" organized today with workers grouped together by job type, a 2016 Deloitte survey found. Most comprise collaborative groups that shift depending on the work. Deloitte found that one California organization was made up of over 30,000 constantly shifting teams. "I think that's why we're seeing remote work come back in," said Erica Volini, a U.S. Human Capital Leader at Deloitte. "In order to work in teams, you need a higher level of collaboration."

Some organizations found the most lenient work-from-home policies kept workers too isolated for that kind of work. These companies "took it to the extreme on virtual work," added Volini.

International Business Machines Corp. is one such company. Earlier this year the tech giant called tens of thousands of workers back to the office who had previously been working from home. Facing 20 consecutive quarters of falling revenue, IBM hopes that bringing people back together will lead to faster, more productive, and more creative workers. (A 2012 report from IBM found that companies with flexible work policies reported improvements in productivity and cost savings.)

"IBM's strategy is about adopting the best work method for the work being done," said an IBM spokesperson. "For example, small, multi-disciplinary teams of engineers, coders, project managers and designers work in close proximity, often directly with clients or end-users, continually generating and refining ideas."

One of the challenges with ending remote work is keeping employees happy. “It’s going to require organizations to think about how to still provide flexibility for their workforce,” said Deloitte’s Volini. Companies removing the perk risk employee backlash and attrition. IBM, for instance, has been careful not to eliminate all flexible work arrangements. The company still offers ad-hoc work-from-home arrangements to accommodate appointments and child-care needs.

Having everyone in the office has had “quite a positive impact” on business, said Laermer. Meetings are more productive, and employee morale has improved, he said. Laermer claims that employees “didn’t mind” losing their freedom. “Youngish people need structure,” he said, adding that they have small apartments and might not have a good place to work, anyway. He still offers flex time and lets workers leave at 3:00 p.m. on Fridays.

“I think people have to be trusted,” Laermer said. “But the working-from-home thing has to be on a per-person basis, and it can’t be very often. It just doesn’t work.”

from Bloomberg

1. A New York-based public relations firm has rolled back its remote work programme because:

A working from home is feasible for many white collar workers in the last couple of decades as the new technologies have appeared.

B the employees working from home neglected their direct job responsibilities.

C in a bid to attract and retain employees.

D it faced huge financial losses.

2. According to the Society of Human Resource Management research

A most companies insist on their personnel’s working from home on a full-time basis.

B both employees and companies took advantage of the perk of telecommuting.

C staff members are allowed to work from home once in a while in case any personal problem arises.

D 77 percent of organizations don't mind their people working from home on a full-time basis.

3. The companies provided remote employment options because

A most employees rated the working hours flexibility opportunities high

B working inside the traditional office showed improvements in productivity and cost savings.

C people have to be trusted.

D it's one of the challenges any business organisation might face from time to time.

4. International Business Machines Corp. decided to get back to traditional office scheme in organizing its human resources because

A of large income it's got in recent years.

B of high loss the company suffered lately.

C companies with flexible work policies reported improvements in productivity and cost savings.

D it wanted to keep staff happy and avoid employee backlash and attrition.

5. Choose the statement that best reflects the main idea of the article:

A Companies with flexible work policies experience improvements in productivity and cost savings.

B Telecommuting, the umbrella term for any work occurring outside the traditional office, has ballooned over the last 20 years and is still the best work method for the work being done.

C The staff should be tied to the office five days a week for the company to operate efficiently.

D The permanent telecommuter is going extinct.

II

Moon Had Magnetic Field at Least a Billion Years Longer than Thought

by Nicola Davis

Even small planets could have long-lived magnetic fields, crucial for atmosphere and water, raising fresh possibilities in the hunt for new worlds.

The moon's magnetic field lasted at least a billion years longer than previously thought, researchers have revealed, shedding light on an enduring lunar mystery and expanding the possibilities in the hunt for habitable worlds beyond Earth.

Nowadays, the moon has no global magnetic field, but that was not always the case; between 4.25bn and 3.56bn years ago, the lunar magnetic field was similar to that of the Earth. The field is thought to have been generated by the churning movement of fluids within the moon's molten core – a sort of lunar dynamo.

But scientists have long puzzled over when the magnetic field disappeared, with previous research unable to tell whether the field had disappeared completely by 3.19bn years ago or had lingered on in a weaker form.

“One the question that we were trying to answer was really when did the magnetic field cease, so we wanted to study younger lunar samples – rocks that are younger than 3.56bn years old,” said Sonia Tikoo, a planetary scientist and co-author of the research from Rutgers University.

