МІНІСТЕРСТВО ОСВІТИ І НАУКИ
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ
імені В. Н. КАРАЗІНА

І. С. Холмогорцева
І. М. Авдєєнко
А. Ю. Понікарьова

ENGLISH FOR SPECIALTY: CHEMISTRY

Навчальний посібник

Харків – 2024

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Х-72

Рецензенти:

Н. А. Олійник – кандидат філологічних наук, доцент, доцент кафедри ділової іноземної мови та перекладу Харківського національного університету імені В.Н. Каразіна;

Є. О. Червінко – кандидат педагогічних наук, доцент, доцент кафедри мов Національної музичної академії України імені П. І. Чайковського.

Затверджено до друку рішенням Вченої ради Харківського національного університету імені В. Н. Каразіна (протокол № 6 від 28 березня 2024 року)

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Навчальний посібник призначений для студентів природничих спеціальностей, що продовжують вивчати англійську мову. Посібник призначений для вдосконалення навичок читання, говоріння, прослуховування та письма для навчання та роботи в академічній та професійній сферах природничих спеціальностей. Структура посібника дозволяє обрати оптимальні способи організації роботи для ефективного засвоєння матеріалу та аналітичної обробки інформації.

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ВСТУП

Навчальний посібник «English for Specialty: Chemistry» є авторською розробкою викладачів факультету іноземних мов Харківського національного університету імені В. Н. Каразіна. Посібник призначено роботи із студентами хімічних та інших природничих спеціальностей, що продовжують вивчення іноземної мови в межах комунікативного курсу «Іноземна мова за фахом».

Мета посібника – розвинути у студентів навички роботи з текстом (розуміння загальної тематики та деталей оригінальної науково-популярної літератури англійською мовою), аудіювання діалогічного і монологічного мовлення різного обсягу та із різною вимовою, вміння висловити думку стосовно популярно-наукових питань, робити презентацію свого наукового дослідження, приймати участь в обговореннях та взаємодіяти із аудиторією, а також вміння складати резюме, мотиваційні листи, меморандуми та вести ділову переписку.

Навчальний посібник розрахований на 70 годин аудиторного часу та 30–35 годин самостійної роботи.

Всі матеріали, що були використані під час укладання навчального посібника, зазначені у посиланнях та є автентичними англомовними ресурсами, які було незначною мірою адаптовані. Матеріали, що були використані для аудіювання, містять сучасний погляд на наукові питання та представляють собою зразки сучасного мовлення.

Посібник містить 6 тем. Структура кожної теми у посібнику є уніфікованою і складається із таких частин:

Starting point – уведення теми та обговорення загальних питань.

Working with words – робота з текстом для глибшого опрацювання теми; вправи на вивчення та закріплення лексичного матеріалу, використання лексики в усній комунікації.

Communication skills – є практикою навичок аудіювання та усного мовлення у ситуаціях професійної комунікації.

Language at work – повторення і опрацювання граматичного матеріалу, що був застосований у частині «Communication skills», що дозволяє викладачу перевірити навички застосування норм англійської граматики.

Writing activity – має на меті формування навичок письмової ділової комунікації.

Practice file – додаткові вправи за структурними елементами теми, які можна використовувати, як під час аудиторної роботи, так і для домашніх завдань.

В кінці посібника подані скрипти аудіо-файлів та список ілюстративного матеріалу.

Під час роботи з навчальним посібником автори рекомендують проводити як індивідуальні, так і парні та групові види роботи, що сприяють розширенню мовленнєвого середовища, а також розвитку усного мовлення.

CONTENTS

Language at work	Writing Activity	Outcomes – you can…
Describing experience (present perfect, present perfect continuous, past simple)	Resume, CV	- tell about the perspectives of working in chemistry and chemical engineering - prepare and give job interview introduction - compile your CV/ resume
Talking about current activities (present simple, present continuous, present perfect continuous)	Letter of motivation	- tell the difference between basic and applied research; talk about development - answer different types of questions at job interview - write letters of motivation
Making suppositions (conditional sentences, subjunctive mood)	Letter of enquiry	- discuss responsibilities of a research chemist - tell the peculiarities of keeping a laboratory notebook - write letters of enquiry
Giving instructions and recommendations (imperative and subjunctive mood, modal verbs)	Letter of invitation	- discuss different aspects of working in industry - instruct about safety in the lab end explain these rules - write and answer letters of invitation
Talking about the future (future tenses, present simple, present continuous, to be going to)	Letter of order	- tell about the stages of the development of a new medicine - grab your audience attention and have a strong end of your presentation - compile the letter of order
Asking questions (General question, special question, question tags, indirect questions)	Memorandum	-tell the difference between environmental and green chemistry; talk about the principles of green chemistry - deal with questions after your presentation - write a memo
Irregular verbs (p. 118)		

UNIT 1. CHEMICAL ENGINEERING

Starting point

1. Have you ever tried to perform an experiment of your own? Why? / Why not?
2. What do you need to know to carry out your own experiment? What can people learn from such experience?
3. How do you understand the following quote?

> *Only when I began studying chemical engineering at Oregon Agricultural College did I realize that I myself might discover something new about the nature of the world. (Linus Pauling)*

Working with words

Exercise 1. Read the text and answer the following questions:

1. What is the difference between a chemist's and a chemical engineer's syllabus? What courses can you name?
2. What scientific degrees can they pursue?
3. What job can they obtain?
4. Fill in the following chart:

	Chemistry	Chemical Engineering
Degree		
Courses		
Type of work		
Job opportunities		

Although there is overlap between chemistry and chemical engineering, the courses you take, degrees, and jobs are quite different. Here's a look at what chemists and chemical engineers study and what they do.

Chemistry. Chemists take courses in all ***major branches*** of chemistry, general physics, math through calculus and possibly differential equations, and may take courses in computer science or programming.

Bachelor degree chemists usually work in labs. They may ***contribute*** to ***R&D*** or perform sample analysis. Master's degree chemists do the same type of work, plus they may ***supervise*** research. Doctoral chemists direct and also do research or they may teach chemistry at the college or graduate level.

Most chemists ***pursue*** advanced degrees and may intern with a company before joining it. It's much more difficult to get a good chemistry position with a bachelor's degree than with the specialized training and experience accumulated during graduate study.

Chemical Engineering. Most chemical engineers have a bachelor's degree in chemical engineering. Master's degrees are also popular, while ***doctorates*** are rare compared with chemistry majors.

Chemical engineers take most of the chemistry courses studied by chemists, plus engineering courses and additional math. The added math courses include differential equations, linear algebra, and statistics. Common engineering courses are fluid dynamics, mass transfer, reactor design, thermodynamics, and process design.

Chemical engineers work on R&D teams, process engineering at a plant, project engineering, or management. Similar jobs are performed at the entry and graduate level, although master's degree engineers often find themselves in management. Many start new companies.

Job Outlooks. There are ***numerous*** job opportunities for both chemists and chemical engineers. Many companies hire both types of professionals.

Chemists are the kings of lab analysis. They examine samples, develop new materials and processes, develop computer models and simulations, and often teach. Chemical engineers are the masters of industrial processes and plants. Although they may work in a lab, you'll also find chemical engineers in the field, on computers, and in the boardroom.

Both jobs offer opportunities for ***advancement***, although chemical engineers have an edge because of their broader training and ***certifications***. Chemists often pick up ***postdoctoral*** or other training to expand their opportunities.

(Adapted from: https://www.thoughtco.com/chemistry-and-chemical-engineering-differences-606443)

Exercise 2. Study the words highlight in the text. Match them with their description.

1. the development or improvement of something _____
2. to watch a person or activity to make certain that everything is done correctly, safely, etc. _____
3. research and development _____
4. the highest degree from a university _____
5. relating to advanced work or study that someone does after completing their PhD _____
6. the most important part of smth larger _____
7. proof or a document proving that someone is qualified for a particular job _____
8. to give something in order to provide or achieve something together with other people _____
9. many; a large amount of smth _____
10. try to do or achieve smth, usually over a long period of time _____

Exercise 3. Fill in the gaps with the words from exercise 2.

The career of a future chemical engineer starts from a school bench. Having chosen what they want to achieve, young people enter universities where they take **(1)** _____ courses and study **(2)** _____ _____ of Chemistry and Physics. At this point, it is very important to choose a mentor who will **(3)** _____ them throughout studying and encourage to go either into academical research or engineering. If the former means that a young chemist will **(4)** _____ advanced academic degrees, like **(5)** _____ and even **(6)** _____ position, the latter presupposes boosting practical skills in **(7)** _____ and training for **(8)** _____, as they for sure will **(9)** _____ to their job opportunities and **(10)** _____, for instance.

Exercise 4. Complete the text with the following words.

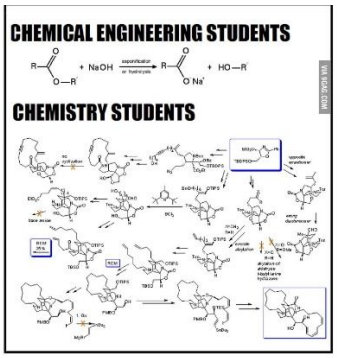
optimization, chemistry, physical chemistry, chemical, mathematics, physical, physics, modeling

Chemical engineering, the development of processes and the design and operation of plants in which materials undergo changes in their **(1)** _____ or **(2)** _____ state. Applied throughout the process industries, it is founded on the principles of **(3)** _____, **(4)** _____ and **(5)** _____.

The laws of **(6)** _____ _____ and physics govern the practicability and efficiency of chemical engineering operations. Energy changes, deriving from thermodynamic considerations, are particularly important. Mathematics is a basic tool in optimization and modeling. **(7)** _____ means arranging materials, facilities, and energy to yield as productive and economical an operation as possible. **(8)** _____ is the construction of theoretical mathematical prototypes of complex process systems, commonly with the aid of computers.

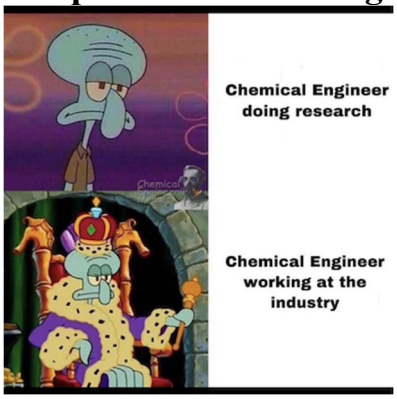
(Adapted from: https://www.britannica.com/technology/chemical-engineering)

Exercise 5. Look at the following memes, describe and explain their meaning.



A

B



C

For more exercises, go to Practice File 1 on page 68.

Communication skills

Exercise 6. Work with a partner. Make a list of the most important professional and soft skills of a chemical engineer. Compare it with other groups.

Exercise 7. Think and answer the following questions.

How can you prepare for a job interview?
How can you show that you are really interested in the position?
What should you know about the company?

Exercise 8. Audio 1.1.
Listen to the introduction. What does the speaker say?
How does he present the information?

Exercise 9. Audio 1.2.
Fill in the table according to the presentation

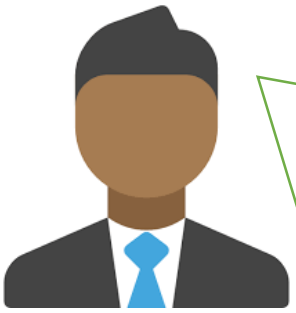
№	Tip	Example/ Details
1		
2		
3		

Exercise 10. Before listening, look through the four following pieces of advice and suggest how you can complete them.

1. Talk about the skills and qualities you have that _____.
2. Talk about any experience or qualifications you possess that _____ _____.
3. Talk about any significant achievements _____.
4. . Talk about the type of person you are and what _____.

Audio 1.3. Listen to the third part of the presentation and complete the information. Do they differ from what you have suggested?

Exercise 11. Audio 1.4. Listen to the example of a job interview introduction and fill in the gaps.



Thank you for _____ to be interviewed for this position today. Having studied the job description, I am confident I have _____ needed to excel in the role. I am a fast learner; I possess excellent problem-solving capabilities, and I can _____. I have an impressive track record of achievements. For example, in my previous role I was praised by my supervisor for helping the company find ways to increase sales _____ customer service standards. The type of person I am means I always act as a positive role model for the company, and I _____ _____ my ongoing professional development. If you hire me in this position, I believe you will quickly see a positive return on your investment.

Exercise 12. Choose 5 the most important engineering activities you would prefer to do and explain your choice.

Pre-project analysis
Engineering forecast
Decision making
Engineering research
Showing results
Designing
Search for engineering decisions
Computerized designing
Inventions
Invention algorithm
Technological synthesis

Exercise 13. Prepare and present your own job interview introduction.

» **For more exercises, go to Practice File 1 on page 69.**

Language at work

Describing work experience

Exercise 14. Read the following sentences.

1. Last year I ***completed*** my MSc in Chemistry.

2. I ***have been working*** for ChemTrade for two years.

3. I **have** already **participated** in such activities.

4. Our company ***has presented*** its second skin care product this year.

5. When ***did*** you ***graduate*** from the University?

Which of the sentences refer to …

Something that has or hasn't happened during an unfinished period of time. _____

A finished past action – we know or say when it happened. _____

The description of general experience – we do not know or name when this action happened. _____

The speaker requires information about the time of events. _____

An unfinished action continuing up to now. _____

Exercise 15. Put the verbs in the correct form.

I **(1)** _____ (work) as a chemical engineer for ExxonMobil since September 2018. While working for this multinational oil and gas corporation, I **(2)** _____ (improve) unit operation efficiency by 23 % by participating actively in molecule management. Together with my team, we **(3)** _____ (increase) process safety, operability, and profitability by 37 % by developing control schemes. By performing routine inspections and evaluations, I **(4)** _____ (also save) $457K in unnecessary equipment replacement.

Before Exxon Mobile, I **(5)** _____ (work) for two companies as a chemical engineer. Since 2011, I **(6)** _____ (work) at Saudi Aramco – Saudi Arabian public petroleum and natural gas company, where I **(7)** _____ (help) maintain record of 0 incident rate. When I **(8)** _____ (resign) in 2014, I **(9)** _____ (start) working for Marathon Petroleum Company, where I **(10)** _____ (train) a 35-member team coaching them in the application of fundamental chemical engineering principles.

Exercise 16. Tell the group about your achievements last year / this year / this week.

Writing activity

Exercise 17. Study the following CV (resume) and answer the questions.

Tim Kasteler,
Chemical Engineer

tim.q.kasteler@gmail.com
linkedin.com/in/timqkasteler
641-234-1466

Professional Summary

Perceptive chemical engineer with 2+ years of experience. Skilled in process design and project management. Seeking to deliver out-of-the-box solutions at Agaffre, inc.

Work Experience

Chemical Engineer
Lesiliti, Inc.
Feb 2017–May 2019
Slashed equipment malfunctions by 20% with improved work procedures and maintenance. Trained 20 technicians and chemists in production best practices, cutting defects by 15%.

Chemist
Trukgill, Inc.
Feb 2016–Jan 2017
Developed new waste-stream treatment process that reduced waste output by 18%. Created a new technique to retrieve by-products that saved $20,000 a year.

Education

2011–2015 University of Northern Iowa
Bachelor of Science in Chemical Engineering
Pursued a passion for process design coursework.
Conducted project in waste stream management that was written up in IChemE blog.

Skills

Technical Skills: Project management, process design, testing, management
Soft Skills: Interpersonal skills, collaboration, communication, efficiency

Activities

Leader of weekly fishing club.

Article, "Waste Stream Management" published in Chemical Processing Blog.

(Adapted from: https://zety.com/blog/chemical-engineer-resume-example)

1. What kind of information can be included into a CV?
2. What is the order of presenting work experience / education if several placed should be mentioned?
3. Can you include school education?
4. What information can be included into "Personal information" block?

5. How do you structure sentences?

Exercise 18. Complete the CV. Name the blocks 1-6.
Education Skills Work experience Personal information Profile Certification

Linsey Bash

(1)_____

(2)_____

(3)_____

(4)_____

(5)_____

(6)_____

Complete the blocks with the following information.

(a) Chemist
Johnson Mahoney
October 2016–January 2020
Developed innovative processes and products for a key player in the food industry, using practical and theoretical knowledge. Used organic synthesis to develop 40+ new flavors. Seven were adopted by top brands selling multi-nationally. Implemented process chemistry to create scalable procedures for mass production of 30 new flavor ingredients.

(b) Lab Technician
Middle West Laboratories
June 2013 to June 2014
Set up 9 organic synthesis experiments. Operated centrifuges, microscopes, agitators, and other equipment and maintained with 100% adherence to laboratory policy.

(d) Organic Chemistry
Process Chemistry
Organic Synthesis
Catalysis

(e) Detail-oriented chemist with 6+ years of experience in process chemistry and organic synthesis. Eager to provide innovative process & product development at QGIP Inc.

(g) Certified Professional Chemist — NCCCCE
Toxicological Chemist — NRCC

(f) BS in Chemistry
Drake University
2009–2013
Excelled in organic & process chemistry
Recipient, Margaret Phials Award for Academic Excellence

(h) Chemist
Hydro Baker Scientific
May 2014 to September 2016
Collaborated in conceptual design of 12 new processes. Performed experimental validation on 21 innovative processes. Used organic synthesis to develop 12 new fragrances.

(c) 641-325-4026
linseyzbash@gmail.com
linkedin.com/in/linseyzbash

Exercise 19. Study the following layout of a CV.

Antony Fraiser
Birth Date: 12.09.2000
Nationality: Canadian
Gender: male

CONTACT
+1(250)1234567
fraisertony@gmail.com
1223 Johnson St, Victoria, Canada, V8P 1A1

SKILLS
Organic Chemistry ★★★★★
Process Chemistry ★★★★★
Organic Synthesis ★★★★★
Problem Solving ★★★★☆
Communication ★★★★☆
Efficiency ★★★★☆

LANGUAGES
English ★★★★★
French ★★★★☆
Spanish ★★★☆☆

EDUCATION AND TRAINING

01.09.2020 – Present
MSc in Chemistry
McGill University, Montreal, Canada
Recipient, Margaret Phials Award for Academic Excellence

01.03.2020-31.05.2020
Distance Learning Course "Teaching Primary Sciences – Chemistry:
STEM Learning, *The University of York*

15.01.2019-15.07.2019
Berkeley Global Chemistry Visiting Student Program

15.07.2017-15.10.2017
Basic Analytical Chemistry
The University of Tokyo

01.09.2016-30.06.2022
BSc in Chemistry
University of British Columbia, Vancouver, Canada
Excelled in organic & process chemistry

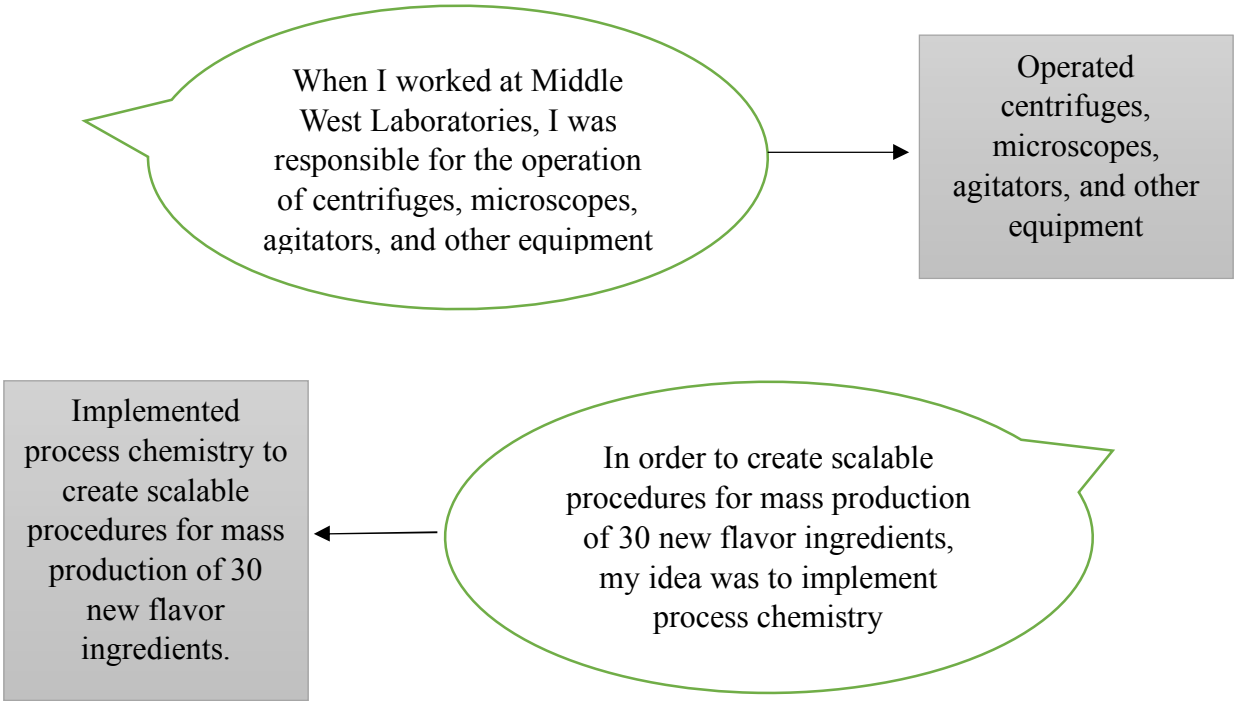
EXPERIENCE

02.09.2020 – Present
Junior chemist
McGill University, Montreal, Canada
Performed routine quality inspection operations on industrial and commercial items.

02.09.2019 – Present
Private tutor
Chemistry tutor for school kids

How does this CV differ from the previous one?
Who does it belong to?
How experienced is this person? How can you tell it?
Where can a person apply such kind of a CV?

Exercise 20. When writing a CV, it's a good idea to describe your responsibilities and achievements. Study what transformations a sentence may have, when changing from oral description to the CV.



What kind of transformations can you notice?
What is the first word in each point? How is it formed?
Why do you omit the other part?

Rewrite the following sentences as for a CV.

1. My work for Zendron Labs presupposed providing data and analysis to support R&D team efforts. Besides, I was in charge of product upgrades.
2. As a junior chemist at Plython Chemicals, I had to test samples for various chemical analyses.
3. A 10 % fall in cost of the products resulted from my test improvement projects.
4. A 15% decrease in accidents and injuries was rooted in my improvements of security procedures around handling of hazardous waste.
5. When I was working at Futuristic Electronics in 2018-2019, our department was participating in the Hazardous Material (HAZMAT) training, certification, and Emergency Response Team program.

Exercise 21. Write down your own CV (as you are now/ in a year/ in ten years).

» **For more exercises, go to Practice File 1 on page 71.**

UNIT 2. RESEARCH & DEVELOPMENT

Starting point

Exercise 1. Look at the following pictures and divide the processes depicted into Research and Development.
Explain your choice.

RESEARCH

1. _____
2. _____
3. _____
   3.1. _____
   3.2. _____

DEVELOPMENT

1. _____
2. _____
3. _____

customer needs

prototype development

market research

new idea visualization

research

product testing

profitability

Working with words

Exercise 2. Look at the following expressions and decide if they are true or false. Then, skim the text and find the provement.

1. R&D concept is applied only to pharmaceutical industry.
2. The majority of industrial companies strive to improving their products.

3. The budget spent on R&D starts from 2 % of the company's profit.
4. Research may be divided into two types – academic and industrial.
5. Research may give you only theoretical findings.
6. Practical application of research is all-purposed.
7. Development is the result of research.
8. R&D is the same as engineering.

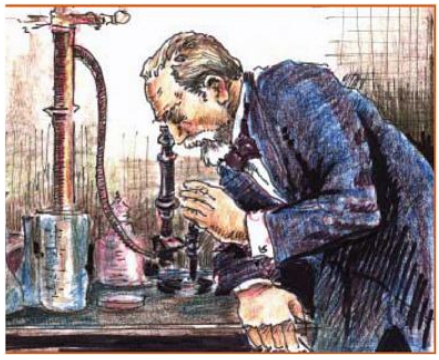
TYPES OF R&D

Companies often spend resources on certain ***investigations*** in an effort to make discoveries that can help develop new products or way of improving existing products or processes. These activities come under the Research and Development (R&D) umbrella.

R&D is an important means for achieving future growth and ***maintaining*** a ***relevant*** product in the market. There is a misconception that R&D is the ***domain*** of high-tech technology firms or the big pharmaceutical companies. In fact, most established ***consumer*** goods companies dedicate a significant part of their resources to developing new versions of products or improving existing designs. However, where most other firms may only spend less than 5 percent of their revenue on research, industries such as pharmaceutical, software or high technology products need to spend significantly given the nature of their products.

A US government agency, the National Science Foundation defines three types of R&D.

Basic Research



When research aims to understand a subject matter more completely and build on the body of knowledge relating to it, then it falls in the basic research category. This research does not have much practical or commercial application. The ***findings*** of such research may often be of potential interest to a company.

Applied Research

Applied research has more specific and directed ***objectives.*** This type of research aims to determine methods to address a specific customer/industry need or requirement. These investigations are all focused on specific commercial objectives ***regarding*** products or processes.

Development

Development is when findings of a research are ***utilized*** for the production of specific products including materials, systems and methods. Design and development of ***prototypes*** and processes are also part of this area. A vital differentiation at this point is between

development and engineering or manufacturing. Development is research that generates requisite knowledge and designs for production and converts these into prototypes. Engineering is utilization of these plans and research to produce commercial products.

(Adapted from: https://www.cleverism.com/rd-research-and-development-overview-process/)

Exercise 3. Make up your own 5 questions to the text and ask them to your groupmates.

Exercise 4. Study the words highlight in the text. Match them with their description.

1. to use something in an effective way _____
2. results of research _____
3. something that you plan to do or achieve _____
4. the first example of something, such as a machine or other industrial product, from which all later forms are developed _____
5. an area of interest or an area over which a person has control _____
6. research, study _____
7. in relation to; about _____
8. connected with what is happening or being discussed _____
9. to keep in existence, or not allow to become less _____
10. a person who buys goods or services for their own use _____

Exercise 5. Find an odd word and summarize the rest with the notion from above.

