ПЕРВОЕ ВЫСШЕЕ ТЕХНИЧЕСКОЕ УЧЕБНОЕ ЗАВЕДЕНИЕ РОССИИ

МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ
РОССИЙСКОЙ ФЕДЕРАЦИИ
федеральное государственное бюджетное образовательное учреждение
высшего образования
САНКТ-ПЕТЕРБУРГСКИЙ ГОРНЫЙ УНИВЕРСИТЕТ

УТВЕРЖДАЮ

Руководитель ОПОП ВО
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МЕТОДИЧЕСКИЕ РЕКОМЕНДАЦИИ ДЛЯ САМОСТОЯТЕЛЬНОГО ИЗУЧЕНИЯ ДИСЦИПЛИНЫ

ПРОФЕССИОНАЛЬНО ОРИЕНТИРОВАННЫЙ ИНОСТРАННЫЙ ЯЗЫК

Уровень высшего образования:	Подготовка кадров высшей квалификации
Направление подготовки:	38.06.01 Экономика
Направленность (профиль):	Экономика и управление народным хозяйством (Экономика, организация и управление предприятиями, отраслями, комплексами)
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учреждение высшего образования
Санкт-Петербургский горный университет

Кафедра иностранных языков

**ПРОФЕССИОНАЛЬНО-ОРИЕНТИРОВАННЫЙ
ИНОСТРАННЫЙ ЯЗЫК
ОПИСАНИЕ РЕЗУЛЬТАТОВ НАУЧНОГО ИССЛЕДОВАНИЯ
В ВИДЕ ГРАФИКОВ И ДИАГРАММ**

*Методические указания к практическим занятиям для всех
направлений подготовки кадров высшей квалификации*

**ENGLISH FOR SPECIFIC PURPOSES
ACADEMIC DESCRIPTION OF VISUAL AIDS
(GRAPHS AND CHARTS)**

САНКТ-ПЕТЕРБУРГ
2020

УДК 811.111 (076.6)

ПРОФЕССИОНАЛЬНО-ОРИЕНТИРОВАННЫЙ ИНОСТРАННЫЙ ЯЗЫК.
Описание результатов научного исследования в виде графиков и диаграмм.
Методические указания к практическим занятиям./ Санкт-Петербургский горный университет.
Сост.: *Е.А. Варлакова, В.А. Спиридонова*. СПб, 2020. 35с.

Методические указания предназначены для всех направлений подготовки кадров высшей квалификации и согласованы с программой дисциплины «Профессионально-ориентированный иностранный язык» для аспирантов неязыковых вузов.

На материале аутентичных визуальных и текстовых материалов, в которых освещаются основные параметры описания графиков и диаграмм, аспиранты смогут овладеть необходимыми навыками для представления результатов своих научных работ, как в устной, так и в письменной речи.

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ПРЕДИСЛОВИЕ

Данные методические указания «Описание результатов научного исследования в виде графиков и диаграмм» предназначены для проведения практических занятий по английскому языку для всех направлений подготовки кадров высшей квалификации. Методические указания составлены в соответствии с учебной программой по дисциплине «Профессионально-ориентированный иностранный язык» для формирования иноязычной профессиональной компетенции у обучающихся, ведущих научно-исследовательскую деятельность в аспирантуре. В методические указания включены аутентичные тексты, в которых освещаются основные аспекты описания графиков.

Методические указания состоят из тематических разделов, посвященных различным видам описания статистических данных, как в устной, так и в письменной речи, и включают тексты, каждый из которых сопровождается заданиями и упражнениями, направленными на отработку и закрепление лексического материала. Использование предложенного комплекса упражнений способствует формированию навыков перевода с английского языка на русский, и аналитического чтения публицистических и технических текстов, включающих статические данные разного характера, а также содействует пополнению активного словарного запаса, в том числе наиболее употребительных слов и выражений, необходимых для описания графиков и диаграмм.

UNIT 1
VISUAL AIDS IN SPEAKING AND WRITING

1.1 Why info graphics and visual communication?

Task 1. Read the paragraphs (1-6) and choose the best title for each from the following list (A-F):

A. In the blink of an eye

B. Human communication has existed for about 30,000 years, text communication for 3,700 years

C. Images affect our emotions; our emotions affect our decision making

D. In One Ear and Out the Other

E. "Death by PowerPoint" phenomenon

F. "Seeing is believing" is mostly true

1. ……

Words are processed by our short-term memory where we can only retain *about* 7 bits of information (plus or minus 2). Images, on the other hand, go directly into long-term memory where they are indelibly etched." Therefore, it is not surprising that it is much easier to show a circle than describe it.