Writing in the journal *Science Advances*, Tikoo and colleagues from the University of California, Berkeley and Massachusetts Institute of Technology, describe how they set about unpicking the conundrum by analysing a lunar rock brought back by the Apollo 15 mission in 1971.

The sample contains fragments of basalt that had broken off larger rocks. According to a dating technique based on the ratio of different isotopes of argon, the basalt formed from lava flows about 3.3bn years ago.

These fragments are bound together in the sample by a glassy material, which the team say probably formed when some of the basalt melted following a

meteorite impact. The researchers dated the formation of the glassy material to between 1bn and 2.5bn years ago.

Crucially, the impact also melted iron-containing grains within the basalt. These crystallised again within the glassy material as it quickly cooled, capturing a record of the magnetic field of the moon at that time.

After a series of experiments at different temperatures, the team found the grains formed when the moon had a magnetic field about a tenth as strong as that of the Earth, at five microtesla.

Such a field is 1,000 times stronger than that measured at the moon's Apollo 15 landing site by astronauts, and far stronger than than would be expected from the influence of the Earth's magnetic field.

"This is not contamination from the Earth's field, it is not from the sun's field, it is not from the galaxy's field – we can rule things out," said Tikoo.

The upshot, says Tikoo, is that the lunar dynamo was still going until somewhere between one billion and 2.5bn years ago.

But questions remain. "What we don't have a good grasp on yet is what generated the lunar magnetic field," said Tikoo.

Tikoo says the longevity of the field rules out the dynamo arising as a result of large impacts – a process that would have only yielded a temporary magnetic field. Impacts large enough to cause even a temporary field tailed off after about 3.7bn years ago. Instead, she says, the new findings suggest multiple mechanisms might have been at play.

The early, strong, magnetic field, she says, is likely to have been generated by the influence of the Earth's gravitational pull on the lunar mantle, with the wobbling of the mantle churning up the moon's liquid core. However, as the moon spiralled away from Earth, and the gravitational pull became weaker, another mechanism could have taken hold, generating a weaker field.

One possibility, she says, is that this weaker field was generated as the moon's core cooled, with energy being released as the iron solidified and lighter elements, such as carbon and sulphur, stirred the core as they buoyantly rose up.

"The combination of these effects can help generate a dynamo that lasts for quite a long time – and this is the mechanism we think is operating the Earth's dynamo right now," said Tikoo.

The findings, she adds, could also cause a stir when it comes to the hunt for extraterrestrial worlds that might host life, suggesting that small planetary bodies should no longer be written off as unlikely to have long-lived magnetic fields, which are important for retaining an atmosphere and water.

Richard Harrison, professor of Earth and planetary materials at the University of Cambridge said the study dramatically expands the timescale for which the moon was generating a magnetic field, helping to shed light on processes deep within it.

“Despite the fact the moon is the one place we have actually visited in person in the solar system ... there are still many unanswered questions,” he said.

from The Guardian

1. Researchers have revealed that

- A The moon’s magnetic field lasted at least a billion years.
- B beyond Earth there exist extraterrestrial habitable worlds that might host life.
- C The Moon’s magnetic field was the result of dynamic processes within the moon’s molten core.
- D the field had disappeared completely by 3.19bn years ago.

2. To unpick the conundrum the scientists had to

- A determine the age of a lunar basalt sample.
- B develop dating technologies based on the argon isotopes ratio.
- C analyse the chemical properties of argon.
- D cover the fragments of basalt with glassy material.

3. The study of the lunar samples proved that

- A glassy material doesn’t exist on the Earth.
- B glassy material that binds the iron-containing grains together makes them fragile.
- C the crystallised iron-containing grains might hold information of the magnetic field of the Moon at that time.

D the moon had a magnetic field as strong as that of the Earth between 1bn and 2.5bn years ago.

4. Research into possible ways of generating the lunar magnetic field showed that

A large external impacts must have caused strong permanent magnetic field.

B the Earth's gravitational pull on the lunar mantle might cause a weak temporary magnetic field.

C as the moon spiralled away from Earth the gravitational pull became stronger.

D a combination of various mechanisms of generating magnetic field must have worked.

5. The findings imply that

A nowadays the Moon has global magnetic field.

B the study expands the timescale for which the moon was generating a magnetic field.

C the lunar dynamo is still lingering on.

D they may help to shed light on processes deep within the Universe.