1. about, concerning, ~~excluding~~, relating _____regarding_____
2. task, method, aim, goal _____
3. sphere, area, zone, boarder _____
4. buyer, seller, user, customer _____
5. result, discovery, detection, introduction _____
6. survey, research, presentation, experiment _____
7. waste, use, employ, operate _____
8. model, dynamics, forerunner, precursor _____
9. keep, preserve, ignore, manage _____
10. topical, subjective, actual, applicable _____

Exercise 6. Study the following prefixes and suffixes and match them with their morphological meaning.

1	nouns denoting active subject	**a**	-less
2	nouns denoting process	**b**	-ed; -en
3	nouns denoting result	**c**	-ment; -ance
4	other abstract noun	**d**	-ly
5	adjective denoting a feature presence	**e**	-er, -or, -ist, -ant, -ian; -ee

6	adjective denoting a feature absence	**f**	-ing; -ary; -ive; -able; -ible; -ble
7	adjectives denoting active feature	**g**	-dge; -ture; -hood; -ise; -ship
8	adjectives denoting passive feature	**h**	-al; -ful; -ish
9	adjectives with a negative connotation	**i**	-tion; -ion; -sion; -ing
10	adverbs	**j**	un-; il-; ir-; dis-; non-; a-; in-; im-

Fill in the table with the word-derivatives

Concrete noun	Abstract noun	Verb	Positive adjective	Negative adjective
solvent		solve		
	development			
			scientific	
researcher				
				irrelevant

Use the words from the table above to complete the sentences.
Start reading the text / sentence. At every gap, think what part of speech is missing. Also, pay attention to the context.

1. This was a thoroughly _____ method and certainly dangerous.
2. Anything that's water _____ should go first, followed by the product that's thicker and creamier.
3. The results presented here may have _____to a number of physical systems.
4. All grammar _____ must be aware of how information is represented at all times.

» **For more exercises, go to Practice File 2 on page 72.**

Communication skills

Exercise 7. Brainstorm the questions that may be asked during a job interview? Ask them to your groupmates.

Exercise 8. Audio 2.5. You will hear Tom Kelly interviewing Rachel Smith.

a. Write down the first two questions that he asks.

b. What phrases does Rachel use to answer?
c. What other topics for a *small talk* can you suggest?

Exercise 9. Audio 2.6. Match the beginning and the end of phrases. Then listen to another part of the interview and check your answers.

1	What really caught my eye	**a**	continuing education initiatives
2	I was really impressed	**b**	with your ambitious goals and the clear plan
3	I love your	**c**	to build employee satisfaction and loyalty
4	I think that really helps	**d**	was your focus on growth

Asking about how you found out about the position is a simple wide-spread question with a simple answer, think about your answer and practice it out loud.

Example responses:

- *I heard about the position from one of your current employees, Bob Greene.*
- *I heard about the position from my friend Liz Miller, who works in Accounting.*
- *I saw this position on LinkedIn.*
- *I read about the position on your website.*

Exercise 10. Audio 2.7. Read the context. Then, listen to the next part of the interview and complete the text below.

Common Question: What do you consider to be your greatest weakness? This question can be a tough one. You want to be as honest as possible when answering this question. This is an opportunity to show a future employer that you know yourself, and are willing to work to improve yourself. Share a weakness, like public speaking, or attention to detail, fear of failure. And then talk about ways you've worked on improvement in that area.

My biggest weakness is _____ _____. It's something that I've spent a lot of time working on and in which I've _____ a great deal. I'm very comfortable in smaller meetings with my teams. But when I present an idea or concept to a larger _____, I still _____ some stage fright. At this point, I can _____ these situations professionally, but I would like to be more comfort in these moments so I can really enjoy the _____of _____, rather than just survive it.

Think how you can answer this question. Use such phrases as:

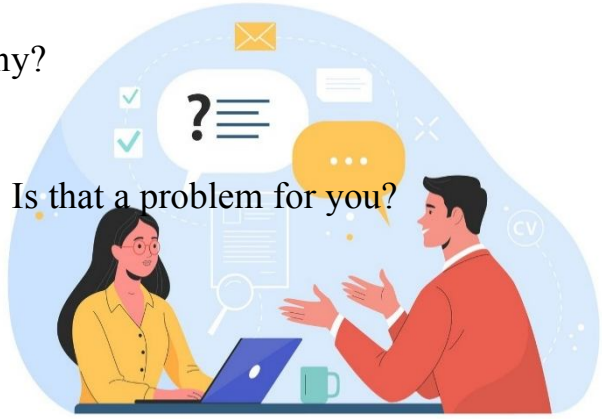
- *My greatest weakness is ...*
- *I have sometimes struggled with ...*
- *It shows up in my work when __.*
- *The ways I've worked to improve in this area are ...*
- *To help myself improve in this area, ...*
- *To avoid this, ...*
- *While I am still working on it, I have been able to ...*

Exercise 11. Audio 2.8. Listen to the final part of the interview and decide if the following statements are true or false according to the listening.

1. Rachel wants to know what can depress the future employee the most.
2. Tom admits that during a year the staff can teach a newcomer.
3. In a year the team should be able to produce machines.
4. The team have been working for more than five years together.
5. The team is desperate about changing their leader so often.
6. Tom says that he would rather find the leader within the company.
7. Rachel promises to call back.
8. Rachel doesn't believe Tom will call her.

Exercise 12. In pairs, interview each other for a job of your choice. Use questions/expressions from the list below and any others that you may need. Would you give your partner the job? Why/why not?

- How would you describe yourself?
- Could you tell me who you work for at the moment?
- How long have you been working for ....?
- Why do you want to work for this company?
- Why are you leaving your job?
- What can you offer our company?
- You know this job requires a lot of travel. Is that a problem for you?
- Have you had any experience in ...?
- What are your goals for the future?
- What is your greatest weakness?
- How do you cope with pressure?
- What are your salary requirements?



For additional practice of interview questions, go to Appendix p. 116.

Language at work

Describing current activities

Exercise 13. Look at the verb in bold in these three sentences. Which tenses are used and why?

1. I **operate** these machines manually.
2. I **am** currently **investigating** ways of decarbonization during production processes.
3. I **have been working** as a team leader for three years.

Exercise 14. Read these three sentences. Are they talking about now or in general? Do they know how long the action is taking place?

1. He delivers lectures on dynamic modelling.
2. He has been studying this issue for a decade already.

3. He is supervising me at my research project.
4. Now it means that he is my scientific advisor.

Exercise 15. Complete these rules with *simple* or *continuous*.

1. We use the present _____ to talk about general facts or regular actions.
2. We use the present _____ to talk about current actions or temporary projects.
3. We use the present perfect _____ to talk about actions which started in the past and continue up to the moment of speaking.
4. Some verbs are not used in the present _____ when we are talking about states, not actions (*understand, believe, mean, fit, suit, belong etc*.).

Exercise 16. Choose the correct answer from the works in *italic*.

1. What are *you doing/ do you do / have you been doing* in my laboratory all this time? Why is it so messy?
2. Don't bother him. He *calculates/ is calculating/ has been calculating* to present the findings in the table.
3. They *are knowing/ know/ have been knowing* what is wrong with this machine.
4. They *research/ are researching/ have been researching* the project into artificial intelligence.
5. How long *do you write/ are you writing/ have you been writing* the first chapter of your thesis?
6. I didn't know that he *supervises/ is supervising/ has been supervising* the laboratory for his all life.
7. Professor Shepard *delivers/ is delivering/ has been delivering* lectures on personalized drug treatments for the students of medicine although this subject is generally taught by Professor Wilson.
8. I am in charge of a big team, so I *suggest/ am suggesting/ have been suggesting* ideas, the team usually *discuss/ are discussing/ have been discussing* my proposals and we all *make/ are making/ have been making* decisions.

Exercise 17. Work with a partner. Ask and answer questions using the following prompts.

1. what / you / work on / this weekend
2. you / like / travelling
3. how often / you / work late
4. you / have / any problems at work / at the moment
5. who / you / talk to / right now
6. how many people / be / in your English class / today
7. what / you / think / at the moment
8. you / understand / the word "deadline

Exercise 18. Complete these sentences with the present simple, the present continuous, or the present perfect continuous of the verbs in brackets.

1. Look at that man over there! Why _____ (he / sit) at my bench?
2. What _____ (you / work) on at the moment? Anything interesting?
3. You seem quiet today. _____ (you / think) about the presentation?
4. They _____ (have) huge problems with spoilt dairy products.
5. Meghan usually _____ (work) at this office, but today she _____ (stay) at home.
6. What _____ (you/ think) about your new boss?
7. He _____ (think) of changing his career.
8. How much _____ (you / plan) to pay me for working at that position?

Exercise 19. Write notes on the notepad bellow about some current events and activities in your life.

1. Give a mini presentation to the class using your notes.
2. Listen to the other members of the group and prepare two questions on their presentations.

Training or education _____

Planning a holiday _____

My work _____

My free time _____

Ways of practicing my English _____

Other _____

» **For more exercises, go to Practice File 2 on page 73.**

Writing activity

Exercise 20. Study the structure of the letter of motivation and answer the questions below.

HEADING	Your Mailing Address City, State Zip Code Today's Date *4 "Return"s or "Enter"s on Keyboard*

INSIDE ADDRESS	Employer's Name Job Title Business Name Business Address City, State Zip Code
SALUTATION	Dear (Mr./Mrs./Ms.) (Use the name of the person that will read the letter) / Dear Sir or Madam/ Dear Sirs:
INTRODUCTORY PARAGRAP	In response to the February 24th advertisement in the Bangor Daily News, I have enclosed my resume for the Senior Researcher position.
1 MAIN PARAGRAPH	I have two years of prior work experience as a associate professor with XYZ Research. My work has involved lecturing the foundations of Research Process. I have also been responsible for all preparing scientific annual reports, as well as organizing students' conferences. I am very detail oriented and able to handle multiple tasks simultaneously.
2 MAIN PARAGRAPH	I am currently completing post graduate studies at Northern Maine Technical College. In completing this program, I have gained valuable experience in several computational techniques. Additionally, my training has provided me with the skills to reach my goal of office management.
CLOSING PARAGRAPH	I welcome the opportunity to discuss my qualifications with you in person. I can be reached at (207) 555-1234. Thank you for your time and consideration.
COMPLIMENTARY CLOSE	Sincerely,
SIGNATURE	*4 "Return"s or "Enter"s on Keyboard*
NAME	Joe Doe
ENCLOSURE	Enclosure / Attachment

1. How should you address the person you are writing to?
2. What should you write if you do not know the person you are writing to?
3. In what part do you describe your skills and knowledge?
4. What relevant experience can be included into the cover letter?
5. How do you say that you are prepared for the interview?

Exercise 21. Fill in the gaps of the following letter of motivation.

Akiko Tanaka
52 Orchard Street
London
W2 3BT
Mobile: 07960 999999
E-mail: akiko9999@hotmail.com
Fortnum & Mason's
181 Piccadilly
London
W1A 1ER

3 August 2023

Dear Sir/Madam,

Re: Job as a part-time sales assistant (reference: JBW5014)

I would like to (1) _____ for the job of part-time sales assistant in the food section of Fortnum & Mason's in Piccadilly, as (2)_____ in "Recruit Now" on 2 August. Please find (3) _____ a copy of my CV.

My previous jobs include two years as a sales (4) _____ in an organic food shop in Japan. This has given me (5) _____ of dealing with customers, as well as cashier skills and a basic (6) _____ of food retailing.

I have been living in London (7) _____ last September, and am currently studying English at a (8) _____ school. I have good English communication skills (recently I passed the Cambridge First Certificate in English exam). My fluency in Japanese may be useful when (9) _____ with your Japanese customers. I am an enthusiastic worker, and enjoy (10) _____ in a team. My student visa (11) _____ me to work up to 20 hours per week (or longer during my school holidays), and I could (12) _____ work immediately.

I would welcome the opportunity to (13) _____the job vacancy with you on the telephone or at an (14) _____. I can be contacted most easily on my (15) _____ telephone or by e-mail (see details at the top of this letter).

Yours faithfully,

Akiko Tanaka

» **For more exercises, go to Practice File 2 on page 4.**

UNIT 3. RESEARCH CHEMIST

Starting point

1. Read the quotation below and say how you understand it.

> *"The country which is in advance of the rest of the world in chemistry will also be foremost in wealth and in general prosperity."*
>
> *William Ramsay*

2. Look through the pictures (A-E). What activity do they depict? Describe them carefully (Foreground, background, what are people doing? what are they wearing? why is it important?).

A

B

C

D

E

Working with words

Exercise 1. You are going to apply for the position of a research chemist. The first group of students think of the list of questions to an applicant. The second group of students think of a list of questions to be asked to an employer.

Exercise 2. Fill in the gaps of the text with sentences. (Study the options first. Identify what word or word combination can help you to decide upon the position of the sentence in the text. The first one has been done for you). There are two options that you do not need to use.

1. In addition to working in laboratories, they may work with engineers and processing specialists in industrial manufacturing facilities.
2. At the same time, any research chemist should update their skills regularly.
3. Occasionally, they may have to work additional hours to meet project deadlines or perform time-sensitive laboratory experiments during off-hours.
4. Others use knowledge in applied research settings, using the chemical materials to develop useful products and processes.
5. Practical application is as well important since it benefits the society in general.
6. For example, a petrochemical researcher uses their understanding of petroleum ***to break down*** oil into its chemical components to make products like adhesives, plastics, pigments and cosmetics.
7. A joint work with specialist from other areas is also important.

Who is a Research Chemist

Everything that surrounds you, starting from food through the objects you use in your daily life (and you yourself) is composed of chemistry. And it's the task of a of research chemists to learn, experience and investigate all physical and chemical wonders of the world. Therefore, every research chemist should be highly educated, broad-minded and spend years perfecting themselves in profession.

Duties. A research chemist ***is in charge of*** studies and experiments with new products. They primarily conduct research on existing products with the goal of improving them. They may also research new products to test for safety ***concerns***, health impacts on a user and chemical reactions within a system. Research chemists analyze chemical samples, conduct tests and develop hypotheses concerning different products. The research findings they discover can help other research chemists create new medicines, lead to innovation in products and enhance

existing materials. (1) _____ Some researchers specialize in basic research, the study of the fundamental processes and structures of chemicals. (2) _____

Education. Most research chemists hold master's or doctoral degrees in chemistry. However, some employers will hire you for an entry-level position if you hold a bachelor's degree in chemistry.

Once you've ***enrolled in*** a bachelor's degree program in chemistry, you could expect to take physics, calculus and general chemistry. You would also ***complete courses*** in various subfields of chemistry, including organic chemistry, inorganic chemistry and physical chemistry. A growing number of programs also require you to take biochemistry.

After you obtain your bachelor's degree, you could pursue a Master of Science or a Doctor of Philosophy (PhD) in Chemistry. Once you've enrolled in a graduate program, you'd select a research area on which to focus your master's thesis or dissertation research.

Soft Skills. Apart from the necessary knowledge in science and chemistry,

a research chemist must be curious about natural environment and the ability ***to come up with*** new experiments or products. (3) _____ This ability to work in a team and communicate with others is very highly necessary. A research chemist as a leader or a manager of a project should be able to ***allocate resources*** properly and direct others to ensure research goals are met.

Work Environment. Research chemists typically work in laboratories and offices, where they conduct experiments and analyze their results. (4) _____ Some research chemists who work for manufacturing companies may have to travel occasionally, especially if their company has multiple facilities. Others may work ***in the field*** to collect samples and conduct onsite analysis of air, soil, or water.

In general, research chemists typically work full time and ***keep regular hours***. (5) _____

Jobs and Salaries. The ***average*** research chemist salary in the United States is $69,475 as of January 26, 2023, but the salary range typically falls between $61,861 and $78,448. Salary ranges can vary widely depending on many important factors, including education, certifications, additional skills, the number of years you have spent in your profession.

Exercise 3. Answer the following questions.

1. What are the responsibilities of a research chemist in a scientific laboratory / fields/ commercial organization. Compare them. What do they have in common? What is different?
2. Name the stages of education for a research chemist. What can you do at each stage? What are their benefits?
3. Describe usual working environment of a research chemist.
4. Do the Internet search. Find and present the information about average research chemist salary in Ukraine, Germany, France, Brazil.

Exercise 4. Match the definitions with the highlighted words and word combinations from the text.

1. To distribute people, money, materials, tasks _____
2. To register for something _____
3. Typical, or being in the middle of some value _____
4. To be responsible for something _____
5. Outside of an office or laboratory _____
6. An issue to be discussed or a problem to be solved _____
7. To have a set schedule for something _____
8. To develop, design or think of something new _____
9. To finish, to do till the end _____
10. To decompose, to fall apart, to decay _____

Exercise 5. Fill in the gaps of the following sentences with active vocabulary. Mind the grammar and the context.

1. Einstein _____ the theory of relativity on a cycle ride.
2. Before analyzing species in the laboratory, Eddison worked _____ to collect them and divide into groups.
3. She successfully _____ the London Marathon last year.
4. 40 hours is a fairly _____ working week for most people.
5. The center will soon be ready to _____ candidates for the new program.
6. Expenditure on the project _____ as follows: wages $10m, plant $4m, raw materials $5m.
7. He taught her maths, and by the age of sixteen she _____ already _____ all the business accounts.
8. When she gets really busy, she _____ for eating or sleeping.
9. The Government says it will use the new system _____ to those councils with the worst housing problems.
10. Environmental _____ must be given precedence over commercial interest.

Exercise 6. Look through the following job advertisements and answer the questions.

1. What may be the position advertised?
2. Where are you expected to work?
3. What is the necessary educational level?
4. What are you in charge of?
5. What kind of salary do they offer?
6. Is it a long-term or short-term job?
7. Who may obtain the position?

A. Employer IMDEA Nanociencia Institute
Location Madrid, Comunidad de Madrid (ES)
Salary Average annual gross salary of € 24,600 (see the description for more information)
Outline
In this first call for applications, An MSCA PhD fellowship will be offered to outstanding doctoral candidates for the duration of 3.5 years (42 months) to undertake a PhD project in nanoscience and nanotechnology at IMDEA Nanociencia, in Madrid. A full list of PhD projects is published on the IDEAL PhD website. Applicants are able to freely choose a PhD project and associated supervisor that fits their individual research interest. The IDEAL PhD fellows recruited in this call are expected to start their fellowship in October 2023.

B. Employer Georgia Institute of Technology/College of Sciences
Location Atlanta, Georgia
Salary Commensurate with experience
Outline
We encourage the application of mid-career and senior faculty, the equivalent at non-academic institutions, and exceptional assistant professors. The successful candidate will have a proven track record of cutting-edge research, be nationally or internationally recognized, and promote transformational research within their discipline. Candidates are expected to demonstrate an impactful commitment to the teaching and mentoring of diverse groups of students and the creation of inclusive training and research environment. A doctoral degree in a suitable discipline within their home academic unit is required.

C. Employer Pfizer
Location Lake Forest, Illinois
Salary Competitive
Outline
Must-Have
Applicant must have High School Diploma (or Equivalent) with six years of relevant experience; OR an Associate's degree with four years of experience; OR a Bachelor's degree with 0-2 years of experience. Degree preference in Chemistry or Biochemistry. This individual should have a minimum of 0-1 years experience in a Quality Control or R&D Laboratory.
Physical or Mental Requirements:
Must be able to work in a chemical laboratory which includes standing and walking while performing analytical testing.

Exercise 7. Translate the following sentences into English.

1. Претендент на цю посаду повинен мати диплом про завершення магістерської програми та трирічний досвід практичної роботи.

2. До завдань керівника проєкту належить розподіл завдань між працівниками у відповідності до їх кваліфікації та досвіду.

3. Минулого року я записався на курси медіаграмотності та отримав поглиблені знання із академічної доброчесності.

4. Нарешті йому вдалося побудувати прототип приладу, після чого він висунув ідею масового виробництва продукту.

5. Після роботи на полях та плідного обговорення проблем довкілля, група змогла представити результати роботи комісії.

6. На відміну від мого керівника, який є відповідальним за численні програми сертифікації хіміків-дослідників, я просто працюю лаборантом і маю можливість дотримуватися режиму дня.

7. Розщепивши ядро атома у 1932 році, А. Вальтер, Г. Латишев, О. Лейпунский та К. Синельников зробили великий внесок у такі галузі науки як фізика і хімія.

8. Середні кількість людей, що записуються на курси іноземних мов, росте із року у рік.

9. Якщо ви не зможете правильно розподілити час та фінансування вашого дослідження у дослідницькій пропозиції, вам можуть відмовити у гранті.

10. Відділ аспірантури є відповідальним за створення загального списку програм доктора філософії.

» **For more exercises, go to Practice File 3 on page 75.**

Communication skills

Exercise 8. Think about your laboratory notebook.

How does it look like?
What information does it contain?
Why do you have to keep it?
What is your way of keeping it?

Exercise 9. Audio 3.9. Listen to the description of a laboratory notebook. Note the peculiarities of each type. Which one is better and why?

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

Exercise 10. Audio 3.10. Listen to the next part of the description of a laboratory notebook. Decide if the following statements are TRUE or FALSE.

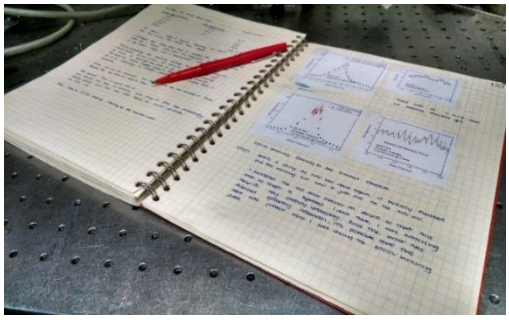
1. You should leave the first page for a table of contents.
2. You should not use erasable pens and pencils when writing down any information.
3. It's not critical if you make any mistake.
4. Never attach anything to your laboratory notebook.
5. Make notes only if you have time for it.
6. Your laboratory journal can help you to carry out a similar experiment once again.
7. You should write the details rather than neglect substances names.
8. Your notes aren't important any more, once you have succeeded in your experiment.

Exercise 11. Audio 3.11. Listen to the third part and fill in the gaps with missed phrases.

How do I correct a mistake? Typically, the way to do it is to draw a single line through the error and then initial and date the corrected annotation. If you _____ about why you corrected the annotation, that's all do to the good. If you _____ on a whole page, again you can draw a line through the whole page and initial and date that line. If for any reason, you _____ a blank page, put a line through that page and initial and date that line too. There should be no empty spaces left in your laboratory notebook in case _____ later to fill those in.

Exercise 12. Audio 3.12. Listen to the last part of the description of a laboratory notebook. Answer the following questions.

1. Why does the speaker call your laboratory notebook a legal document?
2. According to the American legislation, who can patent an invention? Make internet research and find such information for your country.
3. How should you organize and keep your laboratory notebook so that it can be accepted as evidence?



Language at work

Making suppositions

Exercise 13. Return to Exercise 11 and analyze the grammatical structure of conditional clauses. What tense do you use to state the condition?

Exercise 14. Match the following sentences with the category they belong to.

a. As soon as I ***have returned*** from the business trip, the boss ***will appoint*** the meeting.
b. When Joseph **graduates** from the university, he'***ll start*** looking for a job.
c. Supposing you ***fail*** the exam, what ***will you do***?
d. ***Prepare*** for the questions beforehand in case there ***are*** some.
e. You ***are not going to get*** a scholarship, unless you ***apply*** now.
f. If you ***don't keep*** your lab notebook neat and tidy, it ***can't be accepted*** as a legal document.

1. To provide instructions for a particular case _____
2. To predict the result of a current situation _____
3. To emphasize that one action should be completed for another action to take place _____
4. To show the sequence of events _____

Exercise 15. Match the beginning and the end of the sentences.

1	You should not start a new experiment…	A	… you should star describing its details.
2	If you don't prepare for the committee questions …	B	… where shall I look it up?
3	The company will lose its investor if …	C	… you may find yourself in a difficult situation.
4	Write down every step of the experiment in detail, …	D	… unless you have finished a previous one.
5	Supposing I forget the date of this experiment ….	E	… it does not launch the product on time.
6	As soon as you have carried out a successful experiment …	F	… in case you have to reproduce it.

