МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

ДВНЗ «Український державний хіміко-технологічний університет»

Практичний посібник
для аспірантів підготовлений
на кафедрі іноземних мов

Наукова англійська мова: мовленнєві зразки

Дніпро
2017

Передмова

Метою посібника є розвиток навичок усної та письменної наукової мови, основу яких складають лексико граматичні структури характерні для наукового стилю. Посібник побудований на матеріалі наукової тематики і включає мовні засоби, характерні для мови наукової літератури – статей, доповідей, тез до доповідей, тощо. Поряд з цим ставиться завдання підготувати аспірантів до таких форм усного спілкування серед вчених, як повідомлення на конференції, доповідь, дискусія або неформальна наукова бесіда. В процесі спілкування велике значення має вміння виразити свою точку зору на обговорювану наукову проблему, дати їй адекватну оцінку.

Посібник складається з двох частин. Перша частина "SCIENTIFIC ENGLISH IN ORAL AND WRITTEN FORMS" являє собою своєрідний довідник, ключовими словами якого є 12 найбільш широко вживаних в науковій літературі іменників. Кожний іменник представлено набором структур - своєрідним мінімальним науковим контекстом.

Друга частина "EXERCISES WITH SPEECH PATTERNS FOR SCIENTISTS" присвячена вправам, що сприяють активізації структур для використання в практиці мовного наукового спілкування.

Посібник призначений для аспірантів, а також пошукачів ступеня доктора філософії. Може бути використано на заняттях під керівництвом викладача, а також при самостійній підготовці тез, доповідей, статей, резюме.

Part 1
SCIENTIFIC ENGLISH IN ORAL AND WRITTEN FORMS

Speech Patterns for Scientists

PROBLEM

The problem is concerned mainly with the study of...
This is a problem concerned with the role of ...
The problem deals chiefly with the determination of...
This is a problem dealing with the nature of...
This is a problem which deals with the influence of...
This is a problem bearing on the effects of ...
This is a problem relating to the measurement of...
The main aspect of the problem is the origin of...
The essence of the problem is the connection between ...
The problem, as can be seen, is how to obtain further information ...
The problem presents considerable difficulties ...
The problem of... presents a great deal of difficulty.
The problem I am studying now presents certain difficulties.
The problem under investigation seems difficult to discuss in detail.
The problem, as has been outlined, is too broad to describe in details.
It is not easy to present the problem in every detail. It is possible to discuss the problem in all its complexity.
It is difficult to analyse the problem concerning with ...

It is impossible to solve the problem now because we know little about...

It was difficult to obtain knowledge of the problem now because we know nothing about...

It will be rather difficult to solve the problem at present.

It would be extremely difficult to resolve the problem now.

It would seem quite possible to try to obtain knowledge of the problem in the near future.

It has proved quite realistic to try to obtain knowledge of the problem using the new methods.

This problem was first brought up by the beginning of the XXth century.

The problem as such was first put forward by K.

The problem as is outlined now was raised as early as the 1870's.

The problem under discussion was first formulated as far back as the mid XlXth century.

Since then the problem has attracted many scientists.

Since then the problem has been referred to in a number of investigations.

This problem is briefly described as follows.

The problem of... can be briefly formulated as follows.

The problem is within the range of the existing theory ...

This problem lies beyond the range of our present knowledge of...

The problem of... is looked upon in the light of current concepts.

The problem of... is regarded as the main one.

The problem of... can be regarded in the light of recent findings in this area.

This problem was solved only recently.

This problem will be clarified in the near future.

This problem can be clarified in the experiments with ...

This problem which seemed to be so complicated until recently has now been solved.

The above problem as we can see is still poorly examined.

The problem of ... as is known still remains not sufficiently studied.

The problem requires a great deal of further research effort in this area.

The problem demands much investigation in this field.

Much further research is needed to reveal some facts about...

A great deal of further work is wanted to discover certain details of...

It will take much time to clear up this aspect of the problem...

It is, indeed, not an easy task to gain an insight into the structure of...

It is not an easy task to disclose the mechanism of...

INFORMATION

There is a great deal of information at present concerning the use of...

There is a lot of information nowadays about the application of...

There is reliable information regarding the action of...

At present we have some information about the nature of...