2. ………

We all know that what we see can be manipulated but the point is that visuals are persuasive. The Stanford Persuasive Technology Lab asked 2,440 participants how they evaluated the credibility of web sites they were shown. *Almost half* (46.1%) said that the web site's design look was the number one criterion for discerning the credibility of the presented material.

3. ………

The human brain can process images in *as little as* 13 milliseconds according to MIT scientists. If you have ever tried to measure your reactions, the average is *around* 215 milliseconds, click a red box turning green, you'll get some idea of how fast the brain is processing an image at 13 milliseconds.

4. ………

In 1986, it was found out that presenters who use visual aids are 43% more effective in persuading audience members to take a desired course of action than presenters who don't use visuals. However, there is the reverse side to using visual aids in presentations by PowerPoint (the leading presentation software launched by Microsoft in 1990). It is caused by the poor use of images and text in a slide presentation. *Most* people use PowerPoint as a teleprompter as a way not to mess up a presentation instead of actually trying to influence the audience. There are 6 basic rules for presenting:

- *No more than* 6 words ever on a slide
- Only professionally purchased images
- No fancy effects or sound effects
- No slide print outs, give a hand-out at the end
- Use cue cards in your hand or laptop to keep you on track whilst the audience is looking at your slides

5. ………

For *the vast majority of* mankind our communication hasn't been by text. Started back in 1450, the printed press used text, not graphics, and it was only recently, when printing costs reduced, that images were added to newspapers. As newspaper readership has been in decline as the internet has grown so we have moved towards a culture using more visual literacy. That change is backed by research from Gunther Kress, a Professor of English and Education at the School of Education, University of London. As an example, Kress compares science textbooks from 1936 and 1988 showing that textbooks have progressed from *a majority of* text to a majority of graphics. The change isn't limited to textbooks and newspapers. Think of Facebook, Twitter, Instagram, and Pinterest, all visual media, and you can understand their growth and high rates of adoption from people who simply weren't brought up with newspapers. So, it would seem that our communication isn't so much evolving; it's simply reverting back to how it used to be.

6. ………

If most of our decisions are based on relatively quick intuitional judgment and emotions, then how many decisions are influenced by visually appealing, easily digested graphics? The answer is no secret to

advertisers. Billions of dollars are spent annually to find the right imagery to sell a product, service, or online business idea. Consider how much the top brands spend on advertising to influence us.

www.platonik.co.uk/infographics/

Task 2. Find the meanings of the following words in an En-En dictionary: *retain, indelible, etch, persuade, credible, discern, teleprompter, mess up, purchase, adopt, evolve, judge, appeal, and digest.*

Find these words and/or their derivatives* in the paragraphs above and translate the sentences with them into Russian.

*A ***derivative*** is a word derived from another or from a root in the same or another language.

Task 3. Choose one of the following statements to comment on. Present your ideas as a one-minute speech using the words and phrases from tasks 1, 2.

1. The combination of graphics and words has a communicative power that neither singularly possesses.

2. Without graphics, an idea may be lost in a sea of words.

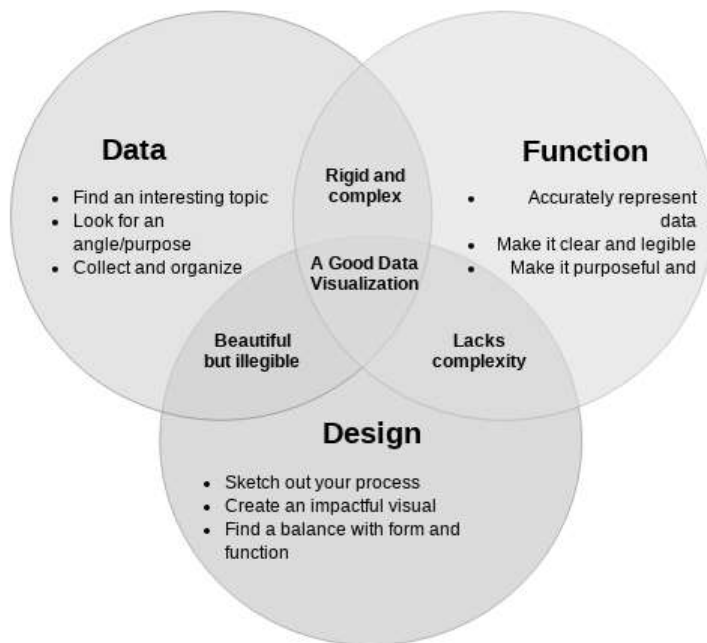**3.** Without words, a graphic may be lost to ambiguity.

Task 4. Read the definition of a Venn diagram. What is its purpose? What kind of data can it most effectively show?

A Venn diagram is an illustration of the relationships between and among sets, groups of objects that share something **in common***. Sometimes, a Venn diagram is being used as a visual brainstorming tool for comparing and contrasting two (sometimes three or more) different things. Comparing is looking at **traits**** that things have in common, while contrasting is looking at how they differ from each other.