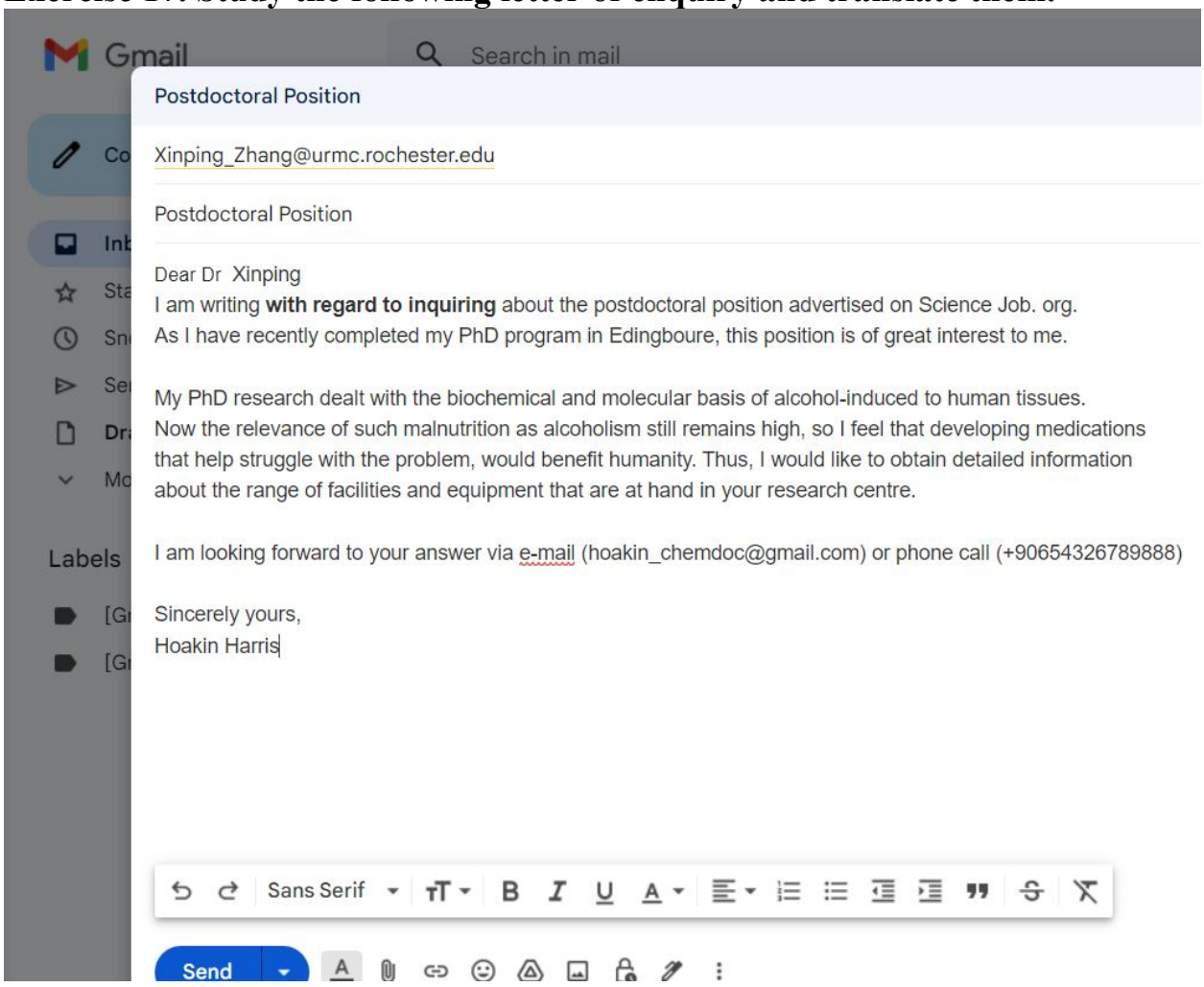
Exercise 16. Work with a partner. Discuss what you will do if…

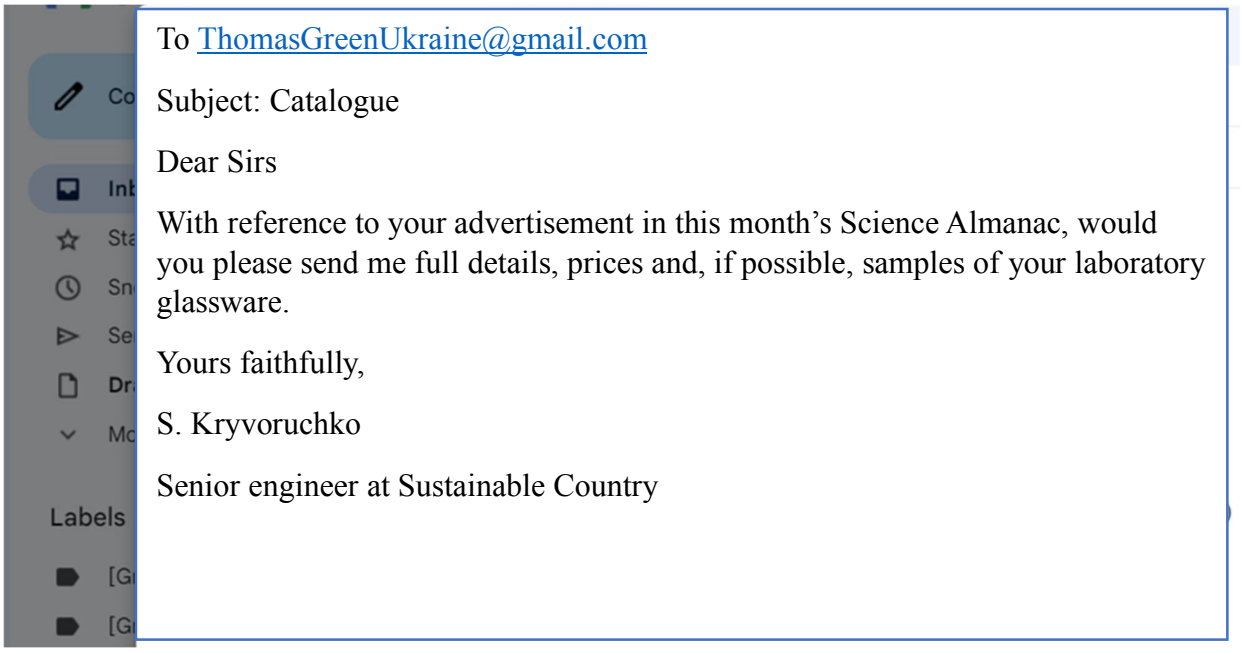
- your colleague loses the file with the outcomes of your work.
- you have to relocate to another country.
- you notice a mistake during professor's lecture.
- the results you get do not meet your expectations.
- your scientific advisor appoints you a meeting at the time that has been already scheduled.

» **For more exercises, go to Practice File 3 on page 77.**

Writing activity

Exercise 17. Study the following letter of enquiry and translate them.





Exercise 18. Complete the table with the focus phrases.

Introductory phrases	
	Відносно Вашої реклами в / листа про …
With regard to your advertisement in … of …, we would ask you…	
	Ми бачили Ваш каталог, де дається опис …
A request for additional information	
I would like to obtain detailed information concerning …	
	Ми зацікавлені у придбанні …
We would be glad to receive specifications of your new items /your current export price list/ detail of trade discounts	
	Будь-ласка, повідомте нас яку кількість ви можете поставити до …
A request for actions	
Would you / Could you send me …	
If we pay in advance, will you dispatch the order as soon as possible?	
	Надішліть нам накладну для оплати через банк
	Направте Вашого представника для проведення інструктажу.

Exercise 19. Write the following letters.

- ✓ *Write a letter on behalf of your head of the group requesting information about the conditions of participating in an international conference.*
- ✓ *Write a letter from Oleh Marchenko to the HR manager of Médecins Sans Frontières making an enquiry about possible vacancies for doctors.*
- ✓ *Make up a letter of enquiry from Yehor Havrilyuk, an under-graduate student, to the University of Manchester requesting detailed information about possible Master programs.*
- ✓ *Compose an enquiry letter from the senior engineer of your institute to the School of Chemistry about the possibility to send trainees to occupy vacant positions of laboratory assistance and a supervisor for initial guideline.*

» **For more exercises, go to Practice File 3 on page 78.**

UNIT 4. INDUSTRIAL CHEMISTRY

Starting point

1. **Look at the following pictures. What is the difference between them? What do they have in common?**

Picture A.

Picture B.

2. **Look at the following pictures. Think how phenomena depicted there can influence the development of industrial chemistry.**

1.

2.

3.

4.

5.

6.

Working with words

Exercise 1. Look through the following extract. Fill in the gaps with the words in the left column.
What is the purpose of industrial chemistry?
What is the difference between industrial chemistry and chemical engineering?

focuses
innovative
responsible
confused
concerned
process
rubber

What is Industrial Chemistry?

Industrial chemistry is the **(1)** _____ of transforming matter into materials that are useful to humanity through chemical processes. For example, the transformation of **(2)** _____ into tires.

Industrial chemists use chemical testing and **(3)** _____ ideas to solve problems and improve products. They are **(4)** _____ for the creative use of chemicals to improve a product's performance at the microscopic level.

Industrial chemistry is not to be **(5)** _____ with chemical engineering, which **(6)** _____ more on how to process and produce goods using chemicals. Industrial chemists are more **(7)** _____ with improving the production process.
(*Adopted from: https://www.ace-laboratories.com/what-is-industrial-chemistry/)*

Exercise 2. Read the text. Match the paragraphs with their titles. There are two options you do not need to use.

A. How can an industrial chemist build a career in a public sector?
B. What is the role of an industrial chemist?
C. How is industrial chemistry connected with law?
D. What are the perspectives of an industrial chemist in pharmaceuticals?
E. Where does an industrial chemist work?
F. What will you call your job?
G. Why would an industrial chemist do something like this?

What is the Role of an Industrial Chemist?

Chemicals make up everything in the environment, whether it's naturally occurring or created by humans. On a large scale, an industrial or production chemist designs, runs, troubleshoots, and improves chemical and material production processes.

1._____ Industrial chemistry has aided in the discovery and development of thousands of new and improved synthetic fibres, paints, adhesives, drugs, cosmetics, electronic components, lubricants, and other products, as well as improved oil ***refining*** and petrochemical processing processes that save energy and reduce pollution. The industrial chemistry program assists students in ***gaining*** essential knowledge and skills in industrial chemistry. This course teaches how to understand simple and complex chemical reactions, as well as how to apply them to common reactions like photochemical reactions and polymerization.

2. _____ Industrial chemistry is the application of many chemical principles and procedures in a practical setting. The following are examples of typical tasks:

- ✓ Analyzing raw chemicals and ***simulating*** chemical plant operations using thermodynamic principles and computer modeling.
- ✓ In a wide range of industries, from chemical production to paint formulation, oil refining, and milk pasteurization, theories and processes for product development are being tested.
- ✓ Working to improve complex chemical processes and their environmental ***impacts***, particularly in the petrochemical and energy production industries.
- ✓ Chemical engineers, process engineers, analytical chemists, and polymer chemists are just a few of the professionals you'll be working with.

3. _____ Industrial chemists typically work in chemical plants and laboratories in a variety of industries, such as:

- ✓ manufacturing of advanced materials,
- ✓ paints and coatings are examples of building materials,
- ✓ manufacturing of chemicals,
- ✓ paper,
- ✓ petroleum.

Industrial chemists may spend a significant amount of time in analytical laboratories and in plants, but they may also work in offices when conducting theoretical research or planning, recording, and reporting on their lab research.

4. _____ A growing number of government-funded chemistry careers exist in areas such as law, policy, defense, public health, and the environment, in addition to careers as researchers in state-led initiatives. For instance, Forensic careers are not just about gathering evidence; forensic experts may be called upon to testify in court, and chemical experts are needed to conduct analyses on existing policies to ***ensure*** they're current with scientific advances. If you choose to work in public policy as a scientist, you may have the opportunity to conduct research that will help shape your country's science policy as well as national health and safety ***regulations***. Environmental consulting, agriculture, and chemical diagnostics are all public-sector options for chemistry graduates interested in focusing on environmental issues. All of these positions are concerned with the chemical state of the Earth's environment and the analysis of ***pertinent*** data (e.g., meteorological data or chemical analysis of soil, water and by-products).

5. _____The pharmaceutical industry, which is closely related to the ***healthcare*** industry, is massive in its own right, with a correspondingly large job market. Pharmaceutical chemists are needed to design, develop, analyze, evaluate, and regulate new and existing pharmaceuticals as demand for specialty and new drugs grows. These chemists not only have technical knowledge, but also have strong team, communication, and management skills, as well as an understanding of mathematics and analytical thinking. While synthetic pharmaceutical chemists (also known as medicinal chemists) are responsible for researching and developing new, cost-effective drugs for the market, analytical pharmaceutical chemists are responsible for testing and chemical analysis of new drugs to ensure that they are safe for human ***consumption*** and comply with government regulations. Toxicology is another rapidly ***expanding*** field in chemistry, with specialists tasked with identifying chemical risks and harmful toxins in any chemical intended for public consumption. (*Adopted from: https://www.itm.ac.in/blog/various-reasons-to-do-an-undergraduat-degree-in-industrial-chemistry.html*)

Exercise 3. Use the highlighted words from the text to complete the sentences below.

1. Good _____ cannot be delivered without properly funded social care.
2. You can say dreams have a biological cause and an emotional _____.
3. Einstein's equation predicted our _____ universe and black holes long before there was any proof.
4. The new _____ will put additional burdens on many digital companies.
5. Any unsold food that is still suitable for human _____ is given to charities.
6. Other priorities for the oil giant include _____, infrastructure and petrochemicals.
7. It said many positive measures had been introduced since then to _____ that young people were protected.
8. Forty barrels of fake blood were used to _____ the effect of blood in the seawater.
9. The _____ question, he said, was not who selected the samples, but who 'deselected' others.
10. Students also undertake company projects to _____ experience of issues facing actual situations.

Exercise 4. Find the words in the text that match the following definitions. The number of the paragraph is given in brackets.

1. a thin thread of a natural or artificial substance, especially one that is used to make cloth or rope (paragraph 1)
2. a substance which you put on the surfaces or parts of something, especially something mechanical, to make the parts move smoothly (paragraph 1)
3. making a substance pure by taking other substances out of it (paragraph 1)
4. any of a series of points on a scale or dial that can be selected to control the level as of temperature, speed, etc, at which a machine functions (paragraph 2)
5. a method of destroying disease-producing bacteria and checking the activity of fermentative bacteria (paragraph 2)
6. present the news (paragraph 3)
7. anything that you see, experience, read, or are told that causes you to believe that something is true or has really happened (paragraph 4)
8. a particular subject or activity is progress in understanding it or in doing it well (paragraph 4)
9. a medicine or a drug (paragraph 5)
10. the using up of goods or services (paragraph 5)

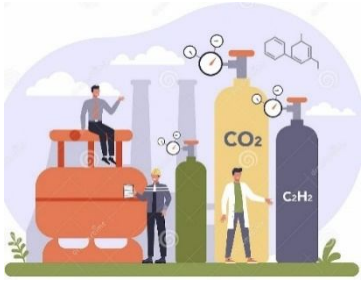
Exercise 5. Use the words from Exercise 4 to complete the text.

Nowadays, chemical industry is developing faster than ever. We can witness the results of its **(1)** _____ in every sphere of human activity; take for instance, food industry, transport industries and pharmacy. Many **(2)** _____ show that the former makes use of **(3)** _____, as it helps meet the needs of a constantly rising population and increasing food **(4)** _____ associated with it.

As the latter, the WHO **(5)** _____ that though the development of new **(6)** _____ is a promising branch of business, it still requires and encourages a sustainable investment. The reason for it is that current **(7)** _____ of pharmaceutical business focus on wealthy parts of the world rather than developing countries.

At last, chemical industry largely depend on the extance people strive for a good life by building houses and buying new cars. If the former causes the rise of manufacturing of building blocks, glass and **(8)** _____, the latter results in promoting oil **(9)** _____ processes and **(10)** _____ production.

Exercise 6. Audio 4.13. Listen to three people speaking about their opinion why industrial chemistry is important. Match the following points with the speaker who communicated this idea.



Speaker 1 _____ a. the inventions of new materials
Speaker 2 _____ b. the importance of action
Speaker 3 _____ themselves
c. the combination of different functions
d. the importance of people's lives
e. the ability to work in sales

For more exercises, go to Practice File 4 on page 79.

Communication skills

Exercise 7. Revise the safety rules in the laboratory. What rules do you remember about the prevention of an accident? What rules do you remember about fighting the consequences of an accident? Name as many as you can.

Exercise 8. Listen to the first part of instruction about safety rules in the laboratory. Fill in the table with essential information.

Dress	***PPE*** *(_____ equipment)*	***Leaving the lab***
● wear _____ and _____ shoes; ● remove _____; ● leave personal items like _____, _____ or _____ outside;	● always _____ your coat; ● wear a chemical _____; ● wear _____; ● a _____ can protect you from dangerous _____;	● remove _____ and wash _____ because you can _____ chemical or biological contaminations by touching items.

Exercise 9. Audio 4.15. Listen to the second part of the lecture about safety equipment in the laboratory. Put the following ideas in the order they appear in the text.

_____ Keep your eyes open when you rinse them.
_____ Exhaust hood can help you avoid toxic vapors.
__1__ Safety shower should be tested for work every week.
_____ An experienced fire-fighter should teach you how to use a fire extinguisher.
_____ When your skin is exposed to flame, wash it in the safety showers.
_____ Every lab should keep basic pharmaceuticals.
_____ Always remove substances after you used them.
_____ Use the blanket on a person on fire if they lie on the floor.

Exercise 10. Audio 4.16. Listen to the third part of the lecture about the behavior in the laboratory. Correct the notes of the lecture below.

Standard Operating Procedures

- ✓ *Don't drink or eat in the lab. Chewing gum is permitted*
- ✓ *Always work in the group of three people in the lab*
- ✓ *Put chemical bottles away from the table on the floor*
- ✓ *Clean spills as soon as you have time*
- ✓ *After you've finished the experiment, put all glassware in the sink*
- ✓ *Dispose the glass if broken into a waste bin*
- ✓ *Having finished the experiment, clean lab benches with water*

Exercise 11. Audio 4.17. Listen to the instructions about labeling hazardous substances. Put the following signs in the order they appear in the text.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

A.

B.

C.

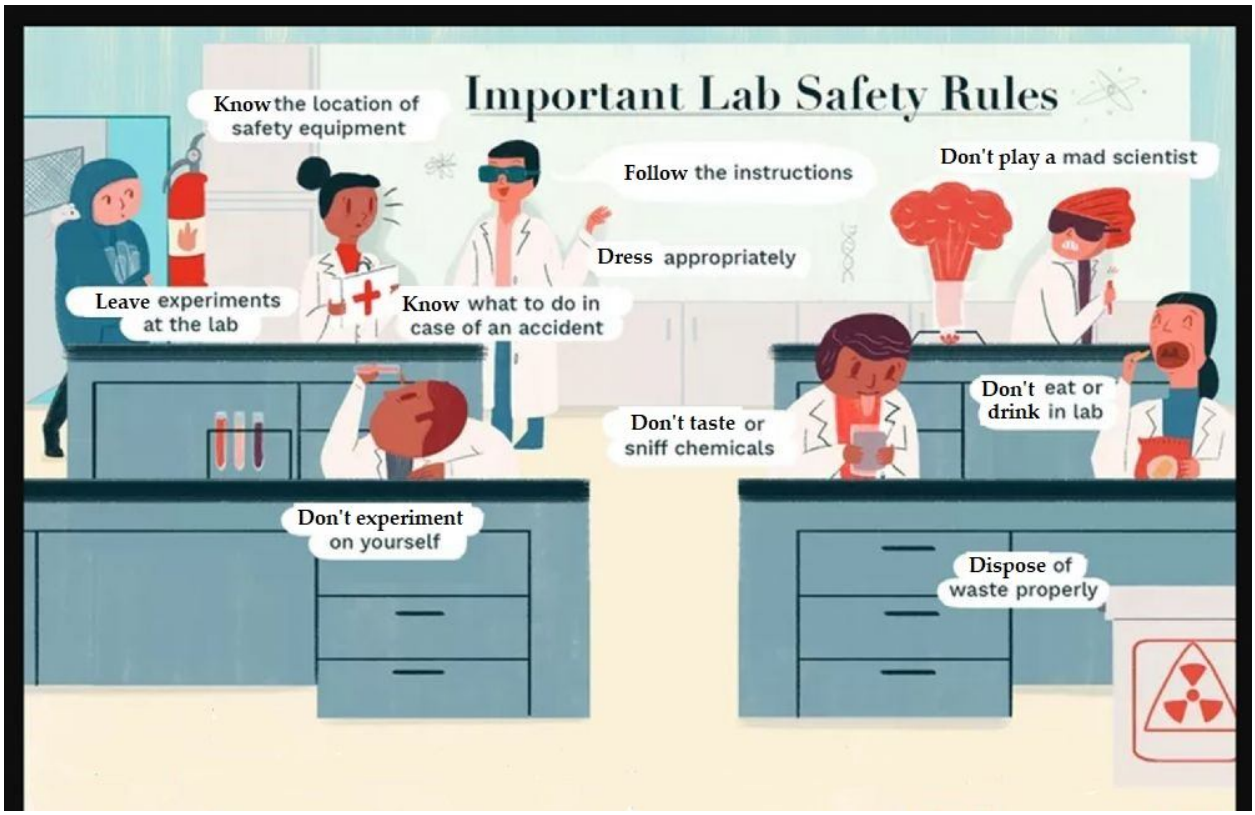
D.

E.

F.

Exercise 12. Think and formulate safety precautions for the following cases. Present then to the group.

- making chemical solutions;
- utilization of chemicals;
- working with corrosive chemicals;
- working with flammable chemicals;
- working with electrical equipment;
- working with gas cylinders.



Language at work Giving instructions and recommendations

Exercise 13. Study the following sentences.

1. *If I were you, I wouldn't use* this technique. It's incompatible with our methodology.

2. The training how to use a fire extinguisher is *highly advisable*

3. *Wear your lab coat* to be protected from spills

4. *It's worth trying* this method…

6. The time for the test is limited, so *I strongly recommend not to waste it.*

Which sentence is use to …

a. give a clear instruction _____
b. give a mild instruction _____
c. express a strong recommendation _____
d. express a mild recommendation _____

Exercise 14. Give your instructions or recommendation as to the following situations. Provide your reasoning. For instructions and recommendations, use phrases from the box.

- The floor is wet.
- There has been an explosion in the lab.
- A volatile substance was spilled on the floor.
- Your friend has to work with a Bunsen burner.
- Your groupmate cannot meet the deadline with their course paper.
- A test-tube rack has fallen down and the glassware has been broken.
- Your friend doesn't know how to attach his telephone to the speaker.
- You arrange the meeting for a research group. It starts at 9.00 a.m. sharply.

Instructions
Wear your lab coat/ write it down … (imperative positive)
Don't eat / Don't put waste … (imperative negative)
You must / should follow the rules (modals, obligation)
You mustn't run in the lab (modals, prohibition)
Recommendations
It is (highly) advisable / recommended that you wear …
I recommend / advise you to …
…(noun or gerund)… is (highly) advisable/ recommended
If I were you, I would …
It is (not) worth …
There is no use/ sense in …

» For more exercises, go to Practice File 4 on page 81.

Writing activity

Exercise 15. Study the following letters of invitation and answer the questions below.

Dear Prof. Letikoff,

It is with great pleasure that we invite to participate in our annual conference dedicated to environmental issues of industrial chemistry "Sustainable world with sustainable chemistry".

This year it is hold 20-22 October in Cube Conference Hall, Munich.

Please, send the topic of your report not later than 15 August. If you need to book accommodation, please, feel free to indicate it in the register form attached.

Do not hesitate to contact us if you need any further information. We are looking forward to your reply.

Yours sincerely,

Robert Crowford (The Head of Organizing Committee)

Dear Marion,

As you know, I'm having my paintings exhibited in our city hall from 5 to 10 April. I have been waiting for this event my whole life, and I want to share this moment with my friends. Please, come to the opening on 5 April at 6 p.m. and enjoy this evening with me.

See you soon.

With love, Alice

P.S. There will be snacks and Champaign

1. What language is used in each letter?
2. What is the difference in the structure of these letters?
3. What do they have in common?
4. Is the letter accompanied with any document?
5. Find how the authors express the date and the venue of the event.
6. Does the author provide any additional information? If yes, how?
7. What is the difference between openings and closings of the letters?

Exercise 16. Think of formal equivalents of the following phrases.

Informal phrases	***Formal phrases***
1. I'm glad to invite you …	
2. I'm happy to tell you …	
3. (event) will take place on … in …	
4. Don't forget to …	
5. See you soon	
6. With love	

Exercise 17. Rewrite the following letter to make it more formal. Add information if necessary.

Hello, Anne Adams,

I'm glad to invite you to Tallin to discuss some issues of our future work. As far as I know, you are interested in the grant that our company can provide to your research group.

The meeting will take place in our main office. Don't be late.

See you,

Anton Kauff

Senior researcher at Tallin Research Group Pls.

Exercise 18. Study the following replies to the letter of invitation.

Dear Mr. Crowford

Thank you for your kind invitation of March 24 to participate in the conference "Sustainable world with sustainable chemistry". — Expressing gratitude

We are delighted to accept your invitation and confirm that we will require accommodation for our representatives - 2 senior staff. Details are: — Accepting the invitation

- J. Letikoff, arriving KL050 07:20, 19 October, leaving 12:00, 21 October - 2 nights
- O. Jasmin, arriving SA430 22:50, 19 October leaving 09:00, 22 October - 3 nights

— Providing extra information

Please, find our thesis attached to this letter. Please, confirm on acceptance. — Providing instructions

Sincerely yours,

Jacob Letikoff

Expressing gratitude

Declining the invitation

Dear Mr. Crowford

We are grateful for you invitation of March 24 to take part in the conference "Sustainable world with sustainable chemistry".

We regret to inform you that we will not be able to participate in the conference due to out prior arrangements for this time.

We look forward to our future cooperation

Yours sincerely,

Blake Montgomery

Exercise 19. Complete the table with English and Ukrainian equivalents.

Means of expressing invitation	
We would be grateful (to you) if you could visit ...	
We have the honour to invite you ..	
	Дозвольте запросити Вас …
It would give us great pleasure if you could visit ...	
	Нам було б дуже приємно, якщо б Ви могли прийняти участь / відвідати …
Accepting the invitation	
It will be a pleasure to attend the meeting	
	Із задоволенням приймає мов Ваше запрошення
Expressing gratitude	
	Ми раді прийняти ваше запрошення…
	Ми вдячні за ваше запрошення…
Many thanks for your invitation ...	
Providing additional information	
Find the following information attached to the letter	
	Будь ласка, підтвердить отримання листа
Declining the invitation	
	Ми вимушені повідомити про нашу відмову …
	На жаль, я не зможу бути присутнім на зустрічі …
Explaining	
	… через попередні домовленості на цей час
We already have another commitment for that day	

Exercise 20. Write the following letters:

1. Write a letter inviting the representatives of your research group to attend the defense of your PhD thesis.
2. Accept the invitation on behalf of the group.
3. Decline the invitation.