III

Hackers Are Threatening the Way that Hollywood Does Business

Sony. Netflix. And now, HBO. While the 2014 hacking at Sony Pictures pushed entertainment giants to take computer security more seriously, recent incidents have exposed weaknesses throughout Hollywood's food chain. Last week, as HBO investigated a cyberattack on its own systems, an unaired episode of its hit show "Game of Thrones" appeared online following an unrelated breach at a pay-TV partner in India. In April, when 10 episodes of Netflix Inc.'s "Orange Is the New Black" leaked, the incident was traced to a contractor.

Cybercrime is a growing problem for many industries, but Hollywood is especially vulnerable because of the long chain of people who work on a show

or movie in post-production, experts say. Studios rely on an army of freelancers for everything from special effects to musical scores, creating a vast network of targets for hackers. Bringing those workers in-house is an option but would be expensive and could limit the talent studios can tap.

“Hollywood will have to recognize this will continue to grow and be an issue,” said Mike Orosz, who studies cyber risk as research director at the University of Southern California’s Information Sciences Institute.

HBO requires employees to have two-factor authentication and strong passwords for their computers. They also undergo security awareness training. But the company works with many post-production freelancers that handle sensitive information on personal email accounts and personal devices, raising security concerns, according to a former employee who asked not to be identified discussing an internal matter.

HBO is still investigating how hackers broke into its computer system. They stole episodes of Larry David’s “Curb Your Enthusiasm” and “Ballers,” a person familiar with the matter said at the time. They also stole an executive’s emails and a summary of an unaired episode of “Game of Thrones,” according to Variety.

The hackers don’t appear to have breached the company’s entire email system, Chief Executive Officer Richard Plepler told staff last week. The network, owned by Time Warner Inc., declined to make any additional comment.

For Hollywood, hackers are threatening both reputations and businesses. A stolen movie that appears online before appearing in theaters loses 19 percent of its box-office revenue on average compared with films that are pirated after they’re released, according to a study by professors at University of Maryland and Carnegie Mellon University. People may not be willing to subscribe to Netflix or HBO if they can watch their favorite shows and movies online for free.

What’s more, the wave of attacks is forcing media executives to confront a thorny question: Should they pay ransoms to hackers to get their content back? A hacker released a video this week demanding that HBO pay up to avoid further disclosures. The FBI says that’s always a bad idea.

“We believe it perpetuates the crime in general,” FBI spokeswoman Laura Eimiller said. There’s also no guarantee paying the ransom will work. In April, Netflix refused to pay a hacker who stole unreleased episodes of “Orange Is the New Black.” Larson Studios, which worked with Netflix, told Variety it paid the ransom, about \$50,000, in bitcoin. The hacker, who went by the name TheDarkOverlord, dumped the stolen episodes online anyway.

Larson Studios didn’t respond to a request for comment, while a Netflix official said only that the company is “constantly working to improve our security.”

In another high profile case this year, hackers threatened to leak a stolen copy of Disney’s new “Pirates of the Caribbean” if the company didn’t pay a ransom. The company refused, and Chief Executive Officer Bob Iger said later he believed it was all a hoax.

Even so, with millions of dollars at stake, some companies may decide paying is the best option, said Gary Davis, chief consumer security evangelist at the security firm McAfee Inc.

“If they got access to something like ‘Game of Thrones’ and I can pay them a couple million dollars to get that back, there’s probably a good use case,” he said.

The Sony attack, which embarrassed studio executives after private emails were made public, was linked by the FBI to North Korea, which allegedly was retaliating for “The Interview,” a film about a fictional plot to assassinate leader Kim Jong Un. Some studios have reportedly removed Russian President Vladimir Putin as a character in films because they’re concerned they’ll suffer a similar fate.

Sony has learned from that attack. Michael Lynton, former chief executive officer of Sony Entertainment, started transferring emails off his computer every 10 days.

“To me, that’s the solution,” Lynton said at event hosted by Lerer Hippeau Ventures in May. “Put it in a drawer and lock the drawer.”

from Bloomberg

1. As a result of recent hacking attacks on HBO systems

- A “Game of Thrones” episodes failed to be broadcast in India.
- B the new “Game of Thrones” episode unexpectedly went on the air.
- C some “Game of Thrones” episodes leaked.
- D there were problems with Netflix Inc.’s food chain.

2. Hollywood is especially vulnerable to hacker attacks because

- A it’s employees work on a telecommuting basis.
- B it’s personnel work both on a show and in post-production.
- C the Hollywood staff don’t use strong pass-words and 2-factor identification.
- D the Hollywood employees lack security awareness training.

3. Hollywood suffers huge reputational and business losses

- A because hackers make people subscribe to HBO or Netflix.
- B when the episodes are pirated.
- C due to theft of unaired episodes.
- D because cybercriminals hack personal email accounts.