At present we have enough information on the influence of...

There is little reliable information at present about the changes in...

We still have no reliable information regarding...

Until recently we had little information on the evolution of...

We do not possess yet sufficient information regarding this subject.

No reliable information about these changes is available at present.

The information we have is very incomplete.

We want some further information on the origin of...

Some further information is wanted on this subject.

More detailed information is required on this subject.

Most of the recent information has been obtained from recent investigations.

We have obtained this information using the newly developed method.

The information obtained from recent studies shows that the theory is incorrect.

This information provided by the experiments suggests that...

Our information seems insufficient to suggest that...

This information is not sufficient to allow such conclusions.

The information the author has reported can be used in studies of...

KNOWLEDGE

There is now some knowledge of...

At present we have detailed knowledge about...

Until recently we had little knowledge of...

There are still certain gaps in our knowledge

We still know very little about...

Our knowledge of... is still incomplete.

At present our knowledge of... still remains insufficient.

No complete knowledge has been obtained from studies **of...**

Our present knowledge comes from the studies of...

Some of our knowledge has been provided by experiments with...

Most knowledge of... can be based on current concepts about...

Our knowledge must be further improved.

Out knowledge must be further obtained from... Knowledge of this phenomenon will be used to demonstrate...

Knowledge of this can be used for...

Knowledge of it could be used to establish...

METHOD

The method I described seems very effective in the study of...

This method is most widely applied in laboratory conditions

This method is very frequently used in studies of...

This old technique is no longer used at present.

Most workers seldom use this method nowadays.

Most authors often apply this method in their experiments.

The method used is known as X-ray diffraction.

With this method we made several sets of experiments. As a result...

With this method we have obtained certain results which...

N ... first developed the method of...

The method of... was first used in the 1920[f]s.

The method has been greatly improved since then.

The method of... does not differ greatly from the one used earlier.

The new technique differs greatly from the existing techniques.

The new method has nothing in common with the old one.

The new method has several advantages as compared with...

This method allows us to demonstrate...

This method makes it possible to observe.

EXPERIMENT

We carried out these experiments in order to show...

Their experiments were carried out in order to examine certain question concerning...

Experiments on this topic have been performed to answer the question whether...

These experiments were designed to answer some questions about...

Current experiments with ... are intended to find out...

Our experiment supports the evidence that...

The previous series of experiments demonstrated that...

Recent experiments with ... provided some new information about-

Recent experiments in this area have shown...

As a result of our experiments we came to a conclusion that...

From these experiments the authors concluded that...

STUDY

At present there are several investigations of the nature of...

Several experimental studies are made to understand...

In resent years there were numerous studies of the function of...

In the last few years there have been few detailed studies of...

A study was carried out of the effects of...

Investigations were performed to determine...

A study of the kind has not been made until now.

An investigation of the kind has never been carried out.

The laboratory is now carrying out a study of...

We are now performing an experimental investigation to establish...

Until now the laboratory has not made any laboratory investigations of...

The chief aim of the present study is to obtain some results which...

The main purpose of this research was to find out whether...

The primary object of these studies will be to reveal the causes of...

The present study was made in order to clarify...

The above study has been performed to determine...

Our studies were intended to obtain information about...

These investigations were intended to demonstrate...

We made this study hoping to verify some basic data about...

The author carries out the present study to show...
Carrying out this research we hoped to discover...
Performing these studies we intended to obtain...
Studies of these effects cover various aspects of...
Our investigations are concerned with the influence of...
These studies are extended to include other aspects.
We hope to extend our investigations to...
The studies we have performed suggest that...
We carried out several studies that revealed...
The investigations carried out by previous scientists are incomplete.
Recent studies of... supported the idea that...
The latest laboratory studies of... do not show that... Further investigations on the ... failed to support the theory that-
All these studies have led us to the conclusion that... Further research in this area enables us to a belief that... Those comprehensive studies contribute to our knowledge of...
All further investigations led to the opinion that...
Our studies resulted in the discovery of...
This fundamental research contributes to our present knowledge of...
Their fundamental research led to a discovery of...

WORK

The present work deals with the processes underlying...
The above work is concerned with the changes occurring in...
The work we are doing now is devoted to...
The chief aim of the present work is to investigate...