» **For more exercises, go to Practice File 4 on page 82.**

UNIT 5. PHARMACEUTICAL CHEMISTRY

Starting point

1. **Can you name the stages which a new pharmaceutical product has to pass to appear in a pharmacy?**
2. **How many jobs are involved in this process?**
3. **Look at the following statements and match them with professionals who are in charge of these processes.**

1. I transform the raw materials into medications, package them, and put in the leaflets for the patients.

2. I develop new substances to make new medications or change existing forms to increase its efficiency.

3. I organize the medications documentation and send it to the authorities so we can get an official permission to make and sell this medication.

4. I plan how to promote and sell medications. I also decide on the color of packaging and the product itself.

5. I perform testing of medications and make sure they are safe and effective for the patients.

6. I have to guarantee that the medication meets all the standards and contain the correct amount of necessary substances.

A. Clinical Affairs
B. Marketing and Sale
C. Production
D. R & D
E. Regulatory Affairs
F. Quality Assurance

Working with words

Exercise 1. Match the following words with their definitions.

1.	administer v.	**a.**	the process of testing the ability, quality or performance of somebody/something, especially before you make a final decision about them
2.	cellular	**b.**	the act of giving a document, proposal, etc. to somebody in authority so that they can study or consider it; the document, etc. that you give
3.	efficacy	**c.**	connected with or consisting of the cells of plants or animals
4.	submission	**d.**	to give drugs, medicine, etc. to somebody
5.	target v.	**e.**	to try to have an effect on a particular group of people or particular thing
6.	trial	**f.**	the ability of something to produce the results that are wanted

Exercise 2. Read the text and tell if the statements below are TRUE, FALSE or NOT GIVEN

1. Each medication developed will serve people's health. _____

2. Each year of a new drug development costs nearly £ 96 million. _____

3. The researchers first identify the mechanism of a disease. _____

4. The first safety tests are made with volunteer patients. _____

5. Clinical trials include three stages. _____

6. The first trial involves healthy patients, while the second one involves patients with medical conditions. _____

7. The process of getting a permission to market the medication is different in every country. _____

8. When the company submits the documents for the permission, they include information about its composition and the manufacturing process, the mechanism of its work, safety and efficacy as well as its name. _____

9. Clinical testing of a drug never ends. _____

10. Once the medication is patented, the company will always have exclusive rights for manufacturing. _____

Drug development: the journey of a medicine from lab to shelf

Each year sees a couple of dozen new drugs licensed for use, but in their wake, there will be tens of thousands of candidate drugs that fell by the wayside. The R&D journey of those new drugs that make it to market will have taken around 12 years and cost around £1.15bn.

The journey will have begun in a university laboratory where researchers, with grants from the research bodies or the pharmaceutical industry, have undertaken basic research to understand the processes behind a disease, often at a cellular or molecular

level. It is through better understanding of disease processes and pathways that targets for new ***treatments*** are identified.

Once a potential target has been identified, researchers will then search for a molecule or compound that acts on this target. As many as 10,000 compounds may be considered and whittled down to just 10 to 20 that could theoretically ***interfere with*** the disease process. The next stage is to confirm that these molecules have an effect and that they are safe. Before any molecules are given to humans, safety and efficacy tests are conducted using computerized models, cells and animals. Around half of candidates ***make it through*** this pre-clinical testing stage and these five to 10 remaining compounds are now ready to be tested in humans for the first time.

Clinical trials. If a CTA application is granted, the safety and pharmacology of a candidate drug will be tested first in a small group of healthy volunteers in a phase 1 trial. Small doses of the compound will be administered to a group of 20 to 100 healthy volunteers who are closely ***supervised***. At least half of compounds will usually be considered safe enough to progress to phase 2 trials. Phase 2 studies examine the efficacy of a compound in volunteer patients who have the condition the drug is intended to treat. To avoid unnecessarily exposing a volunteer to a potentially harmful substance, these studies use the fewest number of patients possible to provide sufficient statistical power to determine efficacy, usually 100–500 patients, who are monitored and assessed continuously. The aim of phase 2 studies is to determine the most effective dose and method of delivery (for example, oral or intravenous), the ***appropriate*** dosing interval, and to reconfirm product safety.

Marketing. The process of drug development and marketing authorization is similar across the world. For those drugs that make it to through the trials, a submission for marketing authorizations is made to the national regulatory authority in most countries. The submission contains preclinical and clinical information obtained during testing, including information about the chemical ***makeup*** and manufacturing process, pharmacology and toxicity of the compound, human pharmacokinetics, results of the clinical trials, and proposed labelling. Clinical trials may also continue. For example, to enable the drug to be used in patients with complex medical problems or pregnant women who are unlikely to have been involved in earlier trials, and to ensure that they do not interact with other drugs.

Patenting. Pharmaceutical companies will patent any molecule that shows promise early in the development process. Patenting ***prevents*** other companies copying it for 20 years and ***covers*** many aspects of the intellectual property of a drug, including its manufacture, formulation and, in some cases, its use. Once a patent on a drug ***has expired*** generic versions of the drug can be manufactured and marketed. For some drugs the period of patent protection can be extended for up to a further five-and-a-half years, so long as this does not take the time in which the drug is under patent protection beyond 15 years after the date it received regulatory ***approval***.

(Adapted from: https://pharmaceutical-journal.com/article/feature/drug-development-the-journey-of-a-medicine-from-lab-to-shelf)

Exercise 3. Match the following definitions with the words highlighted in the text.

1. to be no longer legally acceptable because the period of time for which it could be used has ended _____
2. to pass successfully _____
3. to stop something from happening _____
4. to be in charge of somebody/something and make sure that everything is done correctly, safely, etc. _____
5. to deal with something _____
6. to prevent something from being done or happening _____
7. agreement to, or permission for something _____
8. something that is done to cure an illness or injury _____
9. structure, composition _____
10. suitable or acceptable _____

Exercise 4. Use the words from the text and exercise 3 to complete the sentences.

1. This may be an _____ treatment for many patients.
2. The two drugs are nearly identical in _____.
3. No effective _____ exists for this highly infectious disease.
4. During the training period, new employees are closely _____.
5. When does your driving license _____?
6. The testing and _____ of new drugs will be speeded up.
7. We require all employees to _____ _____ a written exam.
8. Emotional problems can seriously _____ _____ a student's work.
9. They took action to _____ the disease from spreading.
10. The Oxford Chemistry Primers aim to _____ important topics in organic chemistry.

Exercise 5. Fill in the table with the derivatives of the following words and fill in the gaps in the sentences bellow.

Noun (common)	Noun (abstract)	Verb	Adjective
	treatment		
		interfere	
		supervise	
		prevent	
	approval		

1. The emphasis is on _____ medicine, that is, maintaining the health of each employee.
2. Regulatory authorities shall _____ those costs only if they are reasonable and appropriate.

3. Humans have long been _____ in the natural processes of the earth.
4. A permanent _____ is responsible for management and maintenance.
5. We should not forget that all three diseases are preventable and _____.

Exercise 6. Read the text. Fill in the gaps with the derivatives of the words in the right column.

A **(1)** _____ drug, often referred to as medication or medicine, may be defined as a substance that is used to treat cure, prevent or diagnose a disease or to promote well-being. Traditionally drugs were obtained through **(2)** _____ from medicinal plants, but more recently they are synthesized from organic precursors. Pharmaceutical drugs may be used for a **(3)** _____ duration, or on a regular basis for chronic **(4)** _____. They can be supplied as liquids or as **(5)** _____ sold forms to help health care providers and patients to administer the drug **(6)** _____. Each form of drug has certain benefits in terms of its effectiveness, ease of use and safety. Some of the issues that need to be addressed when considering the different forms are: ✓ to protect the active compound in the drug from **(7)** _____ to the atmosphere, to ensure a long shelf-life; ✓ for drugs that are taken orally, to protect the drug active ingredient from stomach acids or other enzymes so that it can be absorbed in the **(8)** _____ intestinal tract; ✓ to extend the drug **(9)** _____ time through controlled release action in the body ✓ for drugs that are taken **(10)** _____, to mask any bitter taste of the drug to make it palatable for the patient.	PHARMACY EXTRACT LIMIT ORDER VARY SAFE EXPOSE LOW REACT ORAL

Exercise 7. Revise the information and answer the following questions.

1. What does pharmaceutical chemistry deal with?
2. Who is engaged in the process of developing new medications?
3. What is the task of Quality Assurance department?
4. How long can the process of developing new medications be?
5. What is the first step of developing any medicine?
6. How many stages are there in Clinical trials and what are the peculiarities of each stage?
7. What documents does the company have to submit to be allowed to manufacture new medications?
8. Why do medications have different form? What are the benefits of different forms?

» **For more exercises, go to Practice File 5 on page 83.**

Communication skills

Exercise 8. As a speaker, you have only 30 seconds to grab the audience's attention with a bang. But what is the best way to start a presentation? Look at the following ways and discuss where you can use these techniques. What other techniques can you use to grab the audience attention?

1. Tell a story

TIP: *Your story should be brief and relevant to the point you're trying to make. But don't overload it with details. It can be a personal story showing your listeners why you're so passionate about the topic.*

2. Ask rhetorical questions

TIP: *Using an open-ended questions helps you create a knowledge gap that you'll later close in your speech. Another great way to get the audience involved is by asking for a show of hands on a particular question.*

3. Use quotations

TIP: *There is a lot of sources for finding appropriate quotations online. But don't pick an obvious quote to open with*

Exercise 9. Audio 5.18. Listen to two speakers opening their presentations. Answer the questions and fill in the table.

Imran Chaudhri	***Vaitea Cowan***
What technique of grabbing the audience's attention did the speaker use?	
What is the extend of the speaker's interaction with the audience?	
Note phrases that the speaker uses to interact with the audience.	
Note the phrase that speaker uses to change to the next part of the presentation.	

Exercise 10. Think what technique can be used to start the presentation? Prepare a short introduction to attract the audience. Use Key Expressions. You are going to talk about … .

- ✓ how food affects human's brain
- ✓ chemical processes that power your smartphone
- ✓ the genius of Mendeleyev's periodic table
- ✓ how vitamins work
- ✓ how caffeine keeps us awake
- ✓ what would happen if you don't drink water

KEY EXPRESSIONS

How to start

Good morning and thanks for coming…
I'm here to day to…
My name is … and I'm going to talk about …
I'd like to begin by …

Exercise 11. Audio 5.19. Listen to the same speakers finishing their presentations and answer the following questions.

1. How did the speakers connect the beginning and the end of their presentations?
2. Did the speakers address the past of the future in their presentation? Why did they do it?
3. What is the general mood of their presentations? Is it positive or negative?
4. You've listened only to the part of their presentation. Can you formulate the topic of these presentations?

Changing the topic
Now, let's turn to …
The next point we are going to consider is …
That brings us to …
Explaining reasons
The main reason for this meeting is …
The best thing about this is …
We think it's a good idea because …
Closing
That's everything I want to say.
This brings me to the end of my presentation.
Thanks for listening.
Are there any (more) questions?

Exercise 12. Prepare a presentation about the development and the future of one of the following products. Briefly outline its history, the current state of affairs and concentrate on their future perspective. Start your presentation with a technique that will attract the audience. Interact with the audience. Make sure they are following you.

- Petroleum refining (gasoline, heating oil, jet fuel, asphalt)
- Commodity chemicals (sulfuric acid, oxygen, ammonia, caustic soda)
- Petrochemicals (methanol, acetone, ethylene glycol)
- Polymers and plastics (nylon, polyethylene, polyurethane foam, Plexiglas)
- Pharmaceuticals (antibiotics, analgesics, antidepressants)
- Electronic materials (high-purity silicon, photovoltaics)
- Processed foods (sugar, instant coffee, frozen orange juice)
- Paints and pigments
- Agricultural chemicals (fertilizers, pesticides, crop sterilants)
- Personal care products (toothpaste, cosmetics, deodorants)
- Inks and dyes
- Environmental remediation and hazardous waste disposal
- Energy production (fuel cells, nuclear fuel processing, thermal solar power)

Language at work

Talking about the future

Exercise 13. Study the following sentences and match them with the explanation.

1. Probably this experiment ***will provide*** us with all necessary data.
2. Next week the department ***is holding*** a meeting to discuss everything that hasn't been decided on yet.
3. Clean that spill otherwise you ***are going to fall*** down.
4. We need to hurry up because the bank ***closes*** in an hour and we have to make the payment today.
5. I'**m going to publish** the results of this research to make sure no one claims the authorship.

    a. The speaker is 100% certain about the action.
    b. The speaker is 99% sure that an arranged action will happen.
    c. The speaker predicts a certain action.
    d. The speaker predicts that result of a current situation.
    e. The speaker shows intention to do the action.

Exercise 14. Fill in the gaps in the following rules with "Present Simple", "Present Progressive', "Future Simple", "To Be Going To".

1. We use _____ to make predictions about uncertain future and to show on-the-spot decisions.
2. We use _____ to show intentions, ambitions and to make logical assumptions about the actions to happen as a result of other actions or situations.
3. We use _____ to speak about the actions which take place according to the timetable.
4. We use _____ with adverbs like *maybe, probably, perhaps, hopefully*, or with introductory phrases such as *I think / believe / reckon / hope etc*.
5. We use _____ to speak about arrangements and appointments.

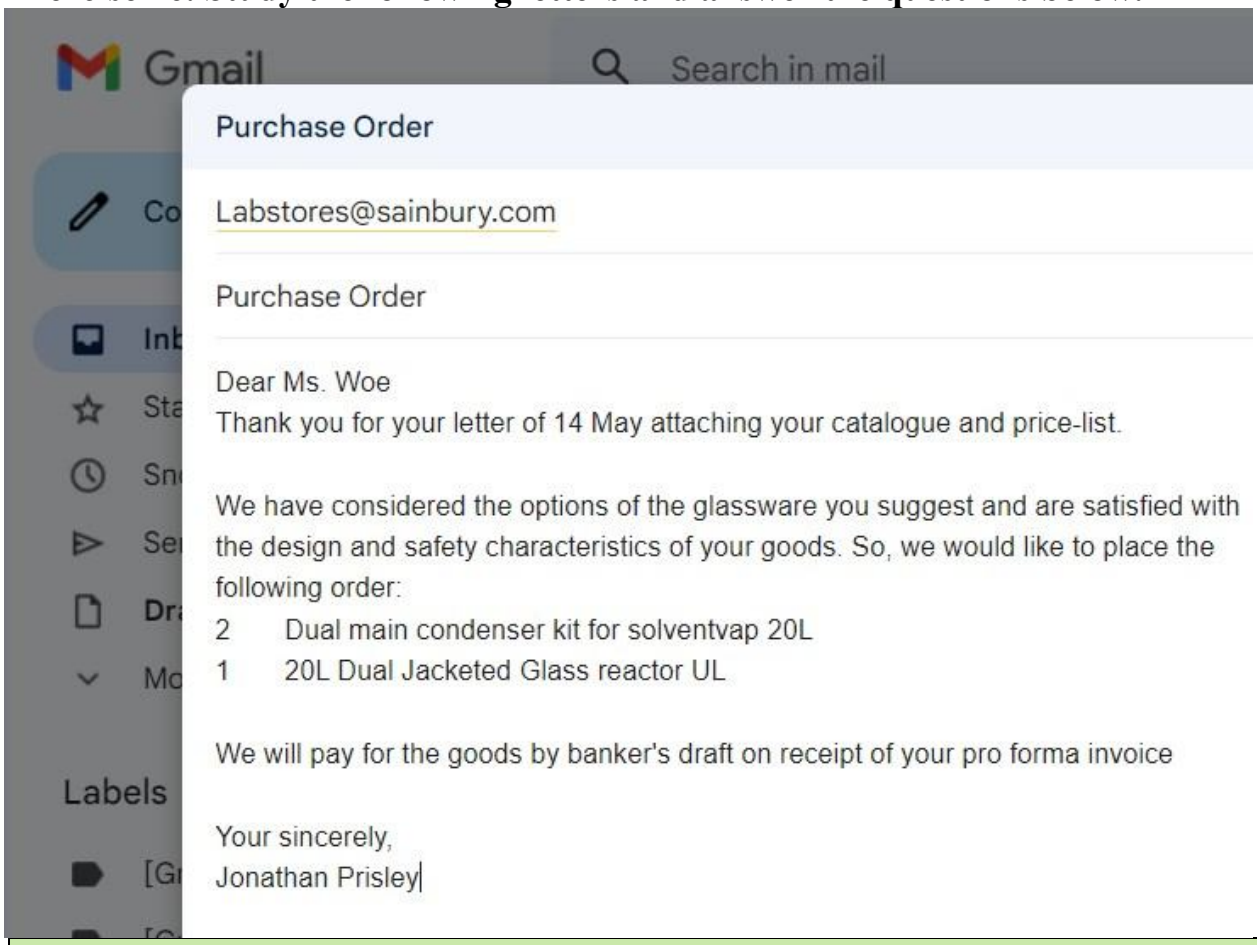
Exercise 15. Put the words in brackets in the correct form.

Next month our company _____ (launch) a new medicine for severe headache which we have been developing for the last five years. The official event is planned for Tuesday, that's why the group of representatives _____ (leave) the head office for Berlin. Their plane _____ (depart) at 7:30, so, they _____ (arrive) at 8:30. Hopefully, nothing _____ (happen) during their trip. The group _____ (stay) at Ritz hotel which has been booked for the event. The hotel _____ (provide) a conference hall for the presentations. The guests, who have been invited beforehand, _____ (come) at 13:00. We expect, they _____ (ask) hundreds of questions about the medication but we are confident in our product and believe it _____ (improve) the quality of people's loves.

» **For more exercises, go to Practice File 5 on page 84.**

Writing activity

Exercise 16. Study the following letters and answer the questions below.



Dear Mr. Horovits

Thank you so much for the catalog that you sent us. We are placing an order for the following products:

No.	Product	Quantity	Unit Price	Total
1	Sharp container	5	$ 10.59	$ 52.95
2	Glass disposal container	2	$ 55.00	$ 110.00
3	MXU Centrifuge	1	$ 936.00	$ 936.00
	TOTAL	Tax	TOTAL WITH TAX	
	$1098.95	$ 54.95	$1153.9	

We will need the said orders on August 15, so we would very much appreciate it if you could make the delivery of the orders on or before the above-stated date at our warehouse located in Luxembourg Av. 78, Pittsburg.

Please send us a purchase order form and bill for the order with a stated discount of 10%.

Kind regards,

Sofia Anderson

1. What is the aim of the letters?
2. Is it the first contact between companies?
3. How is the company going to pay for their order?
4. How do they indicate the amount of the order?
5. Which letter is more detailed? What is different?

Exercise 17. Complete the table.

Placing the order	
	Ми із задоволенням хотіли б зробити замовлення …
We attach our official purchase order …	
We are pleased to enclose our order # …	
	Просимо вислати нам такі товари …
Dealing with terms and conditions	
Please, send the copy of this order to us, signed, as an acknowledgement.	
	Оскільки ми потребуємо товар терміново, ми будемо вдячні, якщо ви його доставите до ….
If any items are out of stock, please submit a quotation for a substitute.	
	Просимо підтвердити, що ви можете поставити замовлений товар …
Describing payment methods	
	Ми пропонуємо оплату товару банківською траттою після отримання (документів)
	зразок рахунку-фактури
Please, bill for the order with a stated discount of …	
The Payment will be made immediately by remittance/ Letter of Credit	

For more exercises, go to Practice File 5 on page 86.

Exercise 18. Compose the letter.

Складіть лист замовлення від інституту хімії на 8 витяжних лабораторних шаф з металевим каркасом вартістю 74 000 грн кожна та 12 універсальних лабораторних шаф вартістю 10 700 грн кожна. Платня здійснюється банківською траттою протягом 21 доби з дня надходження товару. Перекладіть лист англійською мовою.

UNIT 6. ENVIRONMENTAL CHEMISTRY

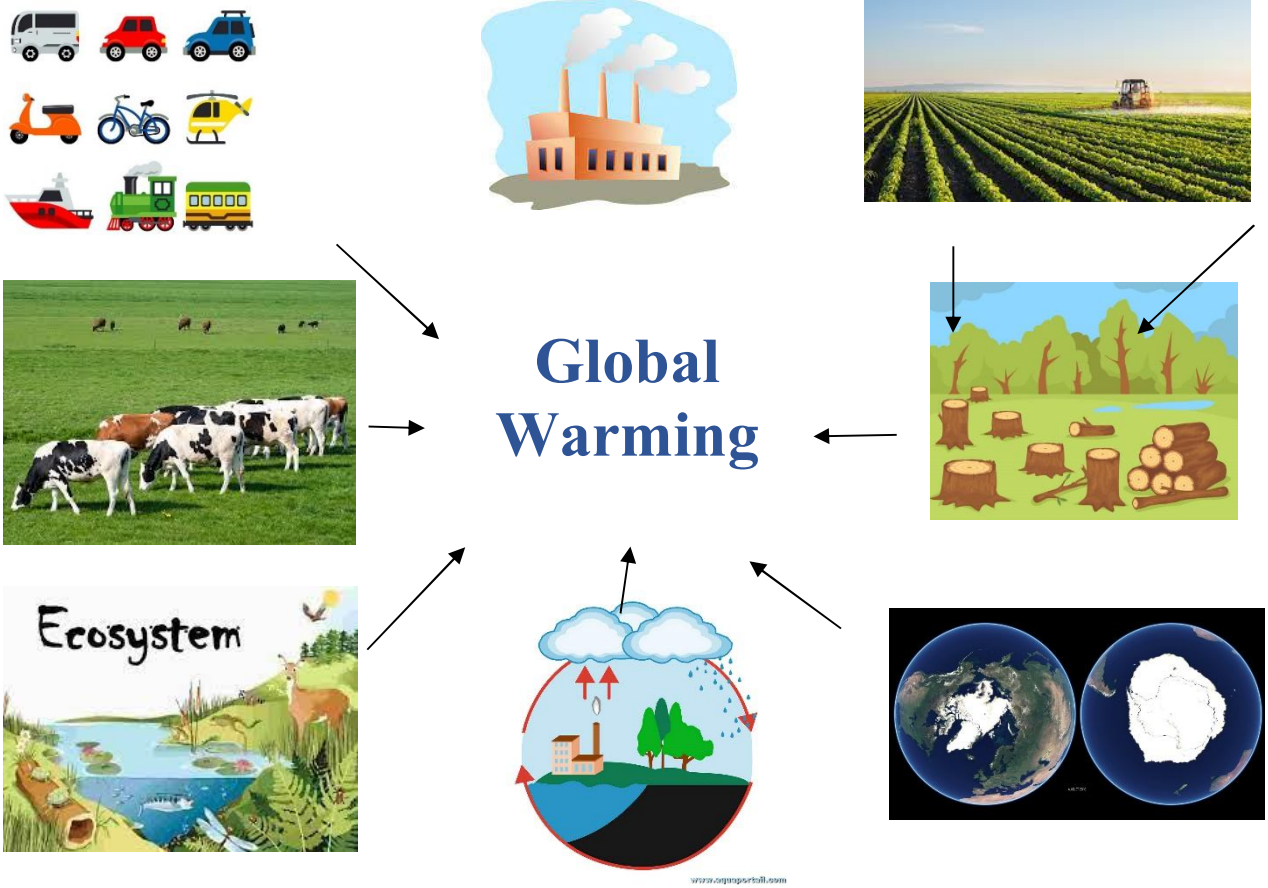
Starting point

1. Look at the following pictures. What is depicted there? How do you call these processes? What are their consequences?

Picture A

Picture B

2. What occurs to you when you hear the word combination "Global Warming". Look at the following table and explain the connections between these phenomena.



Vehicles – one of the main sources of carbon dioxide which contributes to greenhouse effect; *plants/ factories* emissions negatively influence water, air and soil; *farming* – the production of CO^2 and erosion of soil; *cattle* – the source of methane; *deforestation* – contributes to land erosion and heating; *eco system* is changing causing climate refugees and species extinction; the pattern of *precipitation* is changing causing draughts and floods; *Polar ice caps* melt and flood coastal areas.

Working with words

Exercise 1. Have you heard about Green Chemistry? What does it deal with?
In the 1990s Paul Anastas and John Warner formulated guidelines to provide a roadmap for chemists trying to implement green chemistry. Match the principles in the left column with their meaning in the right column.

1.	Waste prevention	**a.**	Minimize the use of solvents and other auxiliary substances, and make them as innocuous as possible.
2.	Atom economy	**b.**	Choose processes and practices that minimize the potential for chemical accidents, including releases, explosions and fires.
3.	Safer syntheses	**c.**	Minimize the energy used in chemical processes, and if possible, carry them out at ambient temperature and pressure
4.	Safer products	**d.**	Design synthetic methods to maximize the incorporation of intermediate materials into the final product.
5.	Safer auxiliaries	**e.**	Design synthetic methods to minimize the use and generation of toxic substances.
6.	Energy efficiency	**f.**	Design chemical products for eventual disposal, so that they break down into innocuous compounds that do not persist in the environment.
7.	Renewable feedstocks	**g.**	Design chemical products to carry out their function while minimizing their toxicity.
8.	Derivative reduction	**h.**	Minimize the potentially wasteful use of blocking groups and other temporary modi-cations of intermediates.
9.	Catalysis	**i.**	Prevent waste from the start rather than treating or cleaning it up afterwards.
10.	Degradability	**j.**	Prefer catalytic reagents - as selective as possible - over stoichiometric reagents.
11.	Pollution prevention	**k.**	Develop methods for real-time monitoring and control of chemical processes that might form hazardous substances.
12.	Accident prevention	**l.**	Use biomass and other renewable raw materials whenever practicable.

- What is simplest and initial level of applying these principles?
- What can you do to make sure you act green in the classroom?
- Make a little internet research and present the information how green (environmentally friendly) are manufacturing enterprises in your area.

Exercise 2. Read the text and answer the questions below.