*To **have something in common** is to have a specified amount or degree of shared interests or characteristics. (ex.: *They had one thing in common, an obsession with rock and roll*)

A **trait is a particular characteristic, quality, or tendency that someone or something has. (ex.: *Creativity is a human trait*.)

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Task 5. Look at the Venn diagram given below. Analyze the factors that influence successful data visualization.

Data
- Find an interesting topic
- Look for an angle/purpose
- Collect and organize

Rigid and complex

A Good Data Visualization

Function
- Accurately represent data
- Make it clear and legible
- Make it purposeful and

Beautiful but illegible

Lacks complexity

Design
- Sketch out your process
- Create an impactful visual
- Find a balance with form and function

Task 6. Which of the following statements do you think best describe the purpose of providing graphs and tables in an academic text? Explain your choice.

a) to explain what is in the text in a different way;

b) to provide information which is additional to that provided in the text;

c) to make it easier to understand the concepts by using a visual rather than by just using words;

d) to give an overview or a summary;

e) to provide more exact details than are described in the text.

1.2 Describing visual aids as an exam task

Task 1. Read the text. What does the abbreviation "IELTS" stand for? What does it estimate?

The International English Language Testing System (IELTS) measures the language proficiency of people who want to study or work where English is used as a language of communication. It uses a nine-band scale to clearly identify levels of proficiency, from non-user (band score 1) through to expert (band score 9).

The IELTS Academic test is suitable for entry to study at undergraduate or postgraduate levels, and also for professional registration purposes. It assesses whether you are ready to begin studying or training in an environment where English language is used, and reflects some of the features of language used in academic study.

www.ielts.org

Task 2. Read the text again. Find English equivalents for the following phrases: языковая компетентность, девятибалльная шкала, уровень базовой вузовской подготовки (бакалавриат), подходить для, уровень послевузовской подготовки (магистратура, аспирантура), среда, оценивать.

Task 3. Fill in the table. Form a missing noun, verb or adjective from the following words where possible.

Noun	Verb	Adjective
	graduate	
		suitable
		acceptable
evidence		
	assess	
	require	
	identify	

Task 4. Before reading, try to answer the following questions:

1. What type of data is analysed in IELTS writing task 1?
2. What does this task evaluate?
3. What style should you use in your answer?
4. How many words are you going to write?
5. How much time is it advisable to spend on this task?
6. What will be test-takers penalized for?

Now read the text and check your answers.

Test takers may be asked to describe facts or figures presented in one or more graphs, charts or tables on a related topic; or they may be given a diagram of a machine, a device or a process and asked to explain how it works. They should write in an academic or semi-formal / neutral style and include the most important and the most relevant points in the diagram. Some minor points or details may be left out.

Test takers should spend *no more than* 20 minutes on this task. They are asked to write *at least* 150 words and will be penalized if their answer is too short. While test takers will not be penalized for writing more than 150 words, they should remember that a longer Task 1 answer may mean that they have less time to spend on Task 2, which contributes *twice as much* to the Writing band score.

Test takers should also note that they will be penalized for irrelevance if the response is off-topic or is not written as full, connected text (e.g. using bullet points in any part of the response, or note form, etc.). They will be severely penalized for plagiarism (i.e. copying from another source).

This task assesses the ability to identify the most important and relevant information and trends in a graph, chart, table or diagram, and to give a well-organized overview of it using language accurately in an academic style.

www.ielts-exam.net

Task 5. Match expressions a-g with pictures 1-7.

a) bar chart; b) diagram; c) flow chart; d) line graph; e) map; f) pie chart; g) table.

From Vocabulary for IELTS by A. Williams

Task 6. Choose the correct variant for each definition:

1) A graph which uses parallel rectangular shapes to represent changes in the size, value, or rate of something or to compare the amount of something relating to a number of different countries or groups.

a) Pie chart b) Line graph c) Bar chart

2) A simple drawing which consists mainly of lines and is used, for example, to explain how a machine works.

a) Line graph b) Diagram c) Table

3) A diagram of the sequence of movements or actions of people or things involved in a complex system or activity.

a) Flow chart b) Line graph c) Table

4) A diagram that shows the relationship between two sets of changing numbers or measurements.

a) Pie chart b) Bar chart c) Line graph

5) A circle divided into sections to show the relative proportions of a set of things.

a) Bar chart b) Pie chart c) Flow chart

Task 7. Read the general recommendations and useful tips for describing a visual aid. Retell the text.

Group the information in a way to make it easy to follow and read. Provide *coherence* (the quality of being logical and consistent) and c*ohesion* (the quality of forming a unified whole) to your text.