The main purpose of our work is to investigate the feature of...

The principle object of the work was to examine...

The task of this work will be to reveal...

Our work in this direction is intended to demonstrate certain phenomena which...

Further work in this field is designed to provide some information about...

The work which is being done now is intended to find out some solution to the problem (of...)

The work of this kind is started in order to...

The present work has been done in the hope that we will succeed in...

The previous work in this area was done in order to obtain data in...

The authors did this work in order to demonstrate...

We started this work hoping to establish...

By doing this work we intend to show...

Some work along this direction is being done in the laboratory of...

Recent work of this kind was accomplished by research teams of...

Further work in this direction will be performed in the laboratory of...

Our recent work showed that...

Our previous work demonstrated that...

Our previous work failed to demonstrate that

Further work of this kind has shown us that...

We carried out the work, which had not shown that...

More work in this direction failed to show any new ideas about...

Dr. N's recent work with ... has been very successful

The author's work on ... has proved to be quite promising.

This fruitful work gives explanation of...

Their fundamental work gave some knowledge of...

The main result of this work is that it has given new information.

Thiswodc of many years has resulted in a disc»vaya£$_M$

This work, however, did not give new information about...

Further work has failed to bring about desirable results.

DATA

The data reported by Dr. N. seem rather reliable.

The data obtained from recent studies of ... are quite important.

The results we have presented are promising.

The results you have reported here seem quite convincing.

These data are of some theoretical importance.

Their findings seem to be of no experimental value.

The results which have just been presented are of great interest.

These data seem to be unreliable.

Our experimental results are particularly interesting.

There are sufficient data in current literature about...

There are numerous results concerning with...

Very few data can be found concerning...

The above results are obtained from recent studies of...

The laboratory of... has contributed most of these data.

The data obtained show that...

The data thus obtained indicate that...

All these findings show...

Our results are very similar to those obtained by...

These findings are almost the same as those presented by...

Some of these data are quite different from those published in...

We have obtained some results, which coincide with the theory of...

The data thus obtained do not agree with the findings reported by...

I have presented here our recent data, which are not in agreement with those available in literature.

All these data support the view that...

Some results do not prove the hypothesis that...

Our data throw some light on the role of...

These results shed some new light on the nature of...

All these data can be viewed in terms of the existing theory.

We can look at these data as fully reliable.

One can consider these data from a different viewpoint.

There is a different approach to these data.

There may be an alternative interpretation of our results.

Dr. N. presented data which had a bearing on ...

We have presented some data which seemed to have no direct bearing on...

These data are briefly summarized as follows.

Our basic results may be shown in tables.

This table shows the results we have obtained from studies of...

EVIDENCE

There is some evidence showing that...

At present there is enough evidence suggesting that...

At present we have sufficient evidence indicating that...

There was little evidence, which would show...

We still do not have any direct evidence of...

The author has presented convincing evidence, which shows...

Some evidence of... is seen in experiments with... Good evidence of favour of... has been found using the new method.

No direct evidence for... could be found in experiments with...

The evidence obtained from ... supports the current concept of...

The evidence we have reported pointed to...

This evidence may be regarded as quite reliable.

Their evidence can be considered from quite a different point of view.

ASSUMPTION

This is only a preliminary assumption.

There is an assumption that such effects depend largely on...

The theory is based on an assumption that...

Our basic assumption is that the changes are due to...

What they observed fully contradicted the earlier assumption that...

The theory does not agree with the recent assumption that...

Some of our findings are in good agreement with the basic assumption that...

Our new assumption was fully supported in studies with...

What we have assumed is valid because...

What was assumed earlier did not seem to be the true situation.

What the author previously assumed did not hold true.

HYPOTHESIS

This hypothesis was advanced in 1953.

The above hypothesis was put forward in the early 60's.

The author N. suggested his hypothesis in the late 40's.

He advanced his hypothesis as far back as the mid-XVIIIth century.

The hypothesis of... is offered to explain that...

These hypotheses have been put forward to explain the process of...

A hypothesis has recently been advanced that...

Their hypothesis is that...

The hypothesis of... holds that...

We suggest a hypothesis, which maintains that...

According to this hypothesis the structure remains unaf-fected.