Environmental Chemistry

Environmental chemistry deals with naturally occurring chemicals such as metals, other elements, organic chemicals, and biochemicals that are the products of biological metabolism as well as with synthetic chemicals that have been manufactured by humans and dispersed into the environment, such as pesticides, dioxins, furans, and many others.

The movements of chemicals within and among ***compartments*** often involve a complex of transformations among potential molecular states. There may also be changes in physical states, such as evaporation of liquids, or crystallization of dissolved substances. The transformations of chemicals among molecular states can be illustrated by reference to the environmental cycling of sulfur. Sulfur (S) is commonly emitted to the atmosphere as the gases sulfur dioxide (SO_2) or hydrogen sulfide (H_2S), which are transformed by photochemical reactions into the negatively-charged ion, sulfate (SO_4^{2-}). The sulfate may ***eventually*** be deposited with ***precipitation*** to a ***terrestrial*** ecosystem, where it may be absorbed along with soil water by tree roots, and later used to synthesize biochemicals such as proteins and amino acids. Eventually, the plant may die and its biomass deposited to the soil surface as litter. Microorganisms can then metabolize the organic matter as a source of energy and nutrients, eventually releasing simple inorganic compounds of sulfur such as sulfate or hydrogen sulfide into the environment. Alternatively, the plant biomass may be harvested by humans and used as a fuel, with the organic sulfur being oxidized during ***combustion*** and emitted to the atmosphere as sulfur dioxide. Organic and mineral forms of sulfur also occur in ***fossil fuels*** such as petroleum and coal, and the combustion of those materials also results in an emission of sulfur dioxide to the atmosphere.

Contamination and ***pollution*** both refer to the presence of chemicals in the environment, but it is useful to distinguish between these two conditions. Contamination refers to the presence of one or more chemicals in concentrations higher than normally occurs in the ambient environment, but not high enough to cause biological or ecological damages. In contrast, pollution occurs when chemicals occur in the environment in concentrations high enough to cause damages to organisms. Pollution results in toxicity and ecological changes, but contamination does not cause those damages.

Chemicals that are commonly involved in pollution include the gases sulfur dioxide and ozone, diverse kinds of pesticides, elements such as arsenic, copper, mercury, nickel, and selenium, and some naturally occurring biochemicals. In addition, large concentrations of nutrients such as phosphate and nitrate can cause eutrophication, a type of pollution associated with ***excessive*** ecological productivity. Although any of these chemicals can cause pollution in certain situations, they most commonly occur in concentrations too small to cause toxicity or other ecological damages.

Modern analytical chemistry has become extremely sophisticated, and this allows ***trace*** contamination of potentially toxic chemicals to be measured at levels that are much smaller than what is required to cause demonstrable physiological or ecological damages.

(Adapted from: https://www.encyclopedia.com/environment/encyclopedias-almanacs-transcripts-and-maps/environmental-chemistry)

1. Does environmental chemistry deal with protecting the environment only?
2. What chemical and physical processes may be involved in environmental chemistry?
3. Can living organisms influence the chemistry of the environment? What are they and how can they influence?
4. What id the connection between sulfur and fossil fuels?
5. What is the difference between “contamination” and “pollution”?
6. What are the most spread pollutants?
7. Taking into account exercise 1 and the text, can you make supposition if environmental chemistry and green chemistry are the same phenomenon? What is the difference?

Exercise 3. Study the words highlight in the text. Match them with their description.

1. one of the separate parts of an object that is used for keeping things in _____
2. poisonous or dirty substances that affect the water, air, or land somewhere _____
3. find out or describe how something started or developed _____
4. the act of burning something or the process of burning _____
5. in the end _____
6. fuel such as coal or oil that is formed from the decayed remains of plants or animals _____
7. rain, snow, or hail _____
8. the process of making something dirty or containing admixtures _____
9. relating to the earth _____
10. too much _____

Exercise 4. Fill in the gaps with the words from exercise 3.

1. Carbon monoxide is produced when _____ burn without a good air supply (Sunday Times, 2016).
2. After a long search, they _____ found the missing papers.
3. The molecular mechanisms of high-affinity transport of tryptophan into cellular _____ within the central nervous system are not known.
4. _____ occurs when oxygen combines with another compound in a reaction that produces heat.
5. Did you know air _____ may show up on your face 10 years from now?
6. I first went there to _____ my roots, visiting my mum's home island of Jamaica.
7. I thought that evaporation was what caused stalagmites, not _____
8. . Various studies have linked _____ consumption of palm oil with heart disease.
9. We are confident that government protocols were strictly observed and the opportunity for _____ minimized.
10. With the death of the plants the _____ food chain would collapse

Exercise 5. Read the text. Fill in the gaps with the derivatives of the words in the right column.

The **(1)** _____ of chemicals refers to their presence and quantities in **(2)** _____ compartments of the environment and ecosystems. For example, in a **(3)** _____ ecosystem such as a forest, the most important compartments to consider are the mineral soil, water and air present in spaces within the soil, the above-ground atmosphere, dead biomass within the soil and **(4)** _____ on the ground as logs and other organic debris, and **(5)** _____ organisms, the most abundant of which are trees. Each of these components of the forest ecosystem contains a wide variety of chemicals in some **(6)** _____ , and in some amount. Chemicals move between all of these compartments, as fluxes that **(7)** _____ elements of nutrient and mineral cycles.	OCCUR VARY TERRA LIE LIVE CONCENTRATE PRESENT

» For more exercises, go to Practice File 6 on page 87.

Communication Skills

Exercise 6. Discuss how effective are the following ways of ending the presentation:

- "Thank you for your attention."
- Tell the audience the purpose you are here with them
- Using a quotation
- Acknowledgement
- Call to actions
- Close with a story
- Restate the essential part of your presentation

Exercise 7. Audio 6.20. Listen to an expert talking about different ways of finishing your presentation and to the following tasks.

- What ideas from exercise 7 does she mention?
- Does her point of view correspond to your own vision?
- Tell if the following statements are TRUE, False or NOT GIVEN:

1. Usually, people at trainings are too shy to present themselves. _____
2. The expert discourages from using set phrases. _____
3. Don't use the same vocabulary, while restating key information. _____
4. Using the same statement twice may prove a good idea. _____
5. The way you move is very important for your audience. _____
6. Smile during the whole presentation. _____

Exercise 8. Audio 6.21. Listen to three people finishing their presentations. Answer the questions and fill in the table below.

	What was the topic of the presentation?	What strategy does the speaker use to finish the presentation.	What phrases does the speaker use to address the audience?
Speaker 1			
Speaker 2			
Speaker 3			

Exercise 9. As soon as you finish presenting your report, another part of the presentation starts – answering the audience's questions. What are your strategies to deal with questions? What do you do if you do not know the answer?

Exercise 10. Audio 6.22. Listen to the public speaking trainer giving advice of how to deal with Q&A (questions and answers) part of a presentation. Note the meaning of the three steps.

Step 1 _____
Step 2 _____
Step 3 _____

Exercise 11. Audio 6.22. Listen again and write out phrases that you can use in case …

you have not understood the question	you want to confirm you have answered the question

Exercise 12. Work in pairs. Choose a topic and prepare a presentation.
Step 1. Students working in pairs prepare separate presentation.
Step 2. During the lesson they present the results of their search.
Step 3. After students present, they ask questions to each other.
Step 4. The audience ask additional questions.
Step 5. The audience vote for the best presenter.

Topics to consider:

- Animals should have rights like humans.
- Companies should be taxed on their carbon emissions and other negative environmental impacts.
- Electric cars are impractical.
- Everyone should be vegetarian.
- Everyone should purchase electric cars.
- Genetically modified foods (GMOs) should be banned.
- Is organic farming the future of agriculture?
- Is tourism beneficial to the environment?
- Live animal exports should be banned.
- More land should be dedicated to national parks.

Language at work Asking questions

Exercise 13. Study the following questions and define their types.

1. Have you been working at obtaining this new kind of fuel long enough to reveal all possible flaws?

2. What other benefits of being a vegetarian can you suggest?

3. Your laboratory has obtained a grant to find the way to reduce energy consumption by electric cars, hasn't it?

4. Our research group wonders if you are able to provide all the proofs that the results of your experiment are valid.

a. tag question _____ c. special question (Wh-question) _____
b. indirect question _____ d. general (Yes or No) question _____

Exercise 14. Make up a general and three special questions to the following sentences.

1. AI systems can ingest vast amounts of historical data and help us predict future events. 2. There are massive gaps in climate-critical data – not just in electricity, but in agriculture, transportation, industry and many other sectors. 3. In order to prove that AI works, we have to have deployment opportunities in the real world. 4. Working with a domain-expert team that can tell you what they need, how they need it to work, what quantifiable metrics to use to measure AI performance and how much better that AI performance needs to be than their previous systems to make the cost of switching over even worth it. 5. If predictions are higher than actual generation, renewable electricity managers may not have enough supply to meet demand. 6. Our AI system performed 20 percent better than Google's existing systems. 7. We will run out of time in the climate countdown if we aren't deploying solutions that are widely applicable. 8. This particular solution is being developed into a software product that French company Engie is among the first to pilot. 9. They found a willing partner in the UK National Grid, and are currently deploying forecasts that are two times more accurate than the UK grid's previously used systems. 10. AI for climate action requires a variety of skill sets and a diversity of backgrounds that includes research scientists and engineers, but also ethicists and policy experts, communication teams, and so many more folks.

Exercise 15. Put the correct question tag and a short answer.

1. You have already taken all measurements, _____? – No, I _____
2. He would like to participate in this conference, _____? – No, he _____, he says it does not correspond to his subject matter.
3. We'll probably change our approach, _____. – Yes, we _____. The one we are using doesn't work.
4. You've already spoken to your supervisor, _____? – Yes, I _____. We met this morning.
5. They never use Kelvins in their research, _____? – Yes, they _____. They use it to establish thermodynamic temperature.
6. I'm a bit more experienced in this field, _____? No, you _____. I've been working at it for a decade already.
7. Shall we use a catalyst for this reaction? – No, we _____. It's quite quick.
8. You aren't going to contact the reviewer to find out about his remarks, _____? – Yes, I _____. I need to know what issues to consider.
9. Professor Graham won't deliver this lecture, _____? – Yes, he _____. I've seen him preparing the presentation.
10. You forgot to switch off the burner, _____? – Yes, I _____. Actually, it was the cause of the accident.

Exercise 16. Turn the direct questions in Box B into indirect using introductory phrases from Box A.

Box A	Box B
I wonder … Can you tell me … Can you please explain … Do you know … I'd like to know … We don't know …	1. Does oxygen reflect blue light in the troposphere? 2. What consequences does greenhouse gas pollution cause? 3. Have you already done a complete scan? 4. What is the lowest level of sea ice in Antarctica? 5. Are we witnessing a tremendous progress in environment protection? 6. Where will the effect of climate warming be the worst? 7. When did Environment Congress took place? 8. Are you sure that we are a sustainable generation? 9. How many countries of the EU contributed to the development of green policy? 10. What was your role in the development of a new air filter for industries?

Exercise 17. Audio 6.23. Listen to the presentation "Why are we making pizza boxes out of endangered trees?" Ask as many questions as you can.

» For more exercises, go to Practice File 6 on page 89.

Writing activity

Exercise 18. Study the following memo. Match the parts (1–8) with their names (A–H).

MEMO
(1) TO: Educational department
(2) FROM: Department of biochemistry
DATE: March 16, 2023
(3) SUBJECT: Providing classrooms

(4) We inform you that our department is holding an international conference on March 30, 2023. **(5)** As we are planning seven sections with 20-22 participants, we will need appropriate facilities. **(6)** We would appreciate if you provide us with necessary classrooms. **(7)** Also, organize a transfer of the students to other classrooms if needed. **(8)** Please, do not hesitate to contact us if you need any further information (Mattew McFerson, tel. +44 1865 299299).

A. Context
B. Topic
C. Closing
D. Recipient
E. Opening statement
F. Call to actions
G. Sender
H. Discussion

Exercise 19. Complete the following memos with appropriate phrases.

do not hesitate to *please*
for your information *please note*
let us know

To: All deans
From: Jeremy Myers, Post-Qualifying Education Officer
Date: 12 Sep 2023
Subject: Training courses

(1) _____ that the Department Post-Qualifying Education calls for trainees for a tree-month course of using AI facilities to foster educational processes. **(2)** _____ make sure all your staff is informed about the training. Please, **(3)** _____ ASAP about the quantity of enrollment.

To: All PhD students
From: Department of Post-Graduate and Post-Doctoral Education
Date: 15 May 2024
Subject: Examinations

(4) _____ that the examination in Philosophy is rescheduled for June 2 instead of June 10. (5) _____ contact us if you have prior arrangements for this date.

Exercise 20. The following memos have been jumbled up. Match the beginning and the end of these memos.

1. To: Head of Laboratory From: Dean Subject: new staff I am pleased to announce that Finance Department allocated funds to employ …	**A.** … all your reviewers beforehand to familiarize yourself and me with possible remarks.
2. To: Mark Lorry, PhD student From: Prof. Gregory Kein Subject: review I am glad to inform that the preliminary review has been assigned for May 18. Please, make sure you contact …	**B.** the grant. Although the subject matter arises the sponsors' interest, they are wary about the outside, members of your team. Please, consider the changes and apply again.
3. To: Linda Lemm, senior researcher From: Head of Laboratory Subject: grant I regret to inform you that your team is not qualified to obtain …	**C.** … four qualified technical assistance. Therefore, schedule the date for the interview ASAP.
4. To: Dean From: Head of Laboratory Subject: new staff Since our team has been qualifier to carry out the research, we need technical support urgently. Please, consider to possibility to hire …	**D.** … several skilled employees to enhance and speed up the completion of the project.

Exercise 21. Memo is a short piece of business writing. The memo below is too long. Contract it so that all essential information would remain.

I would like to inform you that the new equipment we have ordered this month and have been looking for is going to be installed in our laboratory on the 10th of August. I will be in the laboratory all day to supervise the installation of the new equipment. Of course, I will need some help and I would be really grateful if someone of you would come and help me. If you decide to help me, you can contact me in advance on my mobile phone. The number is +44 1866 111111.

» **For more exercises, go to Practice File 6 on page 90.**

Practice File 1

WORKING WITH WORDS

Exercise 1. How do you call the following situations?

advancement certification doctorate post doctorate R&D

1. For the students of chemical engineering, the basic software knowledge is a must. They must be expertise in few software due to which they can add a great value for placements. _____
2. We are seeking candidates with an emphasis in the applications of traditional fundamental engineering skills and a mix of experimental, computational and theoretical focus in their schooling. _____
3. The selected candidate must have a conferred PhD upon hire. _____
4. Saying yes when opportunities arise can help you be seen, get recognized for your enthusiasm and applauded for your aptitude. _____
5. They don't tell you that you will be surprised how many skills you have gained in the ~4–6 years of grad school. _____

Exercise 2. Match the following statements (1-7) with the texts (A-D).

1. The applicant will work under supervision. _____
2. The applicant must have at least Bachelor's Degree. _____
3. The applicant will have to renew his/her contract on a regular basis. _____
4. The applicant can start when it is convenient to him/ her. _____
5. Ther applicant must be able to work in a team. _____
6. The applicant is being searched by an agency. _____
7. The applicant should have a similar work experience. _____

A. Research Fellow - School of Chemical Engineering Salary - £32,348 a year Job type - Full-time, Temporary contract To create and contribute to the creation of knowledge by working on a ERC funded research project that seeks to develop new methodologies to precisely control the physical, chemical and, in particular, the biological properties of nanoparticles from the molecular level.
B. Chemical Engineering Internship Start date - Flexible Industry - Engineering Duration - 6 months City – Berkeley This exciting project involves the demonstration and optimization of chemical processes for the production of sustainable aviation fuel (SAF) from waste biomass. Mentored throughout, you will assist in a developing technoeconomic assessment for production of sustainable aviation fuel (SAF) in the UK using hydrothermal liquefaction technology.

C. Chemical / Process Engineer- job post
Science & Technology Recruitment
London
Job type - Full-time
Due to continuous growth our client is actively seeking to recruit a Chemical / Process Engineer who specializes in chemical etching.
The role involves continuously reviewing existing and plan future process changes through designing and specifying.

D. Chemical Engineer
Job type – Permanent
Undergraduate degree in Chemical Engineering, Mechanical Engineering, Industrial Engineering, Chemistry, Materials Science, or a related field required.
Two or more years' experience in Chemical Engineering R&D or manufacturing with hands-on experience in the battery industry or near neighbour technologies preferred.
Able to work in collaborative team environments

(Adapted from: https://uk.indeed.com/jobs?q=Chemical%20Engineering&l&vjk=b44e0d7a7f60efec)

LANGUAGE AT WORK

Exercise 3. Find an extra word in each line.

0. My ~~some~~ chemical engineer experience has been filled with ups __some__
1. and downs. My journey has began in 2010 when I took admission _____
2. in an Odisha state government institute. During in the course _____
3. of four years, I was not never the best student, nor was the worst. _____
4. I am even became a student member of Indian Institute of Chemical _____
5. Engineers during my the final year. During my final years _____
6. I was often the training and placement coordinator for my department. _____
7. That year (2013–14) was being a general election year, the placement _____
8. opportunities were very scarce. Even then we were ever able to place _____
9. some out of our branch mates in to known organizations. _____
10. I myself was currently placed in Sesa Sterlite Limited in their refinery. _____

(Adapted from: https://www.quora.com/How-has-your-life-been-so-far-as-a-chemical-engineer)

Exercise 4. Define if the following projects are completed (C), not completed (NC) or not known (NN).

1. We've been enquiring the properties of this alloys under the change of pressure and temperature. _____
2. The article was published last year. _____
3. We have collected all necessary samples for the investigation. _____
4. Are you going to elaborate the subject matter any further? _____

5. Indian pharmaceutical corporation take up the challenge of creating a new vaccine for measles in 2020. _____

6. How many chapters have they already read? _____

7. They were considering to take the project on developing safe hydrogen fuel for cars. _____.

8. The defense of his dissertation was a real success. _____

9. Why don't they change the methodology of the research? _____

10. This is the device we've been working on for the last five years. _____

Exercise 5. Cross out ONE incorrect option.

1. We have been working / We worked / ~~We are working~~ on this project for a month.
2. I finished / I had finished / I have finished the experiment this morning.
3. I had decided / I decided / I decide to stay at the University.
4. He is teaching / He taught / He has been teaching / He has taught Math for 20 years.
5. It is the first time I am visiting the museum of Nature. / I have visited the museum of Nature. / I visited the museum of Nature.

Exercise 6. Identify the tenses, then match them with the correct description.

1. Josh *runs* a research laboratory in a large educational establishment.	**a.** emphasis on duration of an action which began in the past and continues up to the present
2. Dr Roberts *started* working here in 2016.	**b.** past actions of a certain duration having visible results/effects in the present
3. He'*s been practicing* his speech for a week already.	**c.** action which happened in a definite time in the past
4. They *have just finished* writing a test.	**d.** narration, sequence of actions, actions which happened one by one
5. You feel dizzy because *you've been working* with chlorine without an aspirator.	**e.** action which has recently finished and whose result is visible in the present
6. He'*s burnt* his hair!	**f.** permanent situations or states
7. He *graduated* from the University and *entered* post graduate education.	**g.** recently completed actions

WRITING ACTIVITY

Exercise 7. Translate the following resume into English.

РОБЕРТ КЛАРК

robert.q.clark@gmail.com
912-278-4954

Професійне резюме

Кваліфікований лаборант із 2-річним досвідом роботи, що має навички у веденні лабораторного журналу та збору зразків, шукає роботу у сфері медичних аналізів.

Досвід роботи

Березень 2020 – Квітень 2022 – Лаборант у Даунтауер Хелс
Був підвищений до головного лаборанта після двох місяців роботи за надзвичайну надійність.
Аналізував та записував опрацьовані данні у середньому 75 зразків крові на тиждень. Забезпечував технічне обслуговування, підтримку роботи та калібрування 30+ центрифуг, ваг та мікроскопів. Збільшив час роботи приладів без поломки на 22 %.

Січень 2019 – Січень 2020 – Лаборант-волонтер в Університеті Північної Кароліни
Створив нову систему збереження даних лабораторних аналізів, що зменшило час роботи з документами на три години на тиждень.
Проводив аналіз 50+ зразків крові на тиждень

Освіта

2017-2020 Університет північної Короліни, Молодший спеціаліст у природничих науках. Як помічник викладача, підготував та провів 20+ презентацій PowerPoint під час лекцій зі студентами.

Сертифікація

Ліцензований лаборант медичних установ

Навички

Спеціальні: ведення журналу, комп'ютерна грамотність, підтримка роботи та калібрування обладнання
М'які: комунікабельність, незалежність, вміння працювати у команді

Інша діяльність

Як волонтер роблю щеплення бродячим тваринам у міському Центрі Поводження із Тваринами два рази на тиждень.

Practice File 2

WORKING WITH WORDS

Exercise 1. Complete the following text with your active vocabulary.

1. This stage of our work aims at revealing physical and chemical peculiarities of the material in question, which in its turn will influence general _____ of the research.
2. The polymerase chain reaction (PCR) which is widely used to define the traces of a virus was the research _____ of Kary Mullis.
3. The scientists of Georgetown-IBM developed a working _____ for a voice translation machine and presented it on 7 January 1954 in New York at the head office of IBM.
4. Working for a governmental enterprise, it was important for him to _____ strict confidentiality at all times.
5. Practically all modern coal fired boilers _____ pulverized coal because it burns nearly like oil or gas.
6. We hope that manufacturers will take note of the _____ and improve their products according to the current requirements to sustainability of plants.
7. We need a detailed _____ to determine exactly why we have failed to obtain necessary quantity of material.
8. Gregory refused to comment on the outcomes of the security investigation before he had seen all the _____ information about the absence of some employees.
9. The UK is the biggest _____ of tropical hardwoods after Japan.
10. The proposal _____ the improvement of safety procedures in the manufacture was called up by the trade union.

Exercise 2. Translate the following sentences into English.

1. *Стосовно* зменшення викидів сірки та двоокису вуглецю, виробничі підприємства, що використовують викопне паливо, повинні запровадити використання фільтрів на вихідних трубах.
2. Ми працюємо над розробкою *прототипу* сонячної панелі, яка буде не тільки конвертувати енергію сонця в електричну, але й працювати як акумулятор.
3. Відділ розробки продукту постійно консультується із відділом маркетингу, що допомагає зорієнтуватися у потребах сучасного *споживача*.
4. Кінцевою *метою* академічного дослідження є отримання нового знання, яке може бути як застосованим на практиці, так і суто теоретичним.
5. Спільно вітаміни групи В виконують головну функцію *у підтримці* як ментального, так і емоційного здоров'я.
6. Затримка *дослідження* була зумовлена відсутністю достатнього фінансування.

7. Вперше бетон був виготовлений у шостому тисячолітті до нашої ери, але сучасна людина почала його *використовувати* з XIX століття.

8. Той факт, що наша робота є *актуальною*, підтверджується широким діапазоном практичних і теоретичних робіт за останнє десятиліття, а саме, …

9. Коли презентація перейшла до фази питань, він став менш скованим, адже спілкування було його *цариною*, де він почувався як риба у воді.

10. *Результати* нашого дослідження не відповідають тим, що були отримані попередніми дослідниками, у зв'язку з чим ми маємо питання, чи це була наша помилка, чи попередники підробили дані, щоб отримати фінансування.

LANGUAGE AT WORK

Exercise 3. Complete the following sentences with the correct form of the following verbs.

carry	*pay*
cooperate	*provide*
develop	*research*
get	*specialize*
investigate	*work*

We started our enterprise in 2020 having obtained the grant from the government. Since then, our team **(1)** _____ new pesticides and fertilizers. We usually **(2)** _____ with national companies and **(3)** _____ them with the product of the highest quality. When we (4) _____ a new order, we always **(5)** _____ the ground and the plant which will be grown there. Nowadays more and more customers **(6)** _____ attention to the ecological issue of their final product. For example, Genesis Agro set us a task to find the way to increase their yield without plants accumulating nitrate. So, now our R&D team **(7)** _____ out a substance that would possess this property. At the moment, they **(8)** _____ out experiments comparing the number of nitrates in the product treated with different fertilizers. I believe, the project will be a success as the head of our research group **(9)** _____ on such stuff. Actually, he **(10)** _____ this field for the last 20 years.

Exercise 4. Correct a mistake in each sentence.

1. Homer looks for a position of a lab technician at the moment.
2. Have you been working here since ten years?
3. I have been reading the article we talked about but I haven't finished it yet.
4. Professor Lorry is specializing on thermodynamics.
5. The article deal with the pollution from car exhausts.
6. Is she investigate the influence of magnetic storms on solar panels?
7. We have been gathering practical material last year.
8. More and more people use osmotic water to cook their meals.
9. They are writing an article to this journal?
10. The lab staff not responsible for the shortage of finance.

WRITING ACTIVITY

Exercise 5. Translate the following letter into English.

Голові дослідницької лабораторії
НДІ «Селл Кем Індастріз»
Олександру Ващенко

Крисовського Станіслава
М. Хотин, вул. Незалежності, 36, кв. 10

Тел. +38099 997 99 77
skrysovski@gmail.com

Шановний пане Ващенко,

Звертаюсь до вас, оскільки зацікавлений у вакансії інженеру 1 категорії у дослідницькій лабораторії НДІ «Селл Кем Індастріз», про оголошення конкурсу на яку дізнався з сайту Linkedin. Ця вакансія мене зацікавила, оскільки ваша компанія є провідною на національному та міжнародному ринку хімічних технологій.

Я завжди захоплювався сучасним швидким розвитком хімічних технологій і вважаю, що можу зробити свій внесок у роботу вашої організації, оскільки володію необхідними навичками на вищому рівні. Минулого року я захистив дисертацію та отримав ступень кандидата хімічних наук. Тема мого дослідження стосується технології компонентів моторних та котельних палив з вторинної полімерної сировини, результати якої я планую впроваджувати у виробництво.