Your description should contain an opening paragraph briefly describing what the graph or figure shows and its purpose (an overview of 1-3 sentences), body paragraph(s) highlighting the key information (how the object works or significant similarities and differences between the objects) and a concluding paragraph summarising the most important point (1-2 sentences).

Rather than trying to give reasons for the elements shown in the diagram or describing every detail, concentrate only on significant features. Before you begin to write, spend one or two minutes noticing the different features of the visual information. When you are describing a chart or graph, you are actually describing the patterns of the data. To help identify the patterns, you need to look for the **peak**s (*high points*) and **trough**s (*low points*); periods when the figures **remain steady** (*show little or no change*); periods when the figures **fluctuate** (*show a lot of changes*).

In written reports we don't normally describe statistics using exact numbers as this can be very boring and distracting for the reader. Instead we use approximation to round numbers up or down.

Vary your language where possible, and use a range of vocabulary and various grammatical structures.

Task 8. Correct the table. Match the percentages and fractions with their descriptions.

75% - 85%	three-fifth
80%	more than half
75%	a very small number
65%-75%	more than two-fifth
65%	a very large majority
60%	less than a third
55%	a fifth
49%	four-fifth
45%	one in ten
32%	three-quarters
30%	a minority
25%	two-thirds
20%	almost a third
10%-15%	a significant proportion
10%	just under half, nearly half
5%	a quarter

**Task 9. Look back at the texts of Unit 1. Find these and other ways of presenting the numbers. Translate them into Russia.**

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Task 1. Which of the following do you think best describes the purpose of writing about graphs and tables (in real academic writing)?

a) to explain what is in the graph or table in a different way which makes it easier to understand,

b) to give exactly the same information in words, in order to emphasise it,

c) to expand on what is in the graph or table by giving additional explanations about the reasons etc.,

d) to draw attention to the most important aspects of the information shown in the graph or table.

Task 2. Look at the graph shown below, and answer the following questions:

1. What are the units of measurement used?
2. What is the area (place) involved?
3. What is the time-scale involved?
4. What is the purpose of the graph or table?

World Meat Production, 1950 - 90
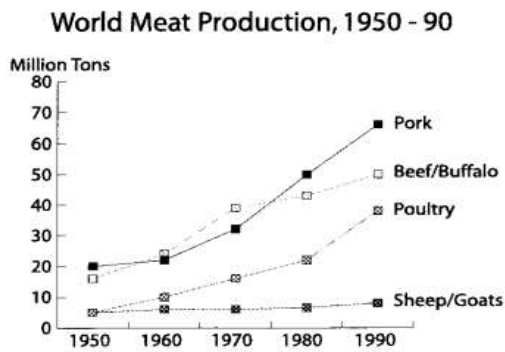
*In the case of a line graph, the **horizontal and vertical axes** provide most of the information. Usually **trends** over a specific period of time are shown in this way.*

Task 3. Which is the best introductory sentence for a description of this graph from the following?

a) This graph shows the changes in world meat production between 1950 and 1990.

b) From this graph we can see that most meat production is a lot higher in 1990 than in 1950.

c) Between 1950 and 1990 meat production in the world rose significantly for all kinds of meat except sheep and goat meat.

d) The graph shows that in 1950 production of poultry and sheep and goat meat was less than 5 million tons, while production of pork and beef and buffalo meat was around 20 million tons.

From Visuals: writing about graphs, tables and diagrams by
G.Duigu

2.1 Line Graph 1

Task 1. Before reading, look at the graph and describe the main trends. What does this graph show?
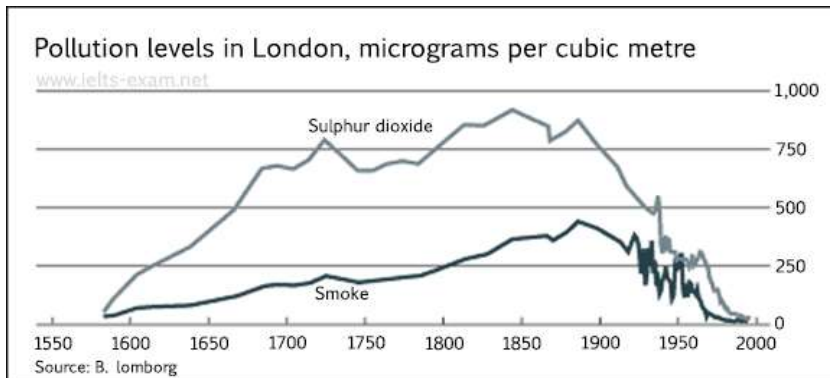
Task 2. Read the model answer. Underline the structural elements (*introduction and overview, main body, conclusion*).