The above hypothesis seems quite attractive.

They suggest a hypothesis, which is not quite reliable.

What they believe does not seem exactly the case.

The last two hypotheses have not yet been verified by studies.

To check our hypothesis we have made a number of experiments.

To test this hypothesis we carried out many sets of experiments.

A number of experiments were carried out to support that hypothesis.

The hypothesis of... is accepted nowadays.

The hypothesis of... can hardly be regarded as a true one.

The hypothesis is no longer valid.

This hypothesis ought to be rejected.

THEORY

The theory of... was developed as early as 1900.

The theory of... was formulated 50 years ago.

An alternative theory was then put forward in the 60's.

These authors created a new theory.

These workers have developed an interesting theory.

Our theory is based on the idea that...

His theory rests on the assumption that...

The underlying concept of this theory is as follows.

A new theory, which is based on has been developed by N.

This is an alternative theory that changes much a previous one.

The following basic concepts underline this theory.

There are two basic ideas that underline our theory.

The object of this theory is to explain...

The aim of this theory was to prove that...

This newly developed theory holds that...

The theory advanced by ... maintains that...

According to our theory we can confirm that...

There are some faults in the theory developed by N.

The theory of... is quite good for the explanation of..

The theory by N. seems adequate to explain the origin of...

Their theory seems unsuitable in some respects.

This was a theory which was inadequate in some details.

To my opinion, this theory is quite meaningless.

This new theory does not seem convincing to interpret...

That was a theory, which was not satisfactory when applied to...

The new theory is believed to be quite correct.

The old theory is no longer considered to be true.

This theory is regarded as the most competent.

We consider this theory to be quite reliable.

We do not regard the current theory as a suitable one.

We no longer look upon this theory as a true one.

Our theory can be regarded as quite correct.

This theory cannot be looked upon as quite true.

This old theory should not be treated as the most convincing because ...

Their theory ought to be treated with caution.

Their theory can only be used in a few situations.

This theory applies to other systems.

The above theory can be applied to...

The validity of the theory becomes obvious when...

The validity of the theory has been proved nowadays by N.

The theory of ... has been further proved by many scientists.

The old theory was verified only nowadays.

This newly developed theory gains a new experimental support.

The theory of... has gained universal recognition at present.

The new theory is not applied to all cases of...

The theory is not valid for...

The theory of... could not hold true for...

The new theory was not proved experimentally.

The newly developed theory cannot be tested by experiment.

As we have seen the above theory must be rejected as totally wrong.

As can be seen the authors gave up their theory, as it proved incorrect.

This theory does not explain what mechanism underlies these events.

The theory by ... fails to explain the causes of...

We can interpret these findings using the above theory.

These findings can be explained on the basis of this theory.

These findings fit into this theory.

Such phenomena are not in line with the current theory.

The two theories have something in common.

Our theories seem to have little in common.

Their theories have some common features.

There is one feature common to both theories.

The two theories are fundamentally different as far as their main points are concerned.

The two theories seem to be totally different.

The two theories seem to be essentially the same.

The two theories differ fundamentally in their principal ideas.

The two theories do not differ essentially in their, postulates.

There is some difference between the theories.

There is little difference between the two theories.

There is a great difference between these theories.

Part 2

EXERCISES WITH SPEECH PATTERNS FOR SCIENTISTS

PROBLEM

Exercise 1. Name some problems that can be regarded as:

a) fundamental ones in: nuclear physics, plasma physics, mathematics, genetics, your field;

b) most challenging ones in: quantum physks,soM zoology, botany, your field;

c) most obscure ones in" molecular biology, physiology, geochemistry, geophysics, your field

Note: Introduce your statements, wherever possible, by: "In my opinion", "To my knowledge", "It's common knowledge that…", "In all probability", "Obviously".

Exercise 2. Make statements about problems, which, in your opinion, are difficult to solve, to present, or to discuss.

Exercise 3. State the subjects, which the basic problems in your field are concerned with...

INFORMATION

Exercise 4. Make sentences complete by adding an end.

1. Some information is available on...
2. There is sufficient information at present about...
3. There is detailed information nowadays regarding...
4. We are now in possession of ample information regarding...
5. The above studies provided certain information bearing on...