Як працівника, мене характеризують такі риси як працьовитість, стресостійкість, цілеспрямованість та вміння працювати у команді. Крім того, я вважаю постійне вдосконалення своїх навичків необхідною діяльністю сучасної людини та регулярно проходжу сертифікацію.

Оскільки я не маю наразі зобов'язань, я готовий до переїзду у час, що є найбільш зручним для вас. Наостанок хочу висловити свою вдячність за вашу увагу до мого листа та сподівання на плідну кооперацію.

З повагою, Станіслав Крисовський

Practice File 3

WORKING WITH WORDS

Exercise 1. Read the following texts (A-D) and match them with the statements (1-7) that reflect their information. Statement (0) has been done for you

0. The company's list of benefits is presented on their website. ___A___

1. This is a temporary position. _____
2. An applicant will work in a governmental program. _____
3. This vacancy requires that an applicant should possess writing skills. _____
4. An applicant will work with dangerous substances. _____
5. A candidate will have diverse responsibilities. _____
6. The position advertised concerns food industry. _____
7. The vacancy presupposes working in the field. _____

A. The Chemist I, 37011185, is in the Division of Environmental Assessment and Restoration's Chemistry Program, Nutrients section, in Tallahassee and will be responsible for the preparation and analysis of environmental samples for inorganic components. The data is of importance for water quality assessment and restoration projects for the state of Florida. Working for the State of Florida is more than a paycheck. The State's total compensation package for employees features a highly competitive set of employee benefits including: Annual and Sick Leave benefits; Nine paid holidays and one Personal Holiday each year; State Group Insurance coverage options, including health, life, dental, vision, and other supplemental insurance options; And more! For a more complete list of benefits, visit www.mybenefits.myflorida.com.

B. We are currently searching for an Analytical Chemist for our client. This is a next-generation industrial biotechnology company headquartered in Cambridge, Massachusetts that produces plant-based ingredients. They use a variety of patented and proprietary technologies to engineer microbes for the production of specialty chemicals such as food ingredients, flavor materials, agricultural chemicals, and pharmaceuticals. We are seeking a highly motivated Analytical Chemist with experience with various analytical methodology. This hands-on position requires a high degree of flexibility, creativity, and initiative applied to the various duties and aspects of the position. This person will be expected to play an integral part of the company's process development and manufacturing team.

C. The Chemist internship program is designed for students interested in maintaining a sustainable environment. The intern will be responsible for tasks associated with handling, segregating, packing, and inspecting chemical waste. This position will work both indoors and outdoors at plants, labs, and customer sites assisting with lab packs, household hazardous waste (HHW) collections and lab moves. Interns can expect to participate in networking events and complete a final presentation at the conclusion of the program. We are searching for a reliable and team-oriented individual with an excellent commitment to safety to join our growing team during the Summer of 2024!

D. The Scientist will work in teams to develop, implement and perform organic reactions for ongoing Medicinal Chemistry teams, including troubleshooting of synthetic routes and reactions, scouting of new synthetic routes and performing high difficulty synthetic chemistry. Furthermore, you will contribute to the design of new compounds and the development of structure-activity relationships. This individual will perform structural determinations using NMR and mass spectral techniques and purify compounds using a variety of techniques. They will be recognized as a lab leader and should demonstrate excellent verbal and written communication skills. Additional responsibilities include maintaining laboratory notebooks, participating in group and project meetings and, as needed, presenting to groups and aiding in the writing of papers and patent applications

(Adapted from: https://www.linkedin.com/jobs/)

Exercise 2. Complete the following text with appropriate vocabulary.

A research chemist work **(1)** _____ experimenting with and **(2)** _____ different chemical compounds to discover new applications for pharmaceuticals, cosmetics, electronics, and products in several different industries. In your career as a research chemist, your **(3)** _____work day will be focused on specific scientific procedures. You will **(4)** _____ of examining how chemical compounds interact, applying your findings to consumer products, and **(5)** _____ improvements and innovations to products and scientific methods. The qualifications for this job include a bachelor's degree in chemistry and at least one year of laboratory work experience. Excellent analytical and problem-solving skills are essential.

Those **(6)** _____ a career as a Research Chemist should first prioritize higher education; at minimum, you should **(7)** _____ a bachelor's program to obtain this position. Typically, you'll **(8)** _____ courses in organic chemistry, inorganic chemistry, biochemistry, physical chemistry, and calculus. Oftentimes, employers prefer candidates with a master's degree, and some request a PhD. Additional education typically leads to more job independence and lab management opportunities. Aspiring Research Chemists should have at least five years of practical work **(9)** _____ to develop proficiency with chemistry principles and concrete analytical experience. You will also be expected to develop lab reports and document findings, work as an administrator **(10)** _____ resources for everyone in the lab.

1.	**a**	relates	**b**	connected	**c**	deals	**d**	concerns
2.	**a**	breaking apart	**b**	cutting down	**c**	enrolling in	**d**	breaking down
3.	**a**	common	**b**	average	**c**	general	**d**	regularly
4.	**a**	be obliged	**b**	duty	**c**	be in charge	**d**	be responsible
5.	**a**	inventing	**b**	coming up with	**c**	completing	**d**	allocating
6.	**a**	pursuing	**b**	racing	**c**	finding	**d**	completing
7.	**a**	enroll in	**b**	come up	**c**	write down	**d**	appoint
8.	**a**	end	**b**	give up	**c**	complete	**d**	compile
9.	**a**	in fields	**b**	in the field	**c**	outside	**d**	out the fields
10.	**a**	giving	**b**	sending	**c**	allocating	**d**	enquiring

LANGUAGE AT WORK

Exercise 3. Complete the sentences with the expressions from the box. Sometimes more than one answer is possible.

if applicable	if asked	if in doubt	if known
if necessary	if not	if possible	if so
in that case		in which case	

1. If the weather is good, we can go to the park, but ___if not___ we'll have to choose a good movie not to get bored.
2. Make sure you know what time your train leaves this evening. _____, find this information on the transport operator's website.
3. The equipment we need might be too expensive, _____, we'll need to ask the finance department for additional funding.
4. Commonly, everyone will present the results of their investigation, but _____ we will stay here as longer as it is needed.
5. I'd like to change the title of my paper, _____.
6. Are you going to apply for this position? _____, can you consider working in our department instead, please?
7. Meredith might not be able to help us organize the conference, and _____ we'll have to do everything ourselves.
8. _____ to recommend which professor to choose as a scientific advisor, who would you suggest?
9. Please, include the full name of the institution you were affiliated to, _____.
10. Provide your contact information, including your postcode, _____.

Exercise 4. Complete each sentence with one appropriate word.

1. If Andy should ___happen___ to come to the lab, ask him to take me my laboratory notebook.
2. That beaker looks terrible, _____ though it hasn't been washed for ages.
3. Don't you sometimes wish _____ have a U-turn in your career?
4. _____ would be really great if we could finish the experiment before the deadline.

5. Please, do not hesitate to contact me if you _____ any more assistance.
6. If _____ there was an opportunity to apply for the grant, we would be able to receive it with a snap of his finger.
7. David would prefer it _____ Victoria enrolled in time management courses instead of spending time in gym.
8. I with _____ would keep your lab notebook regularly.
9. _____ you are given a class to teach, would you agree?
10. The Jonsons would be quite prosperous now, _____ they invested in their prototype instead of selling it.

WRITING ACTIVITY

Exercise 5. Translate the following letter of enquiry.

Головко Андрій
Відділ управління ресурсами
Політехнічного університету
імені Лева Ландау
aholovko@gmail.com

Орленко Ігорю
Керівникові відділу продажів
ООО «Хемолаб»

Шановний пане Орленко,

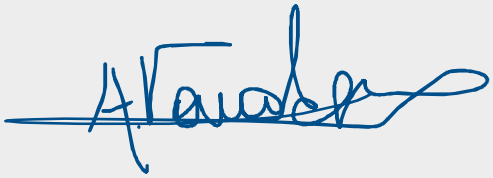
Ми отримали та уважно вивчили ваш каталог продукції та дуже задоволені широким вибором, що включає навіть рідкісне обладнання.

За висновками наших фахівців ми потребуємо у оновленні наших лабораторій і на першому етапі зацікавлені у придбанні великої кількісті біохімічних аналізаторів та лабораторних центрифуг. Будь ласка, надайте інформацію, чи зможете ви поставити необхідну кількість (15 і 25 відповідно) протягом двох місяців.

Крім того, оскільки ми плануємо замінити все обладнання у одного постачальника, чи не могли б ви надати знижку як ґуртовому покупцю?

З нетерпінням чекаємо на вашу відповідь,

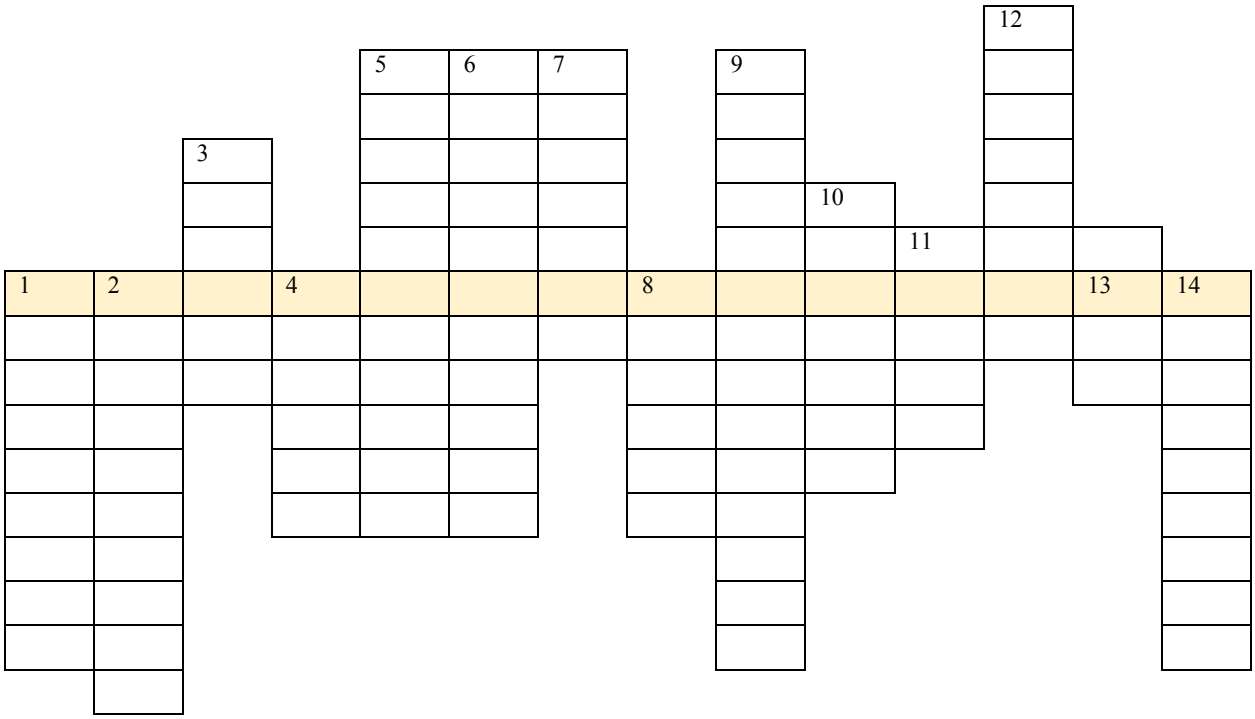
Андрій Головко



Practice File 4

WORKING WITH WORDS

Exercise 1. Solve the following puzzle and find the name of one of the most financed branches of industrial chemistry.



1. having a clear decisive relevance to the matter in hand;
2. efforts made to maintain, restore, or promote someone's physical, mental, or emotional well-being;
3. a forceful contact;
4. a usually formal record of the proceedings of a meeting or session;
5. use of something;
6. an authoritative rule dealing with details or procedure;
7. progress in development;
8. to increase in extent, number, volume, or scope;
9. partial sterilization of a substance and especially a liquid (such as milk) at a temperature and for a period of exposure that destroys objectionable organisms without major chemical alteration of the substance;
10. the manner, position, or direction in which something is set;
11. a thread or a structure or object resembling a thread;
12. an outward sign;
13. to increase in;
14. a substance (such as grease) capable of reducing friction, heat, and wear when introduced as a film between solid surfaces.

(Adapted from: https://www.merriam-webster.com/)

Exercise 2. Read the text and complete the gaps with appropriate derivatives of the words in the right column. The words are given in the same line as the gap.

Graphic papers, (1) _____ newsprint and coated papers but also uncoated papers, will continue to face a severe decline in demand and (2) _____ pressure to restructure production capacity. We are (3) _____ to see continuing machine conversions into packaging and (4) _____ papers, as well as more (5) _____ structural moves that include innovations in (6) _____ and the supply chain. Such (7) _____ changes are already having an impact and the (8) _____ of graphic-paper companies has reemerged from several years in the doldrums. The turbulence in graphic papers has meanwhile spilled over to packaging and tissue segments, with capacity increases in segments that don't really need it.	PARTICULAR SIGN LIKE SPECIAL INNOVATION DISTRIBUTE STRUCTURE PROFIT

Exercise 3. Translate the following sentences into English.

1. На засіданні комітету з *охорони здоров'я* було зроблено *доповідь* про необхідність впровадження заходів щодо запобіганню розповсюдженню щорічної епідемії грипу.
2. *Мастильні матеріали*, що використовуються у механізмах автомобілів, були ретельно *очищені* від будь-яких домішків, які можуть викликати поламку.
3. Перед *вживанням* молочні продукти піддаються *пастеризації,* щоб позбавитись можливих патогенів.
4. Робота будь-якої галузі хімічної промисловості регламентується *правилами*, встановленими *для забезпечення* безпеки робітників, захисту природного середовища та принципів розумного використання ресурсів.
5. Для того, щоб провести експеримент, ви повинні впевнитися, що всі *налаштування* режимів температури та тиску правильні.
6. Ми *розширюємо* наше виробництво, що відповідає зростаючим потребам промисловості.
7. Ми вважаємо, що наше дослідження є *актуальним*, та спираємося на численні роботи з цієї проблеми, що були опубліковані за останні п'ять років.
8. Якщо ви збільшите *вживання клітковини* у вашому раціоні, це *посприяє* травленню та позбавить вас від неприємного відчуття.
9. Наявність смогу в повітрі міста є *свідоцтвом впливу* тяжкої промисловості на довкілля.
10. Можливість використання медичних препаратів для лікування найтяжких хвороб свідчить про *просування* та успіхи фармацевтичної промисловості.

LANGUAGE AT WORK

Exercise 4. Find a mistake in each sentence.

1. It is not worth ~~to try~~ to ask him for help. _____trying_____
2. You shouldn't never touch hop objects with your bare hands. _____
3. They strongly recommend that we followed the rules. _____
4. Not enter the lab without my permission! _____
5. They must to be prepared for the test for tomorrow. _____
6. If I would be you, I would apply for this grant. _____
7. Visiting the University of Bologna is high advisable. _____
8. There is not a point in reading this article. _____
9. Closed your books! _____
10. If I had your possibilities, I will never miss this chance. _____
11. Please, get's ready to carry out the next laboratory work. _____
12. You are not allowed carry out experiments without supervision. _____

Exercise 5. Translate the following instruction into English.

Лабораторні заняття проводяться під керівництвом викладача та лаборанта. Перед початком лабораторних занять студенти проходять інструктаж з техніки безпеки, який оформлюється у спеціальному журналі. Крім того, під час кожної роботи вони одержують усний інструктаж від викладача. Під час виконання лабораторних робіт необхідно дотримуватися наступних правил роботи з хімічними реактивами:

1. Обережно поводитись з хімічними реактивами:

– уникайте потрапляння цих речовин на руки, не торкайтесь ними обличчя та очей, після роботи ретельно вимийте руки;

– не пробуйте хімічні реактиви на смак;

– нюхайте усі речовини дуже обережно, не нахиляючись над посудиною та не вдихаючи на повні груди, а спрямовуючи до себе пари чи гази рухом руки;

– не користуйтеся невідомими реактивами (без написів і етикеток);

– ніяких речовин з лабораторії не можна брати додому.

2. Реактиви для дослідів слід брати лише в тих кількостях, які зазначені в методиці. Сухі реактиви слід брати за допомогою шпателя, розчини – піпеткою, для кожного реактиву необхідно мати окремий шпатель або піпетку. Набирати отруйні та їдкі рідин в піпетки не ротом, а за допомогою гумової груші. Подрібнювати сухі луги можна лише в запобіжних окулярах. Брати твердий луг тільки пінцетом або щипцями.

3. Не виливайте надлишок реактиву і не висипайте назад в посуд, з якого вони взяті.

4. Категорично забороняється нагрівати або охолоджувати будь-які розчини у герметично закритих місткостях, а також закривати колби з гарячою рідиною. (…)

(Adapted from: https://cpo.stu.cn.ua/Oksana/harch_himia_lab_prakt/50.html)

WRITING ACTIVITY

Exercise 6. Translate the following letters into English.

Декану хімічного факультету
Харківського національного
Університету імені В. Н. Каразіна
Калугіну О.М.

Шановний Олегу Миколайовичу!

Ми запрошуємо Вас та вашого представника на нараду з питань благоустрою корпусу 8 Харківського національного університету імені В.Н. Каразіна, яке відбудеться 29 травня 2024 о 10:00 в аудиторії 3-45 (центральний корпус). На порядку денному:

1. оновлення покрівлі корпусу 8;
2. ремонтні роботи системи опалення;
3. заміна віконних рам;
4. кошторис.

З повагою Бабічев А.В.

Проректору
Харківського національного
Університету імені В. Н. Каразіна
Бабічеву А.В.

Шановний Анатолію Валерійовичу!

Із задоволенням приймаю Ваше запрошення на нараду, до якої моя команда підготувала власну пропозицію щодо розподілу кошторису, яка прикріплена до листа. Сподіваємося, що ви ознайомитеся із нею та винесете на обговорення під час наради.

З повагою Калугін О.М.

Проректору
Харківського національного
Університету імені В. Н. Каразіна
Бабічеву А.В.

Шановний Анатолію Валерійовичу!

Я дуже вдячний за Ваше запрошення на нараду, яка обговорює таке нагальне питання для хімічного факультету. Нажаль, я не зможу бути присутнім особисто, через те, що у цей час приймаю участь у засіданні дисертаційної ради як опонент. Мій представник, Пантелеймонов А.В., представить нашу пропозицію.

З повагою Калугін О.М.

Practice File 5

WORKING WITH WORDS

Exercise 1. Complete the following sentences with the correct word.

1. It the package says that the medication is ___, you should not use it.
   a. targeted b. covered c. expired
2. Smoking and drinking interfere ___ your body's ability to process oxygen.
   a. in b. with c. for
3. A healthy diet can ___ from diabetes mellitus.
   a. makeup b. approve c. prevent
4. Researchers have called into question the ___ of phenylephrine since 2007.
   a. efficacy b. administration c. submission
5. The qualitative ___ of our research team is far from being ideal.
   a. makeup b. trial c. treatment
6. What level of sharing is ___ to different people? (Louis Staples)
   a. approve b. appropriate c. efficacy
7. The team is on the way to develop drugs that ___ cancer cells.
   a. target b. expire c. cover
8. Google promises the phone can ___ 24 hours of usage without problems.
   a. prevent b. interfere c. make it through
9. The Oxford Chemistry Primers aim to ___ important topics in organic chemistry.
   a. target b. cover c. supervise
10. The research teems expects to get an official ___ to start medical trials.
    a. submission b. makeup c. approval

Exercise 2. Restore the order of letters of the words in the box, then, use them to fill in the gaps.

alvaprop	simsonbusi
tilar	pertenv
sisueprev	eeripx
appptrotiera	tetratmen
calelurl	amiderstin

1. The testing and a subsequent _____ of new medications should be fostered.
2. The participants of the _____ were divided into two groups of those who took medications and those who were given placebo.
3. Due to extensive cheating, University professors had to carefully _____ students' examinations.
4. As long as you have the proper seals on your containers and the _____ documents, there's nothing to worry about (Val McDermid).
5. The _____ level of a human body can reveal the accumulation of different toxins.

6. Diploma and certificate courses do not normally require the _____ of a dissertation.

7. Her diet is supposed to _____ her from vomiting: no food-poisoning, no bacteria, no bugs (Scarlett Thomas).

8. Take good care of the store of your medications for them not to _____.

9. His accurate work could boost _____of diseases such as cancer and Alzheimer's.

10. As the patient was in agony, the doctor decided to _____ painkillers through an intravenous drip.

Exercise 3. Translate the following sentences into English.

1. Яку б тему дисертації ви не обрали, вам спочатку доведеться *пройти через* кандидатські іспити.

2. Добре, коли науковий керівник *не втручається в* проведення експерименту, але погано – якщо зовсім не звертає на вас увагу.

3. Не зважаючи на успіхи у сфері інформаційних технологій та політики країна на діджиталізацію, *подання* заяв в електронній формі є скоріше виключенням, ніж правилом.

4. Дії цих ліків не будуть *заважати* одна одній та створювати побічні ефекти, оскільки вони *вводяться* і діють в різних системах організму.

5. Фармацевтичні компанії *націлені на* людей похилого віку, для яких *лікування* певними ліками є по життєвим.

6. Ця робота присвячена виявленню механізмів, що впливають на зміни *функцій кліток*.

7. *Закінчується час дії* договору про проведення дослідження і фармацевтична компанія має надати фінальний варіант фармпрепарату.

8. Ще жодна компанія не розробила ліки, що могли б повністю *попередити* виникнення злоякісних пухлин.

A	B
1. The conference *is held* on the first Friday of February, so, be prompt to submit your papers.	**a.** a prediction based on facts
2. We *are presenting* the results of our research at the plenary session of the conference.	**b.** schedules and timetables
3. Joseph Lloyd *is going to submit* his documents for the position of an associate professor at the University of Manchester.	**c.** predictions about distant and uncertain events
4. He's standing too close to the boiling mixture; he'*s going to get* a burn.	**d.** intentions and ambitions

5. Hopefully, they *will manage* to meet deadlines and submit papers on time.	**e.** appointments and arrangements
6. XXII century *will witness* the time when all illnesses have disappeared.	**f.** expressing uncertain future with introductory phrases

1. Дослідницький відділ подав *відповідні* документи на проведення клінічних *випробувань* нової вакцини проти грипу.
2. *Ефективність* препарату залежить від співвідношення речовин, що входять у його *склад*.

LANGUAGE AT WORK

Exercise 4. Match the sentences in Box A to the correct descriptions in Box B.

Exercise 5. Rewrite the following sentences using …

going to

1. I have decided enter Kharkiv National University.

I'm going to enter Kharkiv National University

2. You have many mistakes in your work. What is your plan?
3. We have decided to do ahead with clinical trials of a new medication.
4. They refused to participate in the conference this year.
5. This is the team which have offered their solution to the problem

Present Continuous

6. We have booked the room at Novotel Warszawa Centrum.
7. We have negotiated the price for the equipment with this supplier successfully.
8. Nickolas has arranged an appointment with the dentist for Friday.
9. Margareth has persuaded Meghan to cover her at work for three days.
10. Keith has planned to spend the weekends with his family in the mountains.

Exercise 6. Correct the mistakes in the following sentences.

1. I hope we get the results sooner.
2. Next week they are participated in all-Ukrainian conference on modern issues of pharmaceutical engineering.
3. What will you do if you will be offered a job abroad?
4. Look at that beaker! It's standing on the edge! It will break!
5. Lena, can you help me? – Just a minute, I'm going to wash my hands.
6. Harry will visit his scientific advisor on Tuesday morning at 11 AM.
7. I think, I am going to change the direction of my work.
8. Shall you come to my defense? – Gladly!
9. As soon as you will finish the experiment, you must write every detail in order not to forget and to keep your notebook neat and tidy.
10. Jonathan is going publish his article in a special issue of the journal.

WRITING ACTIVITY

Exercise 7. Translate the following letters into English.

Центральна бібліотека
(Видавництво ХНУ) майдан Свободи, 4, м. Харків
Тел. 057 702-77-24

21 січня 2024

Відділ продажів
Видавництво Глобус
вулиця Різдвяна, 11,
Харків

Шановні пані та панове,

Я, Марина Гончаренко, є керівником відділу постачання центральної бібліотеки, яка шукає видавця для друку підручників.

Ми б хотіли надрукувати підручник «Кристалохімія» авторства Л.О. Бірюковича у кількості 100 примірників. Оскільки ми потребуємо підручники терміново, ми будемо вдячні, якщо ви надрукуєте їх до 1 березня 2023. Просимо підтвердити, чи зможете ви виконати замовлення вчасно.

З повагою,

Марина Гончаренко
Відділ постачання,
Центральна бібліотека

(…)

Шановні піні та панове,

Ми сподіваємося, що ви отримали наш лист-замовлення № п/27/24 від 21 січня 2024 на 100 примірників підручника з кристалохімії Бірюковича Л.О., проте нас непокоїть той факт, що ви затримуєте виконання замовлення на термін, що перевищує той, що зазначений у нашому договорі, а саме 1 березня 2024.

У зв’язку з цим, ви не залишаєте нам вибору, окрім як скасувати наше замовлення через вашу неспроможність виконати друк вчасно, оскільки час виконання був критично важливим. Просимо вважати наше замовлення скасованим.