The graph *shows* pollution levels in London between 1600 and 2000. It *measures* smoke and sulphur dioxide in micrograms per cubic metre. As is illustrated by the graph, the levels of both pollutants formed

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a *similar pattern* during this period, but there were always *higher levels* of sulphur dioxide than smoke in the atmosphere.

In 1600, pollution levels were *low*, but over the next hundred years, the levels of sulphur dioxide *rose* to 700 micrograms per cubic metre, while the levels of smoke *rose gradually* to about 200 micrograms per cubic metre. Over the next two hundred years the levels of sulphur dioxide *continued to increase*, although there was some *fluctuation in this trend*. They *reached a peak* in 1850. Smoke levels *increased* a little more *sharply* during this time and *peaked* in 1900 at about 500 micrograms. During the 20th century, the levels of both pollutants *fell dramatically*, though there was a great deal of fluctuation within this fall.

Clearly air pollution was a bigger problem in London in the early 20th century than it is now.

<div align="right">(176 words)
<i>www.ielts-exam.net</i></div>

Vocabulary focus

Task 3. Look at the words and phrases given in the text in italics. What trends do they describe? Put them into the right column.

increase	decrease	changeability

Translate the following words and add them to the table in task 3: *decline (from x to y, by x), boost, enhance, dip, escalate, cut down, multiply, lessen, and heighten.*

Task 4. Look at the synonyms of the verb "*show*". Match them with their definitions. What other synonymous words or phrases do you know?

1. *depict*   a) to say or write what someone or something is like (**A2**)
2. *illustrate*   b) to show, point, or make clear in another way (**B2**)
3. *represent*   c) to show, express, or be a sign of something (**B2**)
4. *reflect*   d) to show or describe something or someone (**C2**)

5. *describe*   e) to show something in a picture or story (**C2**)
6. *indicate*   f) to show words, pictures, etc. on a screen (**C2**)
7. *display*   g) to show the meaning or truth of something more clearly, especially by giving examples (**C1**)

Task 5. Range the given vocabulary units according to their functional meaning in writing: *nevertheless, on balance, former, subsequent, overall, summarise, furthermore, prior, encapsulate, whereas, sum up, conclude, latter, outline, moreover, thus, respectively, whilst, initial, hence.*

1. Adding points:
2. Contrasting points:
3. Referring to sequence:
4. Generalizing:
5. Expressing consequence and concluding:

Task 6. Complete the passage with words from task 5. For some gaps, there may be more than one possible answer.

Studying abroad has become increasingly challenging over the last year or two. Visa regulations have become more complex and the cost of travelling abroad has increased substantially. **(1)**_____, record numbers of students have applied for a place at a university overseas. When international students first arrive in the new country, their **(2)**_____ impression is often favourable. However, their **(3)**_____ impressions can be less so, as they struggle to adapt. International students need time to adjust to the new study environment; **(4)**_____, they need help with that process. Decisions about how best to help international students will depend on their needs. Undergraduate and postgraduate students are very different; the **(5)**_____may need an introduction to essay writing; the latter more advanced training in critical thinking skills. The student's subject is also a factor to be born in mind. Good numeracy skills are needed for engineering for example, **(6)**_____ good literacy skills are needed for courses such as law.

From Visuals: writing about graphs, tables and diagrams by
G.Duigu

2.2 Line graph 2

Grammar focus

For most visuals a specific time in the past will be given and you will need to use the **past simple tense**. If two things took place at the same time, you may use the **past continuous tense** for one of them. (*While poultry production was rising during this period, there was no change in mutton production*). If you use *since* or *recent(ly)* it means that you are referring to events that have come up to the present. That means using the **present perfect tense** (*The use of the Internet has risen enormously since the 1990s*). With *by* you will often need to use the **past perfect** or the **future perfect tense**. (*By the end of the century the rate of urbanisation had doubled.*

Task 1. Choose the correct verb tense to complete these sentences written by IELTS candidates:

1. There was a ten-year period, during which figures *have gradually fallen/ gradually fell.*

2. By 2008, the percentage of students choosing science subjects *decreased / had decreased* markedly.

3. Between 2000 and the present day, the numbers *remained / have remained* steady.

4. Over the past few decades, there *has been / was* a rapid development in educational technology.

5. After 2005, a more significant increase *took place / had taken place.*

6. Since the 1990s, graduates *have experienced / experienced* higher unemployment rates.

7. The situation *remained / had remained* unchanged for the next two years until more universities were opened.

8. In 2002, the university intake was stable, but prior to that, it *fluctuated / had fluctuated.*

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Task 2. Look at the time expressions often used in graph descriptions. Find them in the texts and exercises of Unit 1 and Unit 2 above.

in, during, after, from-to, until, between – and, before/ after, around/ about, by, at, since, over, throughout, from that time on, after that, then, in the 1890s.

Think of other time expressions that you know. Add them to the list.