6. We are not yet in possession of sufficient information relating to...
7. There is no reliable information in literature about (on)...
8. No information is available relating to...

Exercise 5. Write a detailed account of all the available information on your problem mentioning also the information that is still needed.

KNOWLEDGE

Exercise 6. *What would you say of our current knowledge of:*
1) the planets of the solar system?
2) plasma properties?
3) symmetry properties at high energies?
4) cosmic radiation?
5) the processes occurring in the Earth's mantle?
6) photosynthetic processes?
7) the mechanisms of memory?
8) the structure of chromosomes?
9) gene-protein interaction?
10) hereditary factors?
11) host-parasite relationships?
12) the cell fine structure?
13) mitochondrial enzymes?
14) the molecular mechanisms of cellular differentiation.

Exercise 7. *Write an account of the present level of knowledge concerning the problem you are investigating, stating how far it has been elucidated, also the aspects that still remain obscure.*

Exercise 8. Name the fundamental researches of past and present that have largely contributed to basic problems in your field. Use these phrases to introduce or conclude a talk on the above subjects.

1. Work by ... has been a valuable contribution to our present knowledge of...
2. Fundamental studies by ... have been a valuable addition to what we know about...
3. These investigations have added a great deal to our knowledge of...
4. His research has largely contributed to the knowledge of...
5. Those studies contributed to (brought about) a better understanding of...
6. Those investigations filled in (helped to fill in) the gap (certain gaps, many gaps) in our knowledge of...
7. These and earlier works in the same field have provided an insight into...
8. Due to this (that) fundamental research our knowledge of ... became more complete.

METHOD

Exercise 9. Name familiar methods, techniques or procedures of which you would say:

1. ... is (are)most suitable for the fractionation of...
2. ... is (are) best suited for the identification of ...
3. ... appear(s) to be most adequate in examining the properties of...
4. ... seem(s) highly effective in identifying the structure of ...
5. ... appear(s) to be most useful and most reliable in investigating the features of..
6. ... has (have) proved very valuable and very promising in determining...
7. ... is extensively used nowadays for the determination of...
8. ... is (are) frequently applied in the investigation of...
9 has (have) now found a wide application in many fields of research. 10.... seem(s) rather practicable (applicable) nowadays. 11.... is (are) no longer in use

nowadays. 12.... is (are) no longer used in experiments on ... 13.... can hardly be used in studies of...

Exercise 10. Name some methods, techniques or experimental procedures in your field of research that are:

1) commonly used nowadays;
2) routine and conventional ones;
3) old, though still in use having been modified or greatly improved;
4) old and no longer used as outdated and unsuitable.

Note: Give explanation why a particular method, technique or procedure is in wide use or no longer in use.

Exercise 11. Name a familiar method, technique or procedure of which you would say that it:

1) ... allows ... (observation, evaluation, determination, etc.);
2) ... allows (enables) us to ... (compare, detect, identify, etc.);
3) ... makes it possible to ... (evaluate, examine, measure, etc.);
4) ... is capable of... (providing, producing, revealing, etc.);
5) ... has one (several) advantage(s) over...;
6) ... has one (several) limitation(s) in that it requires ...;
7) ... has many applications in ...;
8) ... has a wide range of applications in ...;
9) ...fails to ... (detect, reveal, provide, etc.);
10) ... is rather ineffective because of its (relatively) small sensitivity;
11) ... is based on (essentially) the same principles.

Exercise 12. Give a brief historic outline of a method or technique.

Exercise 13. Go through the details of the technique and procedure of your experiments in a talk with a colleague at an international symposium trying to realize why his results and yours are so sharp at variance.

EXPERIMENT

Exercise 14. Write down and read these sentences evaluating an experiment (or experiments).

1. Those were very fine experiments, carefully planned and most beautifully performed.
2. Those elegant experiments, which Rutherford himself performed, were highly technical, very instructive and very meaningful, too.
3. The first experiment of this kind was performed as far back as the 1930's. It was the first attempt, which proved very encouraging.
4. More recent experiments by these workers proved to be highly specific, although the technique was basically the same as the one used in earlier experiments.
5. The above experiments were only preliminary ones. It's quite obvious that further experiments of the kind are highly desirable.
6. The experiments this group of workers has carried out were most ingenious and have proved very promising, although the experimental material they used was rather limited. It is quite clear that experiments to this effect should be further extended to include other species.
7. Previous experiments in this area were obviously unsuccessful. Moreover, they were limited in scale and material.
8. The experiments as suggested by the authors can hardly be followed in further studies of the problem.