4. Should media executives pay ransoms to hackers to get their content back? The FBI says

- A yes, because paying the ransom always works.
- B no, because it’s unethical.
- C yes, because the hackers always keep their promise and they are not expected to cheat.
- D no, because that doesn’t prevent entertainment giants from facing recurrent crimes.

5. The best way to prevent hacking attacks is

- A bringing freelance workers in-house.
- B paying ransoms to hackers.
- C changing fictional plots of the films in order to remove controversial characters from them.

D taking care of personal emails – removing or relocating them to a safer place.

IV

What an Artificial Intelligence Researcher Fears about AI

As an artificial intelligence researcher, I often come across the idea that many people are afraid of what AI might bring.

And yet it is hard for me to look up from the evolutionary computer models I use to develop AI, to think about how the innocent virtual creatures on my screen might become the monsters of the future. Might I become “the destroyer of worlds?”

The HAL 9000 computer, dreamed up by science fiction author Arthur C. Clarke and brought to life by movie director Stanley Kubrick in “2001: A Space Odyssey,” is a good example of a system that fails because of unintended consequences. In many complex systems – the RMS Titanic, NASA’s space shuttle, the Chernobyl nuclear power plant – engineers layer many different components together. The designers may have known well how each element worked individually, but didn’t know enough about how they all worked together.

That resulted in systems that could never be completely understood, and could fail in unpredictable ways. In each disaster – sinking a ship, blowing up two shuttles and spreading radioactive contamination across Europe and Asia – a set of relatively small failures combined together to create a catastrophe.

We could fall into the same trap in AI research. We try to engineer AI without understanding intelligence or cognition first.

As AI designs get even more complex and computer processors even faster, their skills will improve. That will lead us to give them more responsibility, even as the risk of unintended consequences rises. We know that “to err is human,” so it is likely impossible for us to create a truly safe system.

One big area people are paying attention to is employment. Robots are already doing physical work like welding car parts together. One day soon they may also do cognitive tasks we once thought were uniquely human. Self-driving cars could replace taxi drivers; self-flying planes could replace pilots.

Instead of getting medical aid in an emergency room staffed by potentially overtired doctors, patients could get an examination and diagnosis from an expert system with instant access to all medical knowledge ever collected – and get surgery performed by a tireless robot with a perfectly steady “hand.” Legal advice could come from an all-knowing legal database; investment advice could come from a market-prediction system.

Perhaps one day, all human jobs will be done by machines.

In our current society, automation pushes people out of jobs, making the people who own the machines richer and everyone else poorer.

A study of 1,000 companies revealed that AI systems created new jobs in 80% of the organizations they were implemented in. A 2017 Gartner report predicts that AI will create 500,000 more jobs than it will displace over the next three years, ushering a slew of employment opportunities for medium-to high-skilled workers.

As the global economy gears up for the widespread adoption of AI solutions, competition grows fierce for employees with the scarce skills required to implement, manage and work alongside this new technology. Millennials are the most vulnerable generation to the threats AI poses, with 37% of Millennials being at risk of redundancy. But redundancy isn’t just a short-term problem for young professionals: half of today’s work activities could be automated by 2055.

That is not a scientific issue; it is a political and socioeconomic problem that we as a society must solve. My research will not change that, though my political self may be able to create circumstances in which AI becomes broadly beneficial instead of increasing the discrepancy between the one percent and the rest of us.

There is one last fear, embodied by HAL 9000, the Terminator and any number of other fictional superintelligences. If AI keeps improving until it surpasses human intelligence, will a superintelligence system find it no longer needs humans? How will we justify our existence in the face of a superintelligence that can do things humans could never do? Can we avoid being wiped off the face of the Earth by machines we helped create? If this guy comes for you, how will you convince him to let you live?

The key question here is: Why should a superintelligence keep us around?

When I take a sharp look at us all together, there is a lot wrong: We hate each other. We wage war on each other. We do not distribute food, knowledge or medical aid equally. We pollute the planet. There are many good things in the world, but all the bad weakens our argument for being allowed to exist.

Fortunately, we need not justify our existence quite yet. We have some time – somewhere between 50 and 250 years, depending on how fast AI develops. As a species we can come together and come up with a good answer for why a superintelligence shouldn't just wipe us out. But that will be hard.

We all, individually and as a society, need to prepare for that. Regardless of the physical threats superintelligences may present, they also pose a political and economic danger. If we don't find a way to distribute our wealth better, we will have fueled capitalism with artificial intelligence laborers serving only very few who possess all the means of production.

from theconversation.com

1. The author's claim that a system can fail because of unintended consequences means that

A science fiction film directors failed to use HAL 9000 computers in their production.