З повагою,

Марина Гончаренко
Відділ постачання,
Центральна бібліотека

Practice File 6

WORKING WITH WORDS

Exercise 1. Change the words in italic with the correct variant from the box.

combustion
compartment
contamination
~~eventually~~
excessive
fossil fuels
pollution
precipitation
terrestrial
traces

1. She hopes to get a job on the local newspaper and ~~*in the end*~~ ___eventually____ work for 'The Times'.
2. It is found in most foods, with *too much* _____ amounts in processed foods.
3. The exhibition *follows and reveals* _____ the history of graphic design in America from the 19th century to the present.
4. It is understood carbon monoxide was entering a *space* _____.
5. The ecological theory underpinning this approach should apply to many other aquatic and *earthly* _____ ecosystems.
6. It's my view that we cannot just continue with *gas and oil* _____.
7. The forecast is for dry, cloudy weather with no *rain or hail* _____ expected.
8. Energy is released as heat when a compound undergoes complete *burning* _____ with oxygen.
9. The work shows transport by winds is a key factor in microplastics *admixtures* _____ across the globe.
10. Governments began to take notice and to discuss measures to reduce *dangerous waste production* _____.

Exercise 2. Translate the following sentences.

1. Через холодний клімат у цій місцевості багато видів *наземних* комах живуть у верхніх шарах ґрунту.
2. Ознаки *забруднення* води хімічними і біологічними агентами присутні у водних системах всього світу.
3. Шумові *забруднення та забруднення* води все ще наражають на ризик здоров'я людини та тварини, не зважаючи на десятиріччя досліджень.
4. *Надмірне* використання людиною виробів з пластмаси спричиняє виділення у навколишнє середовище мікрочастинок, що негативно впливає на здоров'я живих істот.

5. Державне управління створило комісію для того, щоб вивчити та *прослідкувати* способи зниження впливу виробництва на навколишнє середовище.
6. Причиною зміни клімату та потепління вважається спалювання *викопного палива* енергетичною промисловістю.
7. У підвалі будинку знаходиться *відділ*, що використовується для збереження готової продукції.
8. *В кінці кінців*, людство досягне точки, коли технологія буде робити все, що потрібно, проте, багато робочих місць буде також втрачено.
9. Більшість карбонатів утворюються шляхом *осадження* солей металів за допомогою лужних карбонатів.
10. Його вогонь не є вулканічного походження, а є результатом *згоряння* вугілля під землею, що виділяє багато диму та пари.

Exercise 3. Read the following text and do the exercises below.

Environmental chemistry of soil and rocks

The most abundant elements in typical soils and rocks are oxygen (47%), silicon (28%), aluminum (8%), and iron (3–4%). Virtually all of the other stable elements are also present in soil and rocks, and all of these can occur in a great variety of molecular forms and minerals. Under certain circumstances, some of these chemicals can occur in relatively high concentrations, sometimes causing ecological damages.

This can occur naturally, as in the case of soils influenced by so-called serpentine minerals, which can contain hundreds to thousands of ppm of nickel. In addition, industrial emissions of metals from smelters have caused severe pollution. Soils near Sudbury, for example, can contain nickel and copper concentrations up to 5,000 ppm each. Even urban environments can be severely contaminated by certain metals. Soils collected near urban factories for recycling old automobile batteries can contain lead in concentrations in the percent range, while the edges of roads can contain thousands of ppm of lead emitted through the use of leaded gasoline.

(Adapted from: https://www.encyclopedia.com/environment/encyclopedias-almanacs-transcripts-and-maps/environmental-chemistry)

A. Tell if the following statements are TRUE, FALSE or NOT GIVEN.

1. High concentration of elements eventually leads to pollution. _____
2. Serpentines can contain hundreds to thousands of ppm of nickel and are used in jewelry. _____
3. Nickel is considered to be the most wide-spread contaminant. _____
4. The land near industrial areas bears the traces of a particular pollutant. _____

B. Fill in the gaps with NOT MORE THAN THREE words.

Different common elements can be found on earth in their variety of (**5**) _____. Moreover, if present in large concentrations, they can cause (**6**) _____. For instance, nickel, which is

present in great abundance in soil near industrial areas, or lead, which is attributed to old car (**7**) _____ and the use of (**8**) _____.

LANGUAGE AT WORK

Exercise 4. Write a question to which the word/ phrase in bold type is the answer.

1. That element will comprise **less than 1% of total litter and pollution**.
2. **Separation of recyclable materials** is the doorstep to minimize contamination.
3. This is the general equation for calculating *the heat of combustion of a hydrocarbon*.
4. Petroleum and coal are **the most abundant** fossil fuels.
5. The **normal annual** precipitation for the entire state is 38.4 in.
6. Trace element means **an element present in tiny amount**.
7. **Not everyone** believes in global warming.
8. Cattle produce a large amount of **the potent greenhouse gas methane** in their stomachs.
9. The ammoniacal salt solution **is now saturated** with carbon dioxide.
10. **By absorbing carbon dioxide**, the oceans actually help stave off climate change.

Exercise 5. Turn the following questions into indirect questions starting with Do you know…? Can/ Could you tell me …? Have you any idea …?

1. Where is my notebook?
2. What is the date today?
3. What methods have you used?
4. Will you follow his advice?
5. How long have you been carrying out this experiment?
6. Why haven't we been chosen for the project?
7. How to use this device?
8. What is the structure of a business letter?
9. When was he nominated for the award?
10. What is the impact of sulphur on the environment?

Exercise 6. Write a question to which the word/ phrase in bold type is the answer.

Greta Thunberg was born **on January 3, 2003**, Stockholm, Sweden. She is a **Swedish environmental activist** who worked to address the problem of climate change. **Seeking to make a greater impact**, Thunberg attempted to spur lawmakers into addressing climate change. **For almost three weeks** prior to the Swedish election in September 2018, she missed school to sit **outside the country's**

parliament with a sign "School Strike for Climate". After the election Thunberg returned to school but continued to skip classes **on Fridays** to strike, and these days were called **Fridays for Future.** Her action inspired **hundreds of thousands of students** around the world to participate in their own Fridays for Future.

(Adapted from: https://www.britannica.com/biography/Greta-Thunberg)

WRITING ACTIVITY

Exercise 7. Match the following tips about memo with their explanation.

1. Every section of a memo is short and concise, including the conclusion. Consider writing one or two sentences to conclude your memo.	**A.** Keep a professional tone.
2. Set the tone of your memo so that your communication would be light and positive both in a written text and in a further communication between you and the reader.	**B.** Leave out the salutation.
3. The memo is a business document and often is kept as a record of communication, so try to write your memo in a formal language.	**C.** End on a positive note.
4. Most memos do not require a signature, though you can add your contact information if you think the reader may not already have it.	**D.** Keep it brief.

(Adapted from: https://www.indeed.com/career-advice/career-development/how-to-end-a-memo)

Exercise 8. Write a memo to your company staff.

Context: Your institute has decided to hold an all-Ukrainian students conference. This is going to be the first event and your boss wants that representatives from different cities participate. You are asked to write a memo to inform all staff to spread the call for papers throughout the country.

Include the following items into your memo:

- date, location and duration of the conference;
- information about accommodation for participants from other cities;
- list of sections;
- fees (will be reimbursed by the holder);
- prizes and certificates provided;
- participants are advised to get a medical checkup before coming.

AUDIO SCRIPTS

UNIT 1

Audio 1.1.

So, within this presentation, I'm going to cover three things: first of all, I will give you some essential tips for getting your job interview off to a flying start; I will then tell you the four simple things you must include within your job interview introduction, and then I will give you an example scripted interview introduction that you can use at the start of your interview.

Audio 1.2.

Essential tip **number one** for getting your interview off to a flying start is a focus on creating a positive first impression. And you can do that by arriving at the interview venue, twenty minutes before the interview starts. This shows that you are punctual and you are organized. Now when you arrived at the interview venue, make sure you read your interview introduction, which I will give you in a second, and also reread the job description, because by reading these important documents, it gets you relaxed and composed and it makes sure that you are prepared for what's to come during your interview.

Essential tip **number two** for getting your interview off to a flying start, is to make sure that you dress professionally. How you dress says a lot about your intentions for this job. And if you haven't dressed professionally, what does it say to your interviewer? Well, it tells your interviewer that you don't care and you copy both it, and therefore, why should they hire you. So, make sure you dress professionally for your interview because it says an awful lot about your insertions for this role.

And essential tip **number three** is to make sure that throughout the interview, you have good posture, you smile, and you demonstrate really good manners. This is important. And how can you demonstrate good manners during your interview? Well, right at the very start, when you first meet the interviewer, say this: *Hi, my name is Richard and I as here today for the interview. Thank you very much*. So, just by saying that, it demonstrates really good manners. And don't forget, do not sit down in the interview chair until invited to do so.

Audio 1.3.

So, once you sat down in the interview chair, the interviewer is going to say something like "Welcome to the interview. Can you start of by introducing yourself?", or they might say, "Tell me about yourself." Now, whenever you introduce yourself, during an interview it's really important that you include the following four things. Please, make sure you take notes. Number one. Talk about the skills and qualities you have that are a must for the role you are applying for. Number two. Talk about any experience or qualifications you possess that are relevant to the position. Number three. Talk about any significant achievements you have gained in your work life or personal life so far. And then finally, number four. Talk about the type of person you are and

what you are going to do in the role if they hire you. So, you should include those four things when introducing yourself during a job interview.

Audio 1.4.

And right now, I'm going to give you a brilliant job interview introduction script that you can use right at the start of your interview.

So, when an interviewer says to you "Introduce yourself", here is a brilliant script that you can use. Here we go.

Thank you for giving me the opportunity to be interviewed for this position today. Having studied the job description, I am confident I have the skills, the qualities, and the qualifications needed to excel in the role. I am a fast learner; I possess excellent problem-solving capabilities, and I can manage a significant work load. I have an impressive track record of achievements. For example, in my previous role I was praised by my supervisor for helping the company find ways to increase sales by improving customer service standards. The type of person I am means I always act as a positive role model for the company, and I will make sure I take responsibility for my ongoing professional development. If you hire me in this position, I believe you will quickly see a positive return on your investment.

(Adapted from: https://www.youtube.com/watch?v=wexzvClUcUk)

UNIT 2

Audio 2.5.

TK: Hello Ms. Smith, I'm Tom Kelley. Thanks so much for coming in.

RS: It's my pleasure, thanks so much for meeting with me.

TK: Of course. Did you have any trouble finding the office?

RS: Nope. The directions on the website were great.

TK: Good. Would you like some coffee or water before we begin?

RS: I'm okay, thank you.

TK: Alright. So, to get started, why don't you tell me a little bit about yourself.

RS: Sure.

(Adapted from: https://www.youtube.com/watch?v=yBtMwyQFXwA)

Audio 2.6.

TK: Can you tell me how you heard about this position?

RS: Of course. A friend of mine saw the position listed on LinkedIn and forwarded it to me, so I spent some time on your website learning about the position and the company. I also read an article in Business Weekly about your work that really got me interested.

TK: What attracted you to our company?

RS: To be honest, what really caught my eye was your focus on growth. I was really impressed with your ambitious goals and the clear plan you have for achieving those goals. I also like the support you provide for your employees. I love your continuing education initiatives, where you pay for employees to educate themselves

in new techniques and skill sets. I think that really helps to build employee satisfaction and loyalty.

TK: You've obviously done your homework.

(Adapted from: https://www.youtube.com/watch?v=iZQnhUYEPoY)

Audio 2.7.

TK: Now, what do you consider to be your biggest weakness?

RS: Chocolate. Just kidding! No, my biggest weakness is public speaking. It's something that I've spent a lot of time working on and in which I've improved a great deal. I'm very comfortable in smaller meetings with my teams. But when I present an idea or concept to a larger audience, I still experience some stage fright. At this point, I can handle these situations professionally, but I would like to be more comfort in these moments so I can really enjoy the experience of presenting, rather than just survive it.

TK: Fear of public speaking is a very common fear; I'm in the same boat on that one!

(Adapted from: https://www.youtube.com/watch?v=3xywXO-VHCg)

Audio 2.8.

TK: Okay, well, I have everything I need, but do you have any questions for me, about the company or the position?

RS: Yes. Imagine you're looking back on this hiring decision in a year. The person you hired has exceeded your expectations. What did he or she do that impressed you most?

TK: That's a great question. I think in one year the person would have come in and spent some time learning from the team and people that have been here a while. Then, she or he will start making changes in an informed way. In one year, I want this person's team to be a well-oiled machine. I want them to be bouncing ideas off each other, coming up with new designs and making headway into new markets.

RS: That's helpful. It's good to know what the expectations are. Can you tell me about the team that I would be working with?

TK: Sure. I believe all of them have been with the company for over five years and know the ropes. I would say there's a little bit of frustration currently because of our lack of growth. This will be the third time we've brought in a new team leader in four years.

RS: Do you know what's causing that kind of rapid turnover?

TK: To be honest, the last three team leaders have been hired from within the company. And sometimes it's hard to think outside the box when you've been inside the box for a while. We're hoping to bring in some new ideas and energy and get our development team back on track.

RS: That makes sense. I really appreciate that you're considering me for the position. I'd love to be a part of the company achieving its goals.

TK: Very good. Okay. That's great, thanks so much for coming in, Rachel. It's great to meet you. I'll give you a call in the next three days.

RS: Sounds good, I look forward to it. Thanks again.

TK: My pleasure.

(Adapted from: https://www.youtube.com/watch?v=To4IJuHYt94)

UNIT 3.

Audio 3.9.

Let us look first at your choice of laboratory notebook now here I have a very nice notebook. It's a loose-leaf binder, seems sensible, can take pages in, pages out, very convenient. Now, this is not a good idea because I can take pages in and I can take pages out. It's very difficult to control a loose-leaf binder like this. Typically, what you want instead is a hard-bound kind of book, at least a book that has pages that cannot come out and preferably pages that are consecutively numbered.

Now, typically if you work for a large organization, you will be issued a laboratory notebook that's standardized for the company. That laboratory notebook will probably bear a number and it will be assigned to you. It will be your responsibility. So now you have this nice clean book. What do you do now? you will want to set it up so that you have your personal information at the beginning of the book and that way you can find this information. If for any reason the book is lost, it can come back to you.

Audio 3.10.

Now usually we reserve the first two pages of the book for a table of contents. That way you can keep track of some of the important different stages of operation that are recorded in your notebook. So, now I've set up my laboratory notebook in a way that would make my grade 10, teacher proud.

I'm about to make my first entry. Remember, this has to be a permanent record, so, I'm going to make those entries in permanent ink, preferably, black ink and not use pencil in my book. If I used pencil, of course, I could easily erase that annotation. Now, sometimes I have to put things in my book that are not simply easy to write in. I'm going to want to attach records, for example, and I do this in a special way – I tape around all the edges of the attachment and then I sign across the tape. That way, if anyone removes that piece of paper at a later date, it'll be clear that something has been removed. I try to make entries fairly carefully but everybody makes mistakes now and then.

The content of your laboratory notebook is important as well. It's important that you try to write down as much as you can in the laboratory notebook even if you are in a hurry. In addition, your content needs to be as organized as you can.

A few other notes about content. What you do want to put in your laboratory notebook is anything that you will need to know in order to reproduce the experiment you're describing. Thus, if you use any special reagents, any monoclonal antibodies, you will want to list their source or their batch lot here. It may be important later. The information may be used as a base for studies in humans or for identifying the safety or efficacy of medical products. In these cases, you are not just a research scientist anymore. You're a guardian of fairly important data that will be scrutinized carefully when these products are approved.

Audio 3.11.

How do I correct a mistake? Typically, the way to do it is to draw a single line through the error and then initial and date the corrected annotation. If you put a little note about why you corrected the annotation, that's all do to the good. If you make a mistake on a whole page, again you can draw a line through the whole page and initial and date that line. If for any reason, you have to leave a blank page, put a line through that page and initial and date that line too. There should be no empty spaces left in your laboratory notebook in case you're tempted later to fill those in.

Audio 3.12.

I am calling the laboratory new book a legal document. How does that work? Well, let's imagine that you've discovered a new chemical entity. You don't think much of it at the time but you write it down in your laboratory notebook. Now flash forward to several years later and that discovery is worth several million dollars. But wait! Your competitor says that they had the idea first. Your laboratory notebook will be the key piece of evidence that's used in a court of law to establish inventorship. Remember that in the USA, it's the person who is first to event invent who is given the patent rights. The laboratory notebook is used to prove both invention and reduction to practice. So, first it needs to show exactly when the idea occurred, then it has to show all the efforts that were made to provide a working model or some other form of active invention, and it must do this in a way that makes it clear that no fraud or change in the data has occurred during the process.

If two labs are competing for the same intellectual property, it's likely that the patent rights will go to the company that has the best control of the invention date and the process of reduction to practice, all other things being equal.

(Adapted from: https://www.youtube.com/watch?v=Js0XFfRYcvQ)

UNIT 4

Audio 4.13

Speaker 1: So, what I really enjoy about working in industry is being able to collaborate with a number of different functions. So, I get to work with the business, commercial side of things, also with manufacturing, and also with sales. And I get to see how those parts are important in the success of our business and where I can add value as a chemist to that business as well. And that's really exciting.

Speaker 2: For me, chemistry is about making a difference. My profession, my craft is being able to do chemistry, be able to make things using chemistry, and to drive that at home. It's about helping that chemistry or enabling that chemistry to make a difference to people's lives. It's about coming up with inventions, solutions, materials, whatever it takes to make a difference. So, it's less about the chemistry, it's what you do with it.

Speaker 3: I think the most satisfying thing about working in industry is actually creating something that people use. It's one thing to make something new, but when

you can change someone's life with that or impact someone's life with that, that makes a big difference.

(Adapted from: https://youtu.be/VC1hNYMwFhQ)

Audio 4.14

The lab environment is hazardous by nature. The actual risk is largely determined by you and those working with you. It's your responsibility to know and follow the rules and be able to recognize potential safety hazards.

The first consideration is proper dress. What you wear in the lab can help prevent serious, even fatal injuries. Often, you'll be working with chemicals that could harm you if they come into contact with your skin. So, the best way to prevent skin exposure is to wear clothes that cover your entire body. Shorts and sandals leave your skin exposed, so instead wear long pants and closed-toed shoes. Remove jewelry before entering the lab and tie back long hair. Bring only the things that you need into the lab. Leave all personal items, like backpacks, purses, or jackets outside, so they don't become contaminated.

Now that you're properly dressed for the lab, let's take a look at personal protective equipment, or PPE. For general lab work, a lab coat, safety glasses or goggles, and gloves are required. Always button your coat and try to keep the cuffs tucked into your gloves.

Wear a chemical apron if you're working with splash hazards, volatile, or reactive solutions.

Safety glasses can protect your eyes from flying debris. However, these glasses won't protect you from splash hazards. That's why you may need to wear chemical resistant safety goggles.

Always wear gloves in the lab. Be sure to choose the most appropriate type. You need gloves that are resistant to the chemicals you'll be handling. These gloves are non-absorptive. Even so, chemicals can leach through over time, so it's a good idea to change your gloves and wash your hands frequently, especially if they've come into contact with chemicals. Thermal and puncture-resistant gloves are used for handling extremely hot or cold materials such as when using the autoclave, handling dry ice, or handling sharps.

Some chemicals produce dangerous vapors. A respirator can protect you, however by law you must first complete the proper training. So, ask your lab manager or instructor about respirator training.

Always remove PPE and wash your hands before leaving the lab and entering public areas. And be aware that you can spread chemical or biological contamination by touching items such as light switches...door knobs...or even phones while your gloves are still on. Dressing for the lab and wearing personal protective equipment will minimize the risk for exposure or harm. But clothing and PPE aren't enough to keep you safe. We'll take a closer look at safety equipment in our next lesson.

(Adapted from: https://youtu.be/GjAD83B4JaY)

Audio 4.15

When working in a lab for the first time, look around and identify the location of the safety equipment. Every lab must contain a safety shower and eyewash station. Both should be tested weekly to ensure they're working properly and the water is clean. If a chemical or flame exposure has occurred, yell for help and immediately move to the nearest safety shower. Remove the saturated clothing and thoroughly drench the affected skin under the shower. If your clothes or skin are exposed to flame, then drench your entire body. And have someone call 911.

The eyewash station is used for rinsing your eyes if they're exposed to hazardous chemicals. Hold your eyes open and thoroughly rinse for at least 10 minutes.

The next piece of safety equipment is the fire extinguisher. If a fire occurs, and it's too large for you to extinguish, evacuate all personnel immediately and call 911. Don't attempt to use a fire extinguisher unless you have been trained to do so by certified trainers such as the local fire department.

A fire blanket can be used to extinguish small fires on work benches and floors. And it can also be used to help a person whose clothing is on fire. Never wrap a person while they're standing. This can force flames upward toward their head and neck area. Instead, help the person to the floor, wrap the fire blanket around them and help them roll until the fire is out.

Each lab should have a first aid kit that contains bandages and antiseptic for minor injuries. Evacuation routes should be posted near the exits. It's important that you know multiple evacuation routes in case one is blocked.

Another helpful piece of safety equipment is the chemical fume hood. It's a ventilated, enclosed work area that protects you from toxic vapors. Turn on the exhaust fan. Make sure the hood is venting properly. The opening is covered by a window, called a sash, which can be raised and lowered. For most applications, the sash should be opened to either 8 or 16 inches. Never store chemicals under the hood and always clean and remove materials when you're finished working.

Test your safety equipment regularly to make sure each item is ready in case there's an emergency. In our next lesson, we'll examine how your behavior in the lab can help keep you and your co-workers safe.

(Adapted from: https://youtu.be/IiHEYtnKfF0)

Audio 4.16

Respect the lab and respect your colleagues. Your behavior goes a long way to ensuring that the lab is a safe environment for everyone.

The first consideration is to follow the written Standard Operating Procedures step-by-step. Never eat, drink, chew gum or apply makeup while in the lab. You don't want to contaminate your skin or risk ingesting poisonous chemicals. You could also contaminate your experiment and ruin your results.

Never work alone. Always have at least one other person in the lab so that you can help each other in case of an emergency.

Good housekeeping will prevent accidents too. A cluttered lab is a dangerous lab. Dispose of any trash or debris on the floor which could cause someone to fall. Never place any chemical bottles on the floor, not even temporarily. If you do make a spill, check the safety data sheet for the appropriate response. For a routine spill, clean it immediately and place a "wet floor" sign.

Keep your workbench clean and organized. Have only the materials you need – store away all unneeded items. Don't place materials near the edge of the workbench where they can be easily knocked off.

Never try to pick up broken glass with your bare hands. A cut or puncture caused by broken glass may introduce a hazardous chemical directly into your blood stream. Dispose the glass in a designated broken glass container.

After you've finished an experiment, wash and dry glassware. Return reagents to the storage area, and clean the workbench surface with ethanol or isopropyl alcohol.

If a safety violation occurs, or you notice any unsafe condition in the lab, report it immediately to your supervisor. Be on your best behavior.

(Adapted from: https://youtu.be/e7VkIuiT1kU)

Audio 4.17

So, how do you know when chemicals are dangerous? Do you just take a guess? Open the container and smell or taste it? Definitely not! Warning signs are printed on the chemicals to alert us to what kind of properties the chemical has. They tell us about the potential danger if a chemical is used incorrectly. Let's look at some signs that you need to familiarize yourself with when you start working in a laboratory. **(1)** This means that ingesting the chemical can kill you. Chemicals like hydrogen cyanide and heavy metals like mercury usually have this symbol. **(2)** This is the oxidant sign. Chemicals like potassium permanganate or phosphorus often have this sign. **(3)** This means the chemical is harmful or an irritant. These won't kill you but can irritate the skin or eyes. **(4)** This is the explosive sign and would include TNT gunpowder or hydrogen gas. **(5)** You've probably seen this before on gas tanks. Tt means the chemical is flammable. Flammable chemicals include ethanol, methane, gas and petroleum. **(6)** Finally, there are corrosive substances. These are usually acids like sulfuric acid and hydrochloric acid. These tend to burn or corrode surfaces including skin and hard surfaces

(Adapted from: https://youtu.be/WQyObsamnMw)

UNIT 5

Audio 5.18

Speaker 1. I spent 22 incredible years at Apple, helping to design experiences and devices ranging from the Mac to the iPhone to the Apple Watch. And as the power of compute increased, the size of our computers or our devices decreased.

The desktop paved the way for extraordinary interconnectedness, but it was stuck to your desk. The laptop provided portability, but you still had to be sitting down to use it. And the smartphone evolved us into the modern, connected humans

we are, providing millions the ability to access the internet from our pockets. And the smart watch was a window to that phone. A companion device with a whole host of health insights, all shrunk down to your wrist.

But what comes next? Some believe AR/VR glasses like these are the answer, but they merely move the screens we already have in our lives today to being just millimeters away from our eyeballs. A further barrier between you and the world. And the future is not on your face.

In fact, in 2017, the legendary tech journalist Walt Mossberg wrote in his final column that he felt that soon, one day, technology would become invisible. And that the computer would disappear. And we agree. (Ringing)

(Adapted from: https://www.youtube.com/watch?v=gMsQO5u7-NQ)

Speaker 2. We're going on a field trip together. We're going back to middle school, to chemistry class. Do you remember this? It was an experiment we did with salt water, a battery and two pencils. Guess what? The reaction you witnessed then is a key to tackling climate change. Yes, at 14 years old, we already knew. And today, we have the means to replace fossil fuels with green hydrogen. Let's walk through this.

(Adapted from: https://www.youtube.com/watch?v=9OLxBvLvCoM)

Audio 5.19

Speaker 1. … and we open up entirely new possible ways of how you interact with technology and how you interact with the world around you. More humane, intuitive interactions that are screenless, seamless and sensing. This is so much more than devices just getting smaller or more powerful. This is the possibility of reimagining the human-technology relationship as we know it. And that's what's so exciting.

It's a huge challenge, no doubt. But it's the world that we want to live in. One where technology not only helps you get back into the world but enhances our ability to do so. It's within reach. And you saw some of it today. The future will not be held in your hand, and it won't be on your face either. The future of technology might almost be invisible. Thank you.