9. Those pioneer experiments, although thoroughly prepared, proved unsuccessful. The authors failed to overcome the chief difficulty involved in the procedure.

Exercise 15. Speak of your recent experiments stating what they have demonstrated, also, the conclusions you have made.

Exercise 16. Write a detailed account of the experiments you performed last year (last month, a few weeks ago).

STUDY (INVESTIGATION, RESEARCH)

Exercise 17. Write down and read these sentences stating why studies of a particular problem are important. (See adjectives to "Study").

Studies of the physical properties of the Earth's mantle are extremely important for they contribute to our understanding of the processes occurring in the Earth's solid mantle and crust.

Studies of sediments from earlier geological periods are of particular interest to geologists in as much as they shed light on contemporary geological processes on the Earth's surface.

Such studies are of particular importance in as much as they may provide valuable structural information on molecular interaction at interfaces.

The above studies are of great significance. They may provide a possible clue to a more general dynamic mechanism.

A study of the kind is highly important and highly desirable, too. It may throw light on the control mechanism of the synthesis of this enzyme.

Research into the structure and function of ribosomes, the smallest cellular organelles, identified by electron

microscopy, is highly important for ribosomes play an essential part in protein synthesis.

Research into the physiological and biological activities of microorganisms is of tremendous biological significance for microorganisms play an extremely important part in plant and animal life.

Exercise 18. Ask questions of the above kind about the researches pertaining to your special fields.

Exercise 19. Characterize briefly the research effort being made by your laboratory as well as researches by individual workers.

Exercise 20. Give a detailed account of the study you have performed, mentioning, among other things, the nature of the problem, the purpose of the research, the overall result and conclusions. This is meant as a presentation at the University Conference.

WORK

Exercise 21. State the subject of:

1) the work you are doing at present;
2) the work you have recently done;
3) the work you did last year;
4) similar work to the same effect;
5) your laboratory's work in recent years.

Exercise 22. State the purpose of the work you are doing now (have recently done or plan to undertake in the future)..

Exercise 23.

Give a brief account of some individual research (present or past) done by a leading scientist in your field.

Exercise 24. Write a detailed account of the work you have accomplished by now or of the work you completed in the past (last year, a year ago, etc.).

DATA

Exercise 25. Write down and read the following sentences characterizing the data obtained (reported, presented).

1. The data obtained from those experiments are of great practical interest as well as of certain theoretical value.
2. The results presented by this team of workers are of purely theoretical interest.
3. The data reported by Dr. Pensias are quite remarkable. Moreover, they are clear-cut and explicit.
4. The authors have recently reported new data, which, in our opinion, are quite dramatic.
5. They have obtained certain results and presented a few findings, which seem fairly convincing.
6. The results obtained from recent studies of membrane permeability are particularly encouraging.
7. Although the data reviewed are only preliminary results obtained from a limited number of experiments, they are fairly convincing and, therefore, reliable.
8. The data reported in literature are somewhat confusing, I dare say, they are rather controversial.
9. In my opinion, the data that have just been presented do not seem quite reliable.
10. The results the authors have presented seem rather puzzling.
11. We have recently obtained some data, which are totally different from those reported by other workers.
12. There are no direct experimental data bearing on these specific mechanisms.

13. To my knowledge, no comparable results are available in literature.

Exercise 26. Make statements, which would suit one or other of the following conclusions.

E x a m p l e :
... and, therefore, can hardly be regarded as quite conclusive.
In my opinion, the data that have just been presented were obtained from a limited number of experiments and therefore, can hardly be regarded as quite conclusive.

1) ... can hardly be regarded as quite reliable;
2) ... can hardly be regarded as fairly convincing;
3) ... can hardly be viewed in terms of this theory;
4) ... can hardly be used as a basis for further experimentation in the field;
5) ... can hardly be referred to in further studies of this kind;
6) ... are, therefore, inadequate and cannot, obviously, be regarded as quite encouraging;
7) ... are, obviously, misleading and must, therefore, be verified in every detail;
8) ... are, therefore, insufficient to allow any such conclusions;
9) ... we cannot fully rely on them.