B the RMS Titanic, NASA's space shuttle, the Chernobyl nuclear power plant and other systems failed because their elements hadn't been thoroughly studied.

C it's difficult to predict how multi-component system can work and what can lead to a disaster.

D should each elements of a system perform individually nothing bad will happen to the whole system.

2. More responsibility will be given to AI in the future because

A of technology advances in IT sphere.

B the mankind is highly likely to create absolutely safe systems.

C to err is human.

D of unintended consequences.

3. Employment is one of the artificial intelligence areas researchers fear about because

- A robots can weld car parts together.
- B robot surgeons can operate on patients.
- C 500000 jobs will be created by AI in the nearest future.
- D AI will replace people at work causing staff reduction.

4. Young professionals are considered to be vulnerable to the threats AI poses because

- A employees experience bitter rivalry due to the fact that the world economy is getting prepared to put AI solutions into practice.
- B AI becomes broadly beneficial.
- C they have no skills required to implement, manage and work alongside this new technology.
- D AI increases the discrepancy between the one percent who own the machines and the rest of people.

5. The author's one last fear, embodied by HAL 9000, the Terminator and any number of other fictional superintelligences, is that

- A earth dwellers do not distribute food, knowledge or medical aid equally and pollute the planet.
- B the societies will give an impetus to development of capitalism.
- C earth dwellers used to trigger off wars.
- D If AI outruns human intelligence, it may find it no longer needs humans.

Big Brother is Watching You In China, a Three-Digit Score Could Dictate Your Place in Society

In 2014, the State Council, China's governing cabinet, publicly called for the establishment of a nationwide tracking system to rate the reputations of individuals, businesses, and even government officials. The aim is for every Chinese citizen to be trailed by a file compiling data from public and private sources by 2020, and for those files to be searchable by fingerprints and other biometric characteristics. The State Council calls it a "credit system that covers the whole society."

The Chinese government is building an omnipotent "social credit" system that is meant to rate each citizen's trustworthiness. The SCS seems relatively simple. Every citizen in China would be given a score (ranging between 350 and 950) that is available for all to see. This citizen score comes from monitoring an individual's social behavior – from their spending habits and how regularly they pay bills, to their social interactions – and it'll become the basis of that person's trustworthiness, which would also be publicly ranked. The score is assigned by a Chinese "super app" called Alipay. It works as "credit for everything in your life" and is known as Sesame Credit. The higher the score, the better your credit.

Inside China's Vast New Experiment in Social Ranking

The Sesame Credit service tracks your behavior on the app to arrive at a score between 350 and 950, and offers perks and rewards to those with good scores. Sesame Credit's algorithm considers not only whether you repay your bills but also what you buy, what degrees you hold, and the scores of your friends. For those with good behavior, Sesame Credit offers perks through cooperation agreements. Shenzhou Zuche, a car rental company, allows people with credit scores over 650 to rent a car without a deposit. For a while people with scores over 750 could even skip the security check line at Beijing Capital Airport and use the VIP check-in.

If people's score reaches 600, they can take out a Just Spend loan of up to 5,000 yuan (around £565) to use to shop online, as long as it's on an Alibaba

site. Those with more than 666 points can get a cash loan of up to 50,000 yuan (£5,700). Get above 700 and they can apply for Singapore travel without supporting documents such as an employee letter. And at 750, they get fast-tracked application to a coveted pan-European Schengen visa.

Users are encouraged to flaunt their good credit scores to friends, and even potential mates. China's biggest matchmaking service, Baihe, has teamed up with Sesame Credit system to promote clients with good credit scores, giving them prominent spots on the company's website. More and more of Baihe's 90 million clients are displaying their credit scores in their dating profiles, doing away with the idea that a credit score is a private matter.

China's "Social Credit System" Rates: How Valuable You Are as a Human

Chinese people who have been branded untrustworthy are getting the first glimpse of what a unified system might mean. One day last May, Liu Hu, a 42-year-old journalist, opened a travel app to book a flight. But when he entered his name and national ID number, the app informed him that the transaction wouldn't go through because he was on the Supreme People's Court blacklist – the List of Dishonest People. In 2015 Liu had been sued for defamation by the subject of a story he'd written, and a court had ordered him to pay \$1,350. He paid the fine, but while transferring his fine, he had entered the wrong account number. So the blacklist caught up with him in other ways. He became, effectively, a second-class citizen. He was banned from most forms of travel; he could only book the lowest classes of seat on the slowest trains. He could not buy certain consumer goods or stay at luxury hotels, and he was ineligible for large bank loans. Worse still, the blacklist was public.