Task 3. Complete this part of the summary for the graph below by writing the correct form of the verbs in brackets.

The number of men obtaining degrees in science from Callum University **1)** *has risen* (*rise*) since 1995, but the trend **2)** …… (*not always be*) steady. Between 1995 and 1997, the university **3)** …… (*experience*) a slight increase from just over 4,000 science graduates to just under 5,000. This was followed by a period during which numbers **4)** ….. (*drop*) a little and then **5)** …… (*remain*) stable. However, between 2000 and 2005, the faculty **6)** …… (*see*) a dramatic increase in male graduates, and by 2005, their numbers **7)** …… (*reach*) a peak of about 7,800, after which they **8)** …… (*fall back*) to their current figure of 6,000.
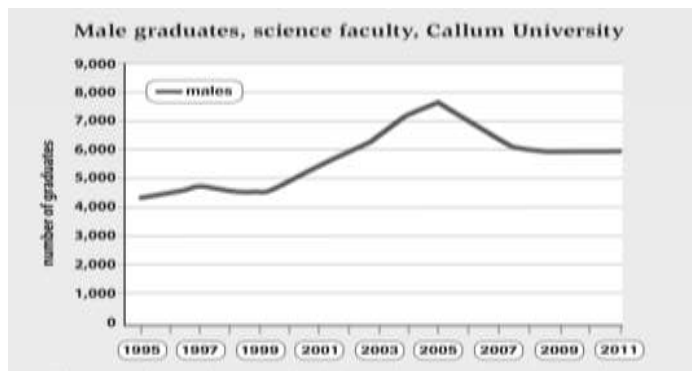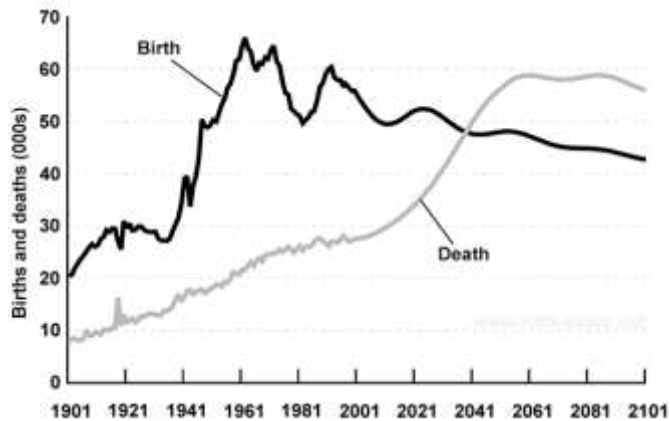

From Complete IELTS by G. Brook-Hart, V. Jakeman

Task 4. Write down the complete description of the graph above.

2.3 Line graph 3

Task 1. Before reading look at the graph and describe the main trends. What does this graph show?

Task 2. Read the model answer. Underline the words denoting trends, changes and comparisons. Use their synonyms from part 2.1 and to paraphrase the sentences.

The graph shows changes in the birth and death rates in New Zealand since 1901, and forecasts trends tip until 2101.

Between 1901 and the present day, the birth rate has been consistently higher than the death rate. It stood at 20,000 at the start of this period and increased to a peak of 66,000 in 1961. Since then the rate has fluctuated between 65 and 50 thousand and it is expected to decline slowly to around 45,000 births by the end of the century.

In contrast, the death rate started below 10,000 and has increased steadily until the present time. This increase is expected to be more rapid between 2021 and 2051 when the rate will probably level off at around 60,000, before dropping slightly in 2101.

Overall, these opposing trends mean that the death rate will probably overtake the birth rate in around 2041 and the large gap between the two levels will be reversed in the later part of this century.

(164 words)

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Task 3. Read the examiners' comments on the good points of this graph description and find examples in the text to prove them:

- Fulfils criteria for length;
- Introduction is paraphrased;
- Main sets of data are compared and contrasted;
- Clear focus on the different trends;
- Important features of the graph, e.g. cross-over point included;
- Information summarised in conclusion;
- Well organised information;
- Range of linkers and referencing expressions;
- Good range of vocabulary and grammar structures are used accurately.

Task 4. Describe one of the following graphs (fig. 0.6 or fig. 3.1) using all the recommendations given in Unit 2.

