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В. В. Воног, О. А. Прохорова

ENGLISH FOR POSTGRADUATE STUDENTS

УЧЕБНОЕ ПОСОБИЕ



**ИНСТИТУТ ФИЛОЛОГИИ
И ЯЗЫКОВОЙ КОММУНИКАЦИИ**

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Рецензенты:

В. В. Кольга, доктор педагогических наук, профессор кафедры лектальных аппаратов Сибирского государственного университета науки и технологий имени М. Ф. Решетнева, член-корреспондент РАН;

А. В. Корицунова, кандидат филологических наук, доцент кафедры английской филологии Красноярского государственного педагогического университета им. В. П. Астафьева

Воног, В. В.

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В пособии представлены материалы, необходимые для сдачи кандидатского экзамена по английскому языку, а также для подготовки докладов на международных конференциях и публикации статей в рецензируемых научных журналах.

Предназначено для аспирантов и соискателей инженерных, гуманитарных и естественнонаучных специальностей.

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CONTENT

Предисловие	4
Unit 1. Introduction to scientific research.....	6
Unit 2. Attending a conference	18
Unit 3. Writing a research paper	29
Unit 4. Preparing an annotation	44
Unit 5. Translating scientific papers.....	54
Self – assessment progress tests.....	74
References.....	90
Supplementary information	91

UNIT 1. INTRODUCTION TO SCIENTIFIC RESEARCH

Topical Vocabulary: Speaking about a scientific activity

1. The topic of the research.
 - The paper deals with ...
 - The study is devoted to ...
 - The investigation studies ...
 - An extensive study of the problem of ... has been undertaken in the paper.
 - A comprehensive analysis of ... has been presented in the research.
2. The **aim** of the research.
 - The aim of the study is to determine the value ...
 - The research is aimed at revealing the ways of ...
 - The main purpose of the paper is to establish ...
 - The investigation is designed to simplify the procedure of ...
3. The **novelty** of the research.
 - We offer a fundamentally new approach ...
 - The essential merit of our work is ...
 - The approach is not similar to that previously used ...
 - The novelty of the research can be seen ...
 - Unlike commonly recognized definition of ...
4. **Methods** applied.
 - Modern methods of scientific analysis have been applied ...
 - Unconventional approach to ... has been presented in the paper.
 - Reliable methods of analyzing facts of ...
 - The comparative method is useful in ...
 - The approach is more flexible and permits ...
5. Describing your **findings**.
 - It was found that ...
 - The data obtained enables us to determine the nature of ...
 - Our findings provide evidence for ...
 - The present observation supports the viewpoint ...
 - The study has revealed a better understanding of ... based on ...
 - From the analysis of the data it was determined that ...

6. Further **application** and research.

The findings may find practical application in ...

This approach is applicable to ...

The findings are especially helpful when ...

It is suggested that ... should be ...

7. The **results** of your research, **conclusions**.

It has been shown that ...

It's concluded that ...

The results obtained show/confirm/indicate ... /... made it possible to conclude/

Results from experiments prove ...

As a result of the investigation it was observed ...

We reported our results at ...

8. Supervision.

supervisor – руководитель

research ~/adviser – научный руководитель

production of a thesis – написание диссертации

experienced (in) – имеющий опыт (в)

work closely – работать в тесном сотрудничестве

to guide – направлять

to offer advice and guidance – дать совет и направление

to formulate one's research proposal – формулировать направление исследования

to define a programme of research/study – определить программу (область) исследования

expert in the chosen area of research – специалист в избранной области исследования

to design work on the thesis – спланировать работу по диссертации

to be involved in research seminars, colloquia – принимать участие в научно-исследовательских семинарах, коллоквиумах

to present one's thesis for examination – представить диссертацию на обсуждение

a stimulating research environment – благоприятные условия для исследования

to provide training in research – обеспечить обучение в области научных исследований

- to monitor progress – следить за прогрессом
- to provide feedback – обеспечить обратную связь
- to remain aware of the student's situation and needs – быть в курсе проблем аспиранта
- approach – подход
- innovative – новаторский
- holistic – целостный

Speaking and Vocabulary

1. *In small groups, discuss the following questions.*

1. What field of knowledge are you doing research in?
2. What are the necessary components of scientific research?
3. What's the purpose of your present study?
4. Are there any difficulties in your research work?

2 a. *Complete the sentences with the words in the box.*

service	challenge	benefits	respectability	creative	intellectual
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What makes people undertake research?

1. Desire to get a research degree along with its _____.
2. Desire to face the _____ in the solving the unsolved Problem.
3. Desire to get _____ joy of doing some _____ work.
4. Desire to be of _____ to Society.
5. Desire to get _____.

2 b. *Which of the points do you agree/disagree with? Is there anything else you would add?*

Reading 1

Science

What is science? Etymologically, the word “science” is derived from the Latin word *Scientia* meaning knowledge. Science refers to a systematic and organized body of knowledge in any area of inquiry that is acquired using

“the scientific method”. Science can be grouped into two broad categories: natural science and social science.

Natural science is the science of naturally occurring objects or phenomena, such as light, objects, matter, earth, celestial bodies, or the human body. Natural sciences can be further classified into physical sciences, earth sciences, life sciences, and others. Physical sciences consist of disciplines such as physics (the science of physical objects), chemistry (the science of matter), and astronomy (the science of celestial objects). Earth sciences consist of disciplines such as geology (the science of the earth). Life sciences include disciplines such as biology (the science of human bodies) and botany (the science of plants).