Posting dissenting political opinions or links can directly hurt a citizen's rating. Here's the real kicker: a person's own score will also be affected by what their online friends say and do, beyond their own contact with them. If someone they are connected to online posts a negative comment, their own score will also be dragged down.

In June 2015, as 9.4 million Chinese teenagers took the national college entrance examination. Sesame Credit service has approached China's Education Bureau about sharing a list of its students who cheated, in order to make them

pay into the future for their dishonesty. The fraud became a blight on their Sesame Credit records.

People with low ratings will have slower internet speeds; restricted access to restaurants, nightclubs or golf courses. Scores will influence a person's rental applications, their ability to get insurance or a loan and even social-security benefits. Citizens with low scores will not be hired by certain employers and will be forbidden from obtaining some jobs, including in the civil service, journalism and legal fields, where of course you must be deemed trustworthy. Low-rating citizens will also be restricted when it comes to enrolling themselves or their children in high-paying private schools.

1. The function of the Chinese social credit system is

- A the establishment of China's governing cabinet,
- B to develop Chinese 'super app' called Alipay,
- C to give the opportunity for every Chinese citizen to track government officials,
- D to measure every Chinese citizen's loyalty to the Government.

2. If a citizen arrives at a score between 350 and 950,

- A he obtains certain advantages, benefits and discounts in different areas – from buying goods to obtaining services.
- B he can buy additional scores from his friends.
- C he can rent cars, shop online and travel free of charge.
- D he is allowed to arrange his/her dating profile at China's biggest matchmaking service, Baihe, not waiting in line.

3. People with low scores

- A are included to the black list which makes access to commercial services better.
- B have difficulty in getting national ID number.
- C are considered to be second-class citizens.
- D can't get into the List of Dishonest People which provides certain perks.

4. Liu Hu, a 42-year-old journalist, got into Supreme People’s Court blacklist because

A he violated free-speech.

B he didn’t publish a fine story he has written.

C he booked the lowest classes of seats on the slowest trains and didn’t stay at luxury hotels.

D he mistakenly entered an account number while trying to pay a fine for defamation.

5. Which of the following statements reflects the summary idea of the article?

A People with low ratings won’t have full access to restaurants, nightclubs or golf courses.

B Citizens with low scores are not allowed to choose the job of a lawyer or a journalist.

C The Sesame Credit system allows the Government to know if a certain citizen is reliable and trustworthy enough to be considered loyal to the regime.

D While defining a citizen’s rating of a person, online friends’ opinions are also taken into account.

VI

The Four Industrial Revolutions In a Glimpse

Mankind has taken gigantic leaps forward in the last two centuries. So much of what we do now has been made possible by the inventions and innovations of the four industrial revolutions. As we dive head first into the fourth one, it is worthwhile to take some time to assess the impact of the previous three in our society and environment.

Coming from an agrarian society with virtually no urban centers, the shift towards steam-powered textile factories and cities was a momentous event. The First Industrial Revolution paved the way for the remaining three industrial revolutions. Therefore, had it never happened, we wouldn’t have the basic goods we now take for granted.

The steam engine was perhaps the greatest invention of the First Industrial Revolution. It was used to completely transform the textile industry; which implemented it in the power looms – for weaving – and cotton gins – for separating cotton fibers from the seeds. Further innovations to the steam engine allowed to use it for transportation.

The new textile factory system eliminated the need for skilled craftsmen while giving way to the exploitation of workers. This triggered a drastic fall of the quality of life for craftsmen and the poor alike; as well as the rise of child labor.

Furthermore, the establishment of factories led to the creation of industrial cities; with the perks and problems it carried. Massive use of coal and harmful chemicals polluted the air and water sources near the cities. On the other hand, new transportation methods lowered food costs and therefore, contributed to the reduction of malnutrition levels.

Finally, the First Industrial Revolution saw the creation of the first trade union and environmental laws.

Second Industrial Revolution brought on one of the pillars of the later industrial revolutions: electricity.

During this Industrial Revolution, we replaced iron with steel. Thus, we were able to build rail lines at competitive costs. Steel made easier the construction of ships, larger bridges and skyscrapers.

Back to electricity; the invention of lightbulbs and the construction of power stations enabled the mechanization of the factories. Later on; this gave way to a better management of the production chain and improvements on public health. The tweaks in production enabled the widespread adoption of pre-existing inventions; such as pipes for sewage systems, as well as gas and water supplies.