Exercise 27. Give a detailed description of the results you have obtained from your recent investigation of...

Exercise 28. Write a comprehensive account of the results obtained from the study you have completed.

EVIDENCE

Exercise 29. Write down and read these sentences showing availability or lack of evidence, also its characteristics.

1. There is now good evidence, which suggests that the system input of action.

2. We know for certain that there is strong evidence to suggest that these organisms can also deposit calcite.
3. To my knowledge, there is fairly convincing evidence suggesting that an ocean once separated the northern and southern parts of the British Isles.
4. Unequivocal evidence is now available showing that these structures account for a high proportion of oxidative metabolism in grey matter.
5. The authors have given compelling evidence indicating that there is a close relationship between adrenal steroids and hypertension.
6. As we have seen, there is direct evidence for specific utilization of these metabolites at the synapse.
7. I hope you will agree that Dr. Drazier has presented conclusive evidence for his assumption.
8. There is obviously sufficient evidence in favour of the hypothesis suggested earlier by Wilson.

Exercise 30. Characterize and give possible interpretation of:
a) the evidence that is available in the literature on the problem you are investigating;
b) your own evidence obtained, perhaps with a different technique.

ASSUMPTION

Exercise 31. Read these sentences characterizing an assumption.

1. This is a merely tentative assumption.
2. This is no more than a tentative assumption.
3. The basic assumption that the authors proceeded from was merely a tentative one.
4. The assumption we have made was totally erroneous.
5. Our earlier assumption that the changes are irreversible proved to be totally wrong.

6. Previous assumptions made by several workers in the field proved to be correct and were further supported by a large body of experimental evidence.
7. The earlier assumption that we made holds true only for equilibrium conditions.

Exercise 32. Answer the questions below and give a short talk about the assumptions you make in our research and those made by other workers.

1. What assumptions do you proceed from in your research of the problems you are concerned with now?
2. Have there been any assumptions to the same effect made earlier by other workers?
3. If so, which one received more experimental support and, obviously seems more valid?
4. Can you state with certainty that what you have assumed regarding the phenomenon you are investigating is truly the case?
5. Suppose your assumption fails to be confirmed by experiment, what will that mean?

THEORY (HYPOTHESIS)

Exercise 33. Comment on the theories or hypotheses in your field, also on those relating to your problem.

Exercise 34. Use the statements and questions of the above exercise, also your own ones, to hold a discussion in class.

N o t e . These refusal-patterns may be helpful in case you cannot provide a competent answer.

1. I am afraid I don't know (what to say). Being no biologist, really, I can't say anything sensible. Honestly, it's all beyond me. Aren't you asking far too much of me.

2. Well, don't ask me. Honestly, I don't know the first thing about it. You know I am totally ignorant as far as this subject is concerned.
3. Well, I hardly know what to say. Really, you don't expect me, a physicist, to speak about things that are purely biological and would, obviously, require some specific knowledge. Indeed, one needs specific knowledge to be able to talk of the things that are far from being everyone's competence.

Exercise 35. Name some theories, which are no longer used nowadays as incorrect, inadequate or invalid, also, show where the theory is wrong or why it is invalid.

Exercise 36. Write down a detailed critical account of some theory, mentioning, among other things, its attractive features and strong points, if any.

Exercise 37. Choose one or other of the theories below or suggest some others to discuss in class.

1) the Darwin theory of evolution;
2) the chromosome theory of heredity;
3) the kinetic theory;
4) the molecular orbital theory;
5) the plate tectonic theory;
6) the theories of light.

Exercise 38. Of the theories listed below choose those which you know and which are familiar to the group. Give a talk in class comparing the theories concerned with one and the same phenomenon.

1. Geometrical theory of liquids and the conventional theories of the same;

2. the corpuscular theory of light and the electromagnetic theory of the same;
3. the steady state theory and the "Big-Bang" theory;
4. the theories for the origin of the Moon;
5. the theories of the origin of life;
6. the theory of evolution as developed by Darwin and (he synthetic theory of the same;
7. theories in your field.