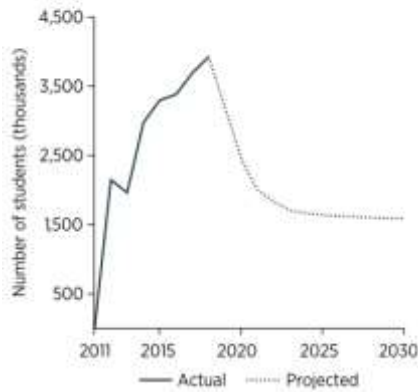FIGURE 0.6 **Tax revenues are lower in developing countries**
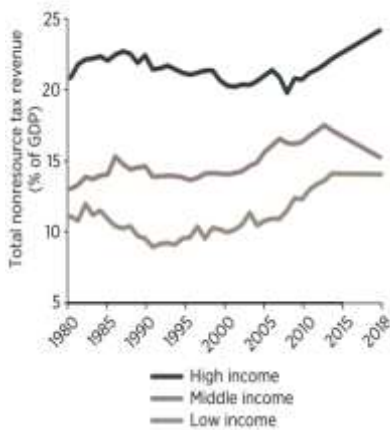
FIGURE 3.1 **In the Syrian Arab Republic, the number of children out of school because of war rose between 2011 and 2017**

From World Bank 2019

__GDP__ (Gross Domestic Product) - the total value of goods and services produced by a country in a year.

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BAR CHARTS

Task 1. Before reading the definition, answer the question: what are the main features of bar charts?

In a bar chart different amounts are represented by thin vertical or horizontal bars which have the same width but vary in height or length. Bar graphs may show comparisons among different categories. The length of the bar shows the quantity, value, or cost of each category.

A histogram is a kind of a bar chart but the bar width also varies to indicate different values. A frequency distribution shows how often each different value in a set of data occurs. A histogram is the most commonly used graph to show frequency distributions.

From Academic Vocabulary in Use

3.1 Bar chart 1

Task 2. Translate the words into Russian: *distribution, metropolitan, a resident, an inhabitant, to witness, to outrank, respectively, a meagre, evident, to exceed.*
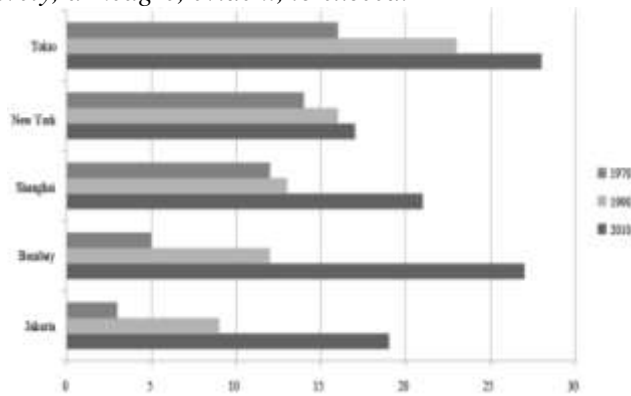
	1950			2010	
1	New York	12,5	1	Tokyo	27,6
2	London	7,9	2	Bombay	26,6
3	Tokyo	6,5	3	Lagos	23,9
4	Paris	5,3	4	Shanghai	22,9
5	Moscow	5,3	5	Jakarta	20,8

Task 3. The table and the chart above show the growth in the population in some of the world's largest cities. Read and translate the description.

The bar graph compares the population in five metropolitan areas during 1970 and 2010 while the table outlines the top five cities with the highest population.

Generally speaking, the population growth in Bombay and Jakarta was faster than that of other cities and Tokyo had the highest residents in 2010. Moreover, a higher number of people started living in urban areas than in rural areas after 2005.

As is illustrated by the bar graph, more than 15 million people lived in Tokyo in 1970 and that was higher than that of New York and Shanghai. Population in Bombay was one-third than that of Tokyo and Jakarta had only 2.5 million residents, the least among the five cities. The population in Tokyo increased to 27.6 million in 2010 and this was the city with the highest population. However, population growth in Bombay and Jakarta, almost 5.5 times, was higher than any other city listed.

The table data show that New York was the most populous city in the world in 1950 with exactly 12.5 million people. London and Tokyo stood at the second and third position in this list while Moscow with its 5.3 million people was in 5th position. In 2010, Tokyo topped the rank followed by Bombay and Lagos.

Task 4. Compare the first description with the following one. What are the differences?

The bar graph compares the population growth in five large cities between 1970 and 2010 while the table lists down the five most populous cities in the world both in 1950 and 2010.

Overall, Tokyo had the largest population in 2010 but the population growth in Bombay and Jakarta outranked other cities. Finally, more people started to live in cities after 2005 despite a different scenario in earlier years.

As the data suggest, Tokyo had over 15 million residents in 1970, which was three and five times higher than that of Bombay and Jakarta respectively. New York and Shanghai had approximately 14 and 12 million inhabitants this year. After two decades, New York witnessed a

meagre population growth while it was dramatic both in Jakarta and Bombay. It is evident that population growth in Jakarta and Bombay exceeded all other cities.

In 1950 New York, London, Tokyo, Paris and Moscow were the top five populous cities in the world. In 2010 Bombay, Lagos, Shanghai and Jakarta ranked in the list by eliminating all other cites except Tokyo, which stood first on the chart with over 27 million citizens.