This also enabled massive production of telegraphs and Graham Bell's telephone. Therefore, it contributed to globalization.

Furthermore, new paper machines; as well as the invention of pencils and steam-driven rotary printing presses allowed us to spread literacy.

The Second Industrial Revolution gave birth to transportation as we know it today. During it we invented the internal combustion engine and the vulcanization of rubber.

This period resulted in a larger, well-educated middle class and the demise of child labor. However, it continued a pattern that we find across all industrial revolutions: the displacement of workers in favor of more efficient machines. It also encouraged the materialistic culture that is now our biggest setback in the battle against global warming and climate change.

Nearly a century later, in the second half of the 20th century, a third industrial revolution appeared with the emergence of a new type of energy whose potential surpassed its predecessors: nuclear energy. This revolution witnessed the rise of electronics – with the transistor and microprocessor – but also the rise of telecommunications and computers. This new technology led to the production of miniaturized material which would open doors, most notably to space research and biotechnology. For industry, this revolution gave rise to the era of high-level automation in production thanks to two major inventions: automatons – programmable logic controllers (PLCs) – and robots.

Early attempts at artificial intelligence led to the displacement of thousands of factory workers. This also caused a segregation of the job market into high-skill/high-pay and low-skill/low-pay jobs, with a void in the middle.

The Fourth Industrial Revolution is the first of all industrial revolutions that we have been able to announce and plan. We are currently working in the development of the Internet of Things and cyber-physical systems; as well as the integration of cloud computing.

Already, this Industrial Revolution has had a massive impact on business and the job market; it will have similar ones in government. It has completely changed the way we look at customer service; as well as forced companies to change their organizational structure and culture.

In the future, it can exacerbate the segregation of the job market, thus increasing wealth and income inequality. It will also affect the government-citizen relationship; as citizens are increasingly able to voice their opinions and force the government to change their current approach to public engagement and policymaking. Finally, it elicits concerns on security because it has made biological and autonomous weapons easier to use.

1. The First Industrial Revolution holds the credit of

A being the least important of all four revolutions.

B using water and steam power to mechanize production, replacing agriculture with industry as the foundations of the economic structure of society.

C introducing new technological advancements which initiated the emergence of a new source of energy: electricity, gas and oil.

D inventing power looms and cotton gins.

2. The overall positive value/achievement of the 2nd industrial revolution is

A that it heralded the dawn of electricity and mass production.

B that it allowed to replace iron with steel.

C the invention of lightbulbs.

D the widespread use of pipes for sewage systems as well as gas and water supplies.

3. One of the negative effects/dangers that the 2nd Industrial revolution introduced is

A mass scale application of child labour.

B inventing paper machines and steam-driven rotary printing which contributed greatly to spreading literacy.

C that it nearly led to the collapse of the global economy.

D that it created conditions which gave rise to environmental risks.

4. Which description best summarises the essence of the Third Industrial Revolution?

A The Third Industrial Revolution made possible the use of digital computers.

B The Third Industrial Revolution witnessed the appearance of the Internet connecting the world.

C The Third Industrial Revolution marked the shift from mechanical and analogue electronic technology to the digital electronics we use today.

D The Third Industrial Revolution allowed to automate production that had a huge impact on the job market.

5. Which statement contains the most accurate description of The Fourth Industrial Revolution?

A The Fourth Industrial Revolution witnesses the development of The Internet of Things and Artificial Intelligence.

B The revolution may bring greater inequality, particularly in its potential to disrupt labor markets because automation substitutes for labor across the entire economy and a job market increasingly segregates into “low-skill/low-pay” and “high-skill/high-pay” segments.

C The Fourth Industrial Revolution is characterized by merging technology that blurs the lines between the physical, digital and biological spheres. Substantial transformations are made to entire production, management and governance systems reflecting the inexorable shift from simple digitization to innovation based on combinations of technologies.

D New technologies and platforms increasingly enable citizens to engage with governments, voice their opinions, coordinate their efforts, and even circumvent the supervision of public authorities.

VII

You are unlikely to know his name or his face, but he has changed your life for ever. This is the eccentric British scientist who created the World Wide Web, the information super-highway which has revolutionized the way we learn, work and communicate. Tim Berners-Lee has been compared with Edison, Watt and Pasteur, and ranks among the top most influential thinkers of the last century. Yet this shy man is so secretive that few people realize the web was the brainchild of just one person.