Social science is the science of people or collections of people, such as groups, firms, societies, or economies, and their individual or collective behaviours. Social sciences can be classified into disciplines such as psychology (the science of human behaviours), sociology (the science of social groups), and economics (the science of firms, markets, and economies).

The natural sciences are different from the social sciences in several respects. The natural sciences are very precise, accurate, deterministic, and independent of the person making the scientific observations. For instance, a scientific experiment in physics, such as measuring the speed of sound through a certain media or the refractive index of water, should always yield the exact same results, irrespective of the time or place of the experiment, or the person conducting the experiment.

However, the same cannot be said for the social sciences, which tend to be less accurate, deterministic, or unambiguous. For instance, if you measure a person’s happiness using a hypothetical instrument, you may find that the same person is happier or less happy (or sad) on different days and sometimes, at different times on the same day. Furthermore, there is not a single instrument or metric that can accurately measure a person’s happiness. For example, you will not find many disagreements among natural scientists on the speed of light or the speed of the earth around the sun, but you will find numerous disagreements among social scientists on how to solve a social problem such as reduce global terrorism or save an economy from a recession.

Sciences can also be classified based on their purpose. Basic sciences, also called pure sciences, are those that explain the most basic objects and forces, relationships between them, and laws governing them. Examples include

physics, mathematics, and biology. Applied sciences, also called practical sciences, are sciences that apply scientific knowledge from basic sciences in a physical environment. For instance, engineering is an applied science that applies the laws of physics and chemistry for practical applications such as building stronger bridges or fuel-efficient combustion engines, while medicine is an applied science that applies the laws of biology for solving human ailments. Both basic and applied sciences are required for human development.

1. Read the text and answer the questions.

1. What is the etymology of the word “science”?
2. How can science be grouped?
3. What do natural science and social science study?
4. What are the main types of natural science?
5. How can social sciences be classified?
6. What is the difference between natural science and social science?
7. What is the scientific purpose of basic sciences? Give examples of basic sciences.
8. Why do applied sciences can be called practical sciences? Give examples of applied sciences.

2. Find words or phrases in the text which mean.

1. an official attempt to discover the facts about something (paragraph 1).
2. someone or something special, esp. because it is completely different or extremely unusual (paragraph 2).
3. accurate in form, time, detail, or description (paragraph 4).
4. the recorded information that results from studying a scientific event (paragraph 4).
5. believing that everything that happens must happen (paragraph 5).
6. to judge the quality, effect, importance, or value of something (paragraph 5).
7. an area of study that is studied only for the purpose of developing theories about it, not for the purpose of using those theories in a practical way (paragraph 6).
8. acts of using something for a particular purpose in order to provide effective solutions to problems (paragraph 6).

3. Describe your research according to the following plan. Work in pairs.

1. Natural science / Social science.
2. Type of a discipline.
3. The aims and tasks of your science.
4. The aim of your research (what scientific problem you are going to solve).
5. Basic science / Applied science.
6. A practical application of your research.

Reading 2

1. You are going to read the text about the most important features of scientific research. Read it quickly and match the titles to the correct paragraph.

- a) Rational
- b) Original
- c) Systematics
- d) Empirical
- e) Reproducible
- f) Objective
- g) Controlled
- h) Ordered
- i) Consider everyday problems
- j) Provisional

Ten most salient features of scientific research

1 _____

Scientific research is not a random observation, but is the result of a well-structured plan, with specific objectives. The plan that must guide a scientific investigation and consider all the aspects and moments of this research: from the objects of study and the variables to be taken into account, to the rhythm of work that must be followed in order to arrive at conclusions in time expected.

2 _____

Scientific research must avoid chance, and the process must be supported by control mechanisms that allow it to obtain truthful results.

Chance has no place in scientific research: all actions and observations are controlled, according to the researcher's criteria and according to the object investigated, through well-defined methods and rules.

3 _____

The results of a scientific investigation must deal with the aspects of reality related to the subject under investigation. The aspects that characterize a particular research must be observable in the real world. Scientific research refers to issues that can be measured and identified as facts.

4 _____

Science in general is characterized by being logical. Its empirical characteristic makes it necessary to be based on real and verifiable facts, and demands from the researcher a critical attitude and a dispossession of his personal conceptions or judgments of value.

5 _____

The findings obtained through scientific research should be able to be reproduced under the same conditions established in the study. The fact of having controlled the variables that were part of the process, allows to be able to reproduce the results achieved.

6 _____

In a scientific investigation, the hypotheses constitute the nucleus of the study, and must be generated of problems and situations of the daily life, that affect the people of habitual form. It is hoped that scientific research will solve a problem that ideally affects several groups of people.

7 _____

The goal of the investigator is not to justify own postures, but to expose the facts in the purest way possible. The explanation arising from scientific research must be legitimate for people with different points of view. The results of scientific research must be universal.

8 _____

Science is constantly expanding. The debate is a fundamental part of the scientific field. Therefore, a scientific investigation must be able to be questioned and, if there is some subsequent research proving contrary hypotheses, it must be able to rectify.

9 _____

There is no sense in focusing scientific research on proven facts. A scientific investigation must treat new or little studied aspects, so that the