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Task 5. Find synonyms in the text for the words given in the box.

nearly	to grow	drastic
a rise	rather	to depict
to surpass	to offer	furthermore

Task 6. Paraphrase the following sentences as much as possible:

1. Generally speaking, the population growth in Bombay and Jakarta was faster than that of other cities.

2. According to the bar graph*, more than 15 million people lived in Tokyo in 1970 and that was higher than that of New York and Shanghai.

3. However, population growth in Bombay and Jakarta, almost 5.5 times, was higher than any other city listed.

4. Overall, Tokyo had the largest population in 2010 but the population growth in Bombay and Jakarta outranked other cities.

5. After two decades, New York witnessed a meagre population growth while it was dramatic both in Jakarta and Bombay.

6. It is evident that population growth in Jakarta and Bombay exceeded all other cities.

*Warning: Avoid using the phrase "*according to…*" because it generally means that the information comes from another person or source, and not from our own knowledge. In the case of a graph or table that is shown, the information is there right in front of you.

Task 7. Write your variant of the description of the same chart by the following scheme:
a) Introduction
b) Overview
c) Body (main features)
d) Conclusion

Which phrases or sentences from the descriptions above are the key ones for each paragraph of the model?

3.2 Bar chart 2

Task 1. Name three forms of comparison to the following adjectives that are typical for graphs descriptions: *low, high, sharp, significant, wide, enormous, large, little, many, great, little, considerable, close.*
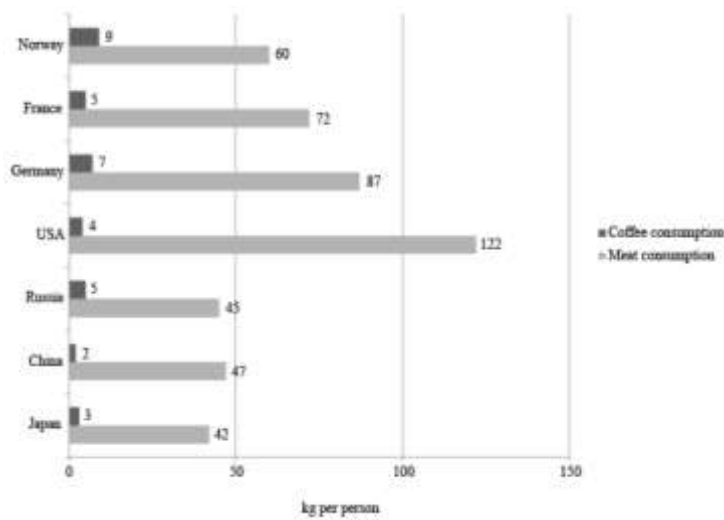
Task 2. Read the text about annual coffee and meat consumption and analyse the structure of description:

The bar chart **compares** the amounts of coffee and meat consumed every year in Norway, France, Germany, the USA, Russia, China and Japan.

It can be clearly seen that the lowest rates of coffee consumption are recorded in China and Japan (2 and 3 kg per person respectively). The next three countries have higher rates: consumption of coffee in the USA **totals** 4 kg per person, while France and Russia have equal consumption rates of 5 kg per person. The highest numbers belonging to Germany and Norway are 7 and 9 kg per person respectively.

Meat consumption numbers are much higher in all countries; the highest numbers **are recorded** in the USA (122 kg per person) and the lowest in Japan. Meat consumption in Russia (45) and China (47) is similar to that of Japan (42). Three other countries have much higher numbers, starting with Norway (60) and progressing through France (72) to Germany, which consumes about twice as much as Japan (87 kg per person).

In conclusion, the report **shows** that the Asian countries have similar consumption numbers for both coffee and meat.

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Task 3. Answer the question: what is an overview and how to write it?

The overview is the most important paragraph in the graph description. An overview is a summary of the main or most important points in a graph, chart, process or map. It is normally 2-3 sentences long and should be the second paragraph you write in your description. It also influences what you write in the rest of your description, shows that you can identify the most important information from the graph or chart and clearly identify overall trends and comparisons. You should not include details from the chart just yet. At first, you just need to describe what you can see in general.

**Task 4. Paraphrase the first sentence from the overview using vocabulary in italics:**

It can be clearly seen that the lowest rates of coffee consumption are recorded in China and Japan.

a) It is very clear from the overall trend that… b) As can be seen from the graph… c) It is noticeable that… d) It is clear that… e) Overall, we can see that… e) It is clearly evident that…

Task 5. Look at verbs in bold in the text and choose others from the list below to replace them: *to depict, to represent, to calculate, to illustrate, to sum up, to display.*
Translate all the verbs.

3.3 Bar chart 3