The few known facts about Berners-Lee appear on his official website. He works at the Massachusetts Institute of Technology, where he heads a non-profit think-tank dedicated to developing the web. And he believes nothing is more tedious than browsing the web in the way millions do. “I’d rather go windsurfing with my kids,” he says.

After graduating from Queen’s College, Oxford, in 1976, with a first degree in physics, Berners-Lee worked for a number of UK firms where colleagues remember him as extremely bright if a little off-the-wall. One of his former employers referred to him as probably the cleverest person he had ever met. “He talked extremely fast, as if his mind was too fast for his mouth. When he was seeking inspiration he’d lie on his

back looking at the sky. At other times he'd work in bare feet. But you could never criticize him because he was so productive.”

In the late seventies Tim's first marriage, to Jane Northcote, a fellow programmer, ended and he headed off to the European Particle Physics Laboratory in Geneva. There he met his second wife Nancy. The daughter of a wealthy New York lawyer and, like him, a computer expert, she was working for the World Health Organisation. While the couple were courting, the germ of an idea was born. He admits he is “not very good at random connections”, and was keen to write a computer program that could work like a human brain, making all the obvious links between the many different files stored on his computer. So he created a program which kept track of all the random links between different pieces of his research, and called it Enquire.

He quickly realized he could open up Enquire to make links with material stored on his colleagues' computers. One step further and researchers around the world would be able to share each other's data. And then, he thought, why stop there? Why not link up every computer in the world?

Berners-Lee launched his invention in 1991 and from that moment the web and internet mushroomed together. What he has done is of significance so great that if this were a traditional science, he'd won a Nobel Prize. The reason he has not cashed in is his real commitment to keeping the web open as a public good, in economic terms. Berners-Lee believes that the essence of the web is that it is a universe of information. And it wouldn't be universal if it was tied, in any way, to one company. But the web has always been a tool, never an obsession, to him. He is very much in love with the real world. And often, at the end of the day, that's where you will find him.

True or False?

1. The World Wide Web originated through joint work of a team of researchers.
2. Berners-Lee is not the web addict himself.
3. The idea of the web was on Tim's mind as early as his student years.
4. In Berners-Lee's view, no one can make the web their property.
5. Tim's colleagues have often criticized him for his eccentricity.

РОЗШИРЕННЯ СЛОВНИКОВОГО ЗАПАСУ

Що означає вивчити слово? Засвоєння слів вимагає знання наступних аспектів:

- звучання і написання;
- значення або основні значення, якщо слово багатозначне;
- стилістичне забарвлення (нейтральне, розмовне, офіційне, літературно-книжкове);
- варіант мови (британський, американський);
- граматичні особливості і структури, в яких слово може вживатися;
- сполучуваність з іншими словами.

Стане у пригоді знання похідних слів, синонімів і антонімів. Необхідно також навчитися вживати слово в контексті.

Для розширення лексичного запасу і переводу слів з пасивного резерву в активний ужиток використовуйте прийоми а) тлумачення (пояснення слів іноземною мовою (замість перекладу) і б) дефініцій (тобто визначення) термінів.

Визначте для себе, скільки нових слів ви можете вивчити протягом дня. Навіть якщо вчити всього по 6 слів за день, за рік можна засвоїти близько 2000 слів, що цілком достатньо для того, щоб висловлюватися на багато соціально-побутових та науково-популярних тем. Активний запас в 5000 слів переведе вас в розряд досить досвідченого користувача і дозволить вільно спілкуватися і на професійні теми.

Не можна забувати і про необхідність поповнення свого пасивного запасу слів. Він допоможе вам легко розуміти усне мовлення носіїв мови, слухати новини, дивитися фільми або телепередачі і читати будь-яку цікаву для вас літературу іноземною мовою.

Пасивний словник можна розширити за рахунок регулярного читання літератури та ведення свого словника. Якщо у вас ще слабкі навички читання і невеликий запас слів, починайте з невеликих і нескладних текстів цікавої для вас тематики. Читайте протягом, скажімо, 30 хвилин, щоразу фіксуючи який обсяг тексту (скільки рядків або

сторінок) ви встигли зрозуміти. При регулярних заняттях, ви скоро помітите, що швидкість читання і кількість засвоєного матеріалу зростає. Починайте роботу з вивчаючого читання, тобто читання зі словником, яке спрямоване на повне вилучення інформації з тексту. Потім, у міру збільшення словникового запасу і арсеналу граматичних структур, переходьте до ознайомчого і переглядового читання, тобто читання без словника. До словника звертайтеся тільки в тих випадках, коли важко зрозуміти цікаву для вас частину тексту, або коли ви хочете уточнити значення деяких слів.

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