(Adapted from: https://www.youtube.com/watch?v=gMsQO5u7-NQ)

Speaker 2. By focusing on one single core size, we can leverage massive economies of scale and drive down the price of green hydrogen. Because that's what it's all about: making green hydrogen cheaper than fossil fuels. We have the means to make green hydrogen the fuel source of the future. It's time to listen to our 14-year-old selves and the 14-year-olds of today. Our generation has a unique opportunity. It's time for the next industrial revolution. We can build our world's energy supplies sustainably, made of a lot of green electricity and a wave of green hydrogen molecules. This is how we end the fossil fuel era. Thank you.

(Adapted from: https://www.youtube.com/watch?v=9OLxBvLvCoM)

UNIT 6

Audio 6.20

So, when I give a training, for instance Presentation Skills, I make people come in front of the group and present themselves. And that goes rather well most of the times until they come at the end of their presentation and then they go like. "Well, that's about it". And they disappear. There's no ending. Let me give you some tips and tricks on how to end your presentation in a good way.

First of all, get rid of some clichés like "Thank you for your attention" or "Are there any questions?" That's not really an ending. What you need to do is think about your key messages. The take home messages that you want your audience actually to remember. Sum them up at the end of your presentation and then you'll have a good conclusion, a good ending.

What you can also do is actually stop where you started. Start with a strong statement, work your way through that presentation and end with that same statement. That actually helps to get a good ending.

Now those are tips and trick on the content of your presentation. But here's also the form, the style.

Make use of your intonation, your tone of voice, your pitch to lay down the sentences at the end of your presentation. So, they audience knows, hears and feels it's actually coming to an end. I'll give you an example. If I say "That ladies and gentlemen, was what I wanted to share with you." Then you can actually hear that I'm laying my sentence down. And also, at the end of your presentation, add a smile. When you actually thank your audience and you do it without a smile, they won't feel any gratitude. They won't feel that you're sincere. So, instead of saying "Thank you for your attention." Just say "Thank you" and then they will know that your presentation has finished.

(Adapted from: https://www.youtube.com/watch?v=c5JGl3jZb2M)

Audio 6.21

Speaker 1. You in your everyday life have the potential to be any one of those people (and we've all been that awkward thirteen-year-old). Seek out the answers to your problems. Find the chemistry that's relevant to your life. Search for the knowledge that wasn't previously visible, zooming in by a factor of 1 million. You have the power to learn about the world around you by opening your mind and experiencing the chemistry that exists everywhere you look. You will save money, save time, be safer and more satisfied. If you see equations, numbers, chemistry, don't be intimidated. Think of it as a challenge. Look at the whole picture from way up in outer space, then, find the courage within yourself to jump.

(Adapted from: https://www.youtube.com/watch?v=3LhNRJkh87w)

Speaker 2. And now, finally, this is what I want. I want my grandson, Daniel, and his friends and his generation, throughout the world, to know the story of big history, and to know it so well that they understand both the challenges that face us

and the opportunities that face us. And that's why a group of us are building a free, online syllabus in big history for high-school students throughout the world. We believe that big history will be a vital intellectual tool for them, as Daniel and his generation face the huge challenges and also the huge opportunities ahead of them at this threshold moment in the history of our beautiful planet. I thank you for your attention.

(Adapted from: https://www.youtube.com/watch?v=yqc9zX04DXs)

Speaker 3. If we can get young children excited about science or if we can spark in them a natural curiosity, that's really a first step in the right direction. Just like the [um] picture of a chemistry lab got me excited about science when I was a little girl growing up in Turkey. Although it doesn't look like the chemistry lab picture that I've seen when I was a young child, I want to leave you by showing you a picture of my lab. This is how it looks. And special thanks to Matt Fury who prepared the slides for this presentation. Thank you

(Adapted from: https://www.youtube.com/watch?v=7TacjjISZgs)

Audio 6.22

Your speech was so hard. Your presentation was incredibly difficult but you got through it. You were about to breathe a sigh of relief when it hit you, you still need to take questions and there's more time for questions than there was for your whole speech. This nightmare is never going to end. You look out into the audience and they smile back ready to ask the most challenging questions that will bring you to your knees. Hi. I'm Dave. I'm a public speaking communication skills trainer and I'm here to help you.

Here are the three simple steps you need to follow when handling even the most difficult questions. Remember the acronym UAC. Understand. Answer. Confirm.

Step one is understand. Don't answer, don't move on to step two unless you fully understand the question. If you are unclear about anything, if that's because of jargon or because the question was too long, make sure you ask the questioner to rephrase their question and don't answer until they do. For example, "I'm not sure I follow your question. Could you please rephrase it?" "I think I misunderstood something. Could you, please, ask your question in a different way?" If you didn't understand, because their voice is muffled or hard to hear, ask the questioner to repeat or clarify, for example, "I didn't catch all of that. Could you, please, repeat your question?" "I'm sorry, I missed some of your question. Could you, please, summarize it?" Make sure you understand the question completely before you move on and you take the pressure off yourself.

Step number two is answer. Answer succinctly. Once you understand the question, answer as quickly and clearly as you can. Taking a long time to answer with wordy sentences can get you into a lot of trouble. The audience can end up leading you off track and ask you questions that were irrelevant five minutes ago. Before you started to answer, answering succinctly respects the audience's time and allows you to move on to important follow-up questions.

Step three is to confirm after you answer and this is the most important step. Did you ever notice that there's a lot of dead air after you answer a question? You're waiting to see if the questioner has a follow-up question or comment, the audience is waiting for you to move on. So, after you answer a question, it's important for you to confirm. It allows you to move on to the next question and it removes the uncomfortable silences in the room. And by confirming you also make sure the questioner is happy with the response you gave. For example, "Did I answer your question?" "Do you have any further questions?"

Follow the UAC steps next time and see how much smoother your q&a sessions go. Understand. Answer. Confirm.

(Adapted from: https://www.youtube.com/watch?v=oDdZQwtP8MY)

Audio 6.23

We have built our societies around take-make-waste production systems: the fossil fuel industry, plastics, industrial forestry and paper. These are massive global supply chains that have shaped our world. They've left deep scars across landscapes, legacies of pollution and push species and cultures to the brink of extinction. Now, on the other hand, we have game changing solutions, brilliant innovations that use 90 percent less water and 50 percent less energy. But they're stuck at small scale because they can't secure the financing that they need to commercialize nor the markets that underpin their success.

And so, overhauling these huge and powerful, entrenched industrial systems, it can appear daunting. But I've seen how change can be successful up close with the work that I've been doing for the past 20 years. For my organization, Canopy, our focus is on protecting the world's ancient and endangered forests and transforming the massive pulp paper packaging and viscose supply chains. But the principles from those supply chains can be applied to any sector in need of change. Keeping forests standing is one of the fastest, cheapest, most effective ways for us to stabilize our climate. But of course, we can't keep forests standing if we keep mowing them down to make pizza boxes and rayon T-shirts. The surge in e-commerce and fashion derived from tree-based textiles like rayon and viscose is driving the destruction of climate-critical forests and creating mountains of discarded textiles and packaging.

We must move our supply chains out of forest ecosystems, and to do that, we need to change the business practices of thousands of brands. And that's where we come in. Canopy works to create the market conditions for change by working with hundreds of the forest industry's largest customers.

First to eliminate the use of ancient and endangered forest fiber from their packaging and their textile supply chains. And now increasingly to introduce lower carbon circular Next Gen alternatives.

Get rid of the bad, phase in, scale up the good. These companies are often fierce competitors in the rest of their business operations, but they're willing to come together in a pre-competitive space because they know that no single company, no matter how large they are, can transform an entire supply chain by themselves, nor can they solve the climate crisis.

Supply chain transformation starts when you have a critical mass of brands telling their suppliers that they need to change, that they have zero tolerance for packaging and textiles that originate from the world's endangered forests, that they want lower carbon, circular, Next Gen alternatives and giving their suppliers a short timeline to achieve that target.

So, industry leaders demand change, suppliers respond. It creates value that moves investment. The pipeline of solutions is buoyed, and you have a supply chain well on its way to sustainable change. Canopy's early work greening the Harry Potter book series has grown to working with brands that represent $1 trillion. These companies are changing the packaging and the viscose textiles that they're buying based on the environmental qualities, and it is this leverage that has enabled us to shift more than half of global viscose out of the world's ancient and endangered forests.

And now we're working with our brand partners, with conventional producers, with investors and with brilliant innovators to scale climate resilient supply chains for the 21st century. And in fact, the world's first Next Gen mill is now up and running. It's a giant industrial mill built in the bones of an old shuttered wood mill in northern Sweden.

And rather than requiring huge swaths of forest to be cut every year, Renewcell will use hundreds of millions of old jeans and T-shirts. It's re-employed 100 people. It uses 90 percent less water and five tons less carbon per ton of product compared to a conventional tree-based rayon. Renewcell is a spectacular sword to ploughshares example and it is the first of hundreds of Next Gen mills that are on track to be operational by 2030 as our strategy unfolds and boosted by the generous support of the TED community.

It's heartening and remarkable to see the viscose supply chain transforming in real time and proving that solutions are indeed sexy. But it mustn't stop there because many of our production systems and supply chains are unsustainable and in need of change. The food system, plastics, paper-based packaging. For every sector, there is a more sustainable path forward and the solutions and the people needed to make them happen are often closer than we think. When we create the right market conditions, change can happen exponentially and quickly. Carbon intensive supply chains are relics of the 20th century. Let's leave them back there. Thank you.

(Adapted from: https://www.ted.com/talks/nicole_rycroft_why_are_we_making_pizza_boxes_out_of_endangered_trees)

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Progress Test

Task 1. Read the text. Match paragraphs (1-5) with appropriate titles. There are two options you do not need to use.

The exact process for becoming a pharmaceutical chemist depends on your specific career path. Here are some general steps you can take to become a pharmaceutical chemist:

1. Candidates often pursue a bachelor's degree in chemistry or related fields, such as biotechnology or microbiology. This educational credential can prepare you for an entry-level job in the field, such as a laboratory technician. These employment opportunities can provide you with professional experience that may enable you to advance in your career.

2. While it's possible to pursue a career as a pharmaceutical chemist with a bachelor's degree, many candidates choose to earn a master's degree to improve their knowledge and develop their skill set. Some employers require candidates to have a master's degree in chemistry, pharmacology or a related field, so earning a master's degree may improve your chances of finding a job as a pharmaceutical chemist. It may also help you distinguish yourself from other candidates who apply for the same roles.

3. Pharmaceutical chemists typically choose one of two specialties when seeking a career in the field. Synthetic pharmaceutical chemists often conduct research with the goal of developing new drugs or improving existing medications. Also called medicinal chemists, they focus on making drugs safe, effective, and accessible to the health care field. Analytical pharmaceutical chemists focus on analyzing and testing drugs before a company releases them onto the market.

4. Many pharmaceutical chemists find a job in the field by seeking internship opportunities during or shortly after finishing college. Internships are educational experiences that allow upcoming or recent graduates to discover what it's like to work as a pharmaceutical chemist by observing and assisting experienced professionals. Some companies also hire interns and may consider promoting them to permanent positions.

5. Your professional network can be a beneficial resource when looking for a job. Consider contacting professionals you've worked with as an intern or entry-level professional to determine whether they know about any opportunities you can pursue. You might also contact your connections on professional social media networks to ask about job openings that are available or may be available soon.

(Adapted from: https://www.indeed.com/career-advice/finding-a-job/how-to-become-pharmaceutical-chemist)

A. Choose a Specialty
B. Pursue an Internship
C. Synthetic and Medical Chemists' Responsibilities
D. Get an Initial Science Degree
E. Don't Get a Job Straight After College
F. Consider Being Master of Science
G. Consult Your Professional Network

Task 2. Read the text again and decide if the following statements are TRUE or FALSE.

6. Being a lab assistant requires MSc degree.

7. Pharmaceutical career implies qualification in chemistry or pharmacology.

8. Medicinal chemists are engaged in making sure that medications are safe.

9. Internship presupposes the training before you get a permanent job.

10. Your previous colleagues should never be involved in the matter of your employment.

Task 3. Read four text and fill in the gaps with sentences that fit there both grammatically and contextually. There are two options you do not need to use.

Which is better chemical engineering or chemistry?

(**11**) _____ So, started a joint course, but eventually qualified as a chemist and worked in industry on R&D on a chemical plant. I realized that I would have done chemical engineering, had I known about it, so proceeded to study, take exams in chemical engineering and completed a design project for the Institution of Chemical Engineers. I have done work which bridges both fields.

Both careers are valid, one is not better than the other. (**12**) _____ In general, chemical engineering is better paid and more likely to lead to management, but money should not be your main aim.

If you love chemistry, you should do chemistry, because there is surprisingly little in chemical engineering. What chemical engineers do, is to provide the conditions for chemical or biological reactions to take place by physical processes such as heating, cooling, stirring, bubbling gases through etc. (**13**) _____ Finally, they minimize the energy usage of processes, and dangers to people and the environment. It is a very broad subject area. Of course, chemical engineers have to be competent in chemistry and be prepared to learn any chemistry involved in a process. May also deal with complex biological systems and get educated in that area.

(**14**) _____ The degree courses are completely different.

(**15**) _____ For a chemical engineer, a Masters is pretty much required. A PhD is somewhat optional unless you wish to be an academic.

(Adapted from: https://www.quora.com/I-only-like-chemistry-Is-that-enough-for-me-to-join-chemical-engineering)

A. If you choose to be a chemist, I would advise a career plan through to PhD in order to get a good job in industry.

B. However, chemical engineering is absolutely NOT applied chemistry.

C. I was undecided between chemistry and physics.

D. Then they carry out processes such as distillation or filtration to separate and purify the products.

E. At the end, they may pursue the carrier of a scientists who supervises R&D groups.

F. At the same time, they may seem absolutely similar.

G. Both have a considerable range of career options which will suit some people more than others.

Task 4. Read the text again and choose the correct answer.

16. According to the author, chemical engineering has the following advantages

a. salary
b. promotion
c. salary and promotion
d. no advantages

17. The author suggests studying chemistry _____.

a. if chemistry is your preference
b. because chemical engineering is less important
c. as it is a broad subject area
d. since it is less dangerous

18. The degree which is preferable for a chemist is _____.

a. Bachelor of science
b. Master of science
c. Doctor of Philosophy
d. R&D

Task 5. Complete the following sentences with the correct continuation.

19. The author did not know what branch of science to pursue, so he _____.

20. The qualification of a chemical engineer presupposes the he _____.

a. learnt how to provide the conditions for chemical or biological reactions to take place by physical processes
b. completed his Bachelor degree
c. chose a combined course only to find out later that he should have studied chemical engineering
d. has a good command of his major and is prepared to study more
e. decided to choose chemical engineering as it is more profitable
f. take exams in chemical engineering and completed a design project for the Institution of Chemical Engineers

Task 6. Complete the following letter with the phrases. There are two options you do not need to use.

The Conference Organizing Committee (**21**) _____ to participate in the 2nd International Scientific Conference "The Advancement of Science for the People, Natural Recourses and Development" (**22**) _____ on 27-28 March 2023, in the University of Dresden, Germany and present your paper titled "Rural Water Supply Management: an empirical study on COWSO strategy implementation, private sector participation and monitoring systems of Dresden area".

The Conference (**23**) _____, Germany, Department of Environmental Studies in Collaboration with National Geographic Association of Germany. The Conference is aimed at (**24**) _____ for the people, natural resources and development in central Europe and beyond.

We are looking forward (**25**) _____ in Dresden.

A. is hosted by the university of Dresden
B. is kindly inviting you
C. to meeting you
D. will take place in
E. that will be held
F. to provide scientific expertise
G. strengthening and sharing scientific knowledge

Task 7. Complete the following text with the derivatives of words so that they would fit the gaps both grammatically and contextually.

Report (26) _____ Activities or Situations	DANGER
• Report all accidents, no matter how minor.	
• Never perform unauthorized work, **(27)** _____ or experiments.	PREPARE
• Never **(28)** _____ in horseplay, pranks or other acts of mischief in laboratories.	ENGAGEMENT
• Never **(29)** _____ chemicals from the facility without proper authorization.	MOVE
• Report **(30)** _____ people or activities in lab areas to University Police.	SUSPECT

Task 8. Choose the correct variant.

31. _____ you _____ the laboratory, you should take off all safety equipment.
a. As soon as, leave
b. When, left
c. As, will leave
d. Unless, left

32. It is _____ recommended that you clean all the spills _____ you have made them.
a. totally, when
b. highly, as soon as
c. absolutely, if
d. really, unless

33. If you _____ everything beforehand, you _____ to come early.
a. will prepare, will not have
b. prepares, don't have
c. prepare, will not have
d. prepared, doesn't have

34. _____ the fire extinguisher, if you _____.
a. Never use, wouldn't train
b. Don't use, are not trained
c. Let's use, were not trained
d. Use, will be trained

35. The conference _____ place next month so I _____ on a business trip.
a. is taking, am going
b. will take, am going
c. will take, will go
d. is going to take, will have gone

36. _____ they _____ all the documents, they won't be able to apply for the grant.
a. If, will submit
b. When, submitted
c. As soon as, submit
d. Unless, submit

37. The lecture _____ in five minutes, so _____ up.
a. start, let's hurry
b. will start, you would hurry
c. is going to start, we are going
d. starts, hurry

38. I hope we _____ another lecturer _____ next semester.
a. will have, ---
b. are going to have, the
c. are having, the
d. have, a

39. Dr Smith _____ to make a presentation for _____ next lecture.
a. must, ---
b. should, the
c. would rather, ---
d. ought, the

40. If I _____ you, I _____ the Masters's Degree.
a. was, pursued
b. were, would pursue
c. would be, would pursue
d. will be, will pursue

Speaking Tests

CARD 1.

Prepare an interview introduction for the application to the following position:
VIVO are currently looking for a proactive and experienced Research Scientist (RS). The RS position exposes applicants to a range of practical techniques including Qualitative and Quantitative PCR, cell infectivity, neutralizing antibody, serology assays and multiplex viral detection assays.
The RS role is a lab focused position with room to develop and refine practical laboratory skills. The day-to-day work includes processing samples, performing assays and analyzing data. The role offers significant growth as the position also requires leading projects (internal and external) by acting as Study Lead.
The role involves working to a flexible shift pattern including working evenings and weekend as required to deliver the operational plan.
Skills & Experiences: Previous experience working to GCP/ GLP standards, minimum 3 years full time. Experience working within a CRO or pharmaceutical company. Experience working within a virology or biomedical lab. 1st Degree in relevant scientific subject (2:1 or above preferable) or equivalent.
Desireable: Understanding of HTA regulations; Project management experience; Understanding of the clinical aspects of delivering GCP projects.

CARD 2.

For TWO students
Present two conversations imitating a job interview. Switch roles.

. *Student A* is an interviewer who is eager to take a new employee. Request for the most positive experience. Try to find qualities that match the position. Suggest an applicant a trial period.
Student B is an interviewee who has no prior experience needed (a graduate or a student). Use any other experience to persuade that you can fill the vacancy. Insist on immediate employment.

. Student A is an interviewee with relevant experience and qualification, which is proven by their resume, diplomas and certificates. Your task is to bargain the most favourable working conditions including working environment and benefits.
Student B is an interviewer who has been holding interviews with different candidates for 6 hours non-stop. You are annoyed by a previous interviewee and it affects your attitude. However, it is urgent that the vacant position should be filled as soon as possible

CARD 3.

Dwell on the importance of keeping a laboratory notebook. Include the following:
- the best choice for a laboratory notebook;
- the way it should be organized;
- the peculiarities of correcting or rewriting any piece of information in the laboratory notebook;
- why is it important to update your laboratory notebook regularly;
- the way you should organize and keep your laboratory notebook so that it can be accepted as evidence;
- why it is called a legal document.

CARD 4.

You are a laboratory technician who has to instruct first year students about the work in the laboratory. Cover the following issues:
appropriate behaviour in the laboratory;
appropriate dressing;
peculiarities of different stages of an experiment (preparation, conduction, cleaning);
how to utilize different substances properly;
emergency cases (what to do in case of fire, burns, cuts, spills)

CARD 5.

Tell about the process of developing new medications. Include the following issues:
defining a target illness and investigating how substances affect medical conditions;
different stages of clinical trials;
defining the form of a medication;
the process of getting an official permission and marketing;
peculiarities of patenting

CARD 6.

For TWO students

Present the debate who should solve environmental issues – individuals or government.

Student A presents the arguments for individuals. Develop the following:

the government cannot monitor and control the actions of every other person;

people should contribute to the environment protection even with laws to protect it;

individuals should cut down the amount of electricity which they consume on a daily basis;

people should take up recycling their waste;

individuals should be responsible and buy only organic products.

Student B presents the arguments for government. Develop the following ideas:

government can control and fine companies that do not dispose their waste properly or severely pollute the environment;

only government can change laws and guarantee that everyone follows them;

government has financial means to tackle nationwide pollution and other environmental problems;

the government can collect information throughout the country to have an insight of the general picture and thus suggest better solutions to the problem.

CARD 7.

Make a problem-solution speech about the pollution of the environment. Use the following ideas:

Problems: - Fossil fuels are used in electricity generation for industrial and private consumption;

power plants generate electricity but also produce carbon dioxide;

road traffic emissions from petrol and diesel engines increase carbon monoxide and nitrogen oxides;

chemicals used in agriculture such as pesticides and insecticides, are released into the air;

cleaning products and paints cause indoor air pollution.

Solutions: - Industries should be encourage to use sustainable green energy;

the government should introduce fines for polluting the environment;

people can choose not to buy products from companies that are not green;

the number of cars allowed in city areas should be reduced;

individuals should recycle more.

APPENDIX

50+ most common job interview questions

1. Tell me about yourself.
2. Walk me through your resume.
3. How did you hear about this position?
4. Why do you want to work at this company?
5. Why do you want this job?
6. Why should we hire you?
7. What can you bring to the company?
8. What are your greatest strengths?
9. What do you consider to be your weaknesses?
10. What is your greatest professional achievement?
11. Tell me about a challenge or conflict you've faced at work, and how you dealt with it.
12. Tell me about a time you demonstrated leadership skills.
13. What's a time you disagreed with a decision that was made at work?
14. Tell me about a time you made a mistake.
15. Tell me about a time you failed.
16. Why are you leaving your current job?
17. Why were you fired?
18. Why was there a gap in your employment?
19. Can you explain why you changed career paths?
20. What's your current salary?
21. What do you like least about your job?
22. What are you looking for in a new position?
23. What type of work environment do you prefer?
24. What's your work style?
25. What's your management style?
26. How would your boss and coworkers describe you?
27. How do you deal with pressure or stressful situations?
28. What do you like to do outside of work?
29. Are you planning on having children?
30. How do you stay organized?
31. How do you prioritize your work?
32. What are you passionate about?
33. What motivates you?
34. What are your pet peeves?
35. How do you like to be managed?
36. Do you consider yourself successful?
37. Where do you see yourself in five years?
38. How do you plan to achieve your career goals?

39. What are your career aspirations?
40. What's your dream job?
41. What other companies are you interviewing with?
42. What makes you unique?
43. What should I know that's not on your resume?
44. What would your first few months look like in this role?
45. What are your salary expectations?
46. What do you think we could do better or differently?
47. When can you start?
48. Are you willing to relocate?
49. How many tennis balls can you fit into a limousine?
50. If you were an animal, which one would you want to be?
51. Sell me this pen.
52. Is there anything else you'd like us to know?
53. Do you have any questions for us?

(Adapted from: https://www.themuse.com/advice/interview-questions-and-answers)

Irregular Verbs

Bare Infinitive	Past Simple	Past Participle	Bare Infinitive	Past Simple	Past Participle
be	was/ were	been	go	went	gone
beat	beat	beaten	grow	grew	grown
become	became	become	have	had	had
begin	began	begun	hear	heard	heard
bite	bit	bitten	hide	hid	hidden
blow	blew	blown	hit	hit	hit
break	broke	broken	hold	held	held
bring	brought	brought	hurt	hurt	hurt
build	built	built	keep	kept	kept
burn	burnt/ burned	burnt/ burned	know	knew	known
buy	bought	bought	lead	led	led
catch	caught	caught	learn	learnt/ learned	learnt/ learned
choose	chose	chosen	leave	left	left
come	came	come	lend	lent	lent
cost	cost	cost	let	let	let
cut	cut	cut	lie	lay	lain
deal	dealt	dealt	light	lit	lit
dig	dug	dug	lose	lost	lost
do	did	done	make	made	made
draw	drew	drawn	mean	meant	meant
dream	dreamt/ dreamed	dreamt/ dreamed	meet	met	met
drink	drank	drunk	pay	paid	paid
drive	drove	driven	put	put	put
eat	ate	eaten	read	read	read
fall	fell	fallen	ride	rode	ridden
feed	fed	fed	ring	rang	rung
feel	felt	felt	rise	rose	risen
fight	fought	fought	run	ran	run
find	found	found	say	said	said
fly	flew	flown	see	saw	seen
forget	forgot	forgotten	sell	sold	sold
forgive	forgave	forgiven	send	sent	sent
freeze	froze	frozen	set	set	set
get	got	got	shake	shook	shaken
give	gave	given	shine	shone	shone

shoot	shot	shot	swim	swam	swum
show	showed	shown	take	took	taken
shut	shut	shut	teach	taught	taught
sing	sand	sung	tear	tore	torn
sit	sat	sat	tell	told	told
sleep	slept	slept	think	thought	thought
smell	smelt/ smelled	smelt/ smelled	throw	threw	thrown
speak	spoke	spoken	understand	understood	understood
spend	spent	spent	wake	woke	woken
spill	spilt/ spilled	spilt/ spilled	wear	wore	worn
stand	stood	stood	win	won	won
steal	stole	stolen	write	wrote	written
sting	stung	stung			

Навчальне видання

Холмогорцева Ірина Сергіївна
Авдєєнко Ірина Миколаївна
Понікарьова Аліна Юріївна

АНГЛІЙСЬКА МОВА ЗА ФАХОМ: ХІМІЯ

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Харківський національний університет імені В. Н. Каразіна,
61022, м. Харків, майдан Свободи, 4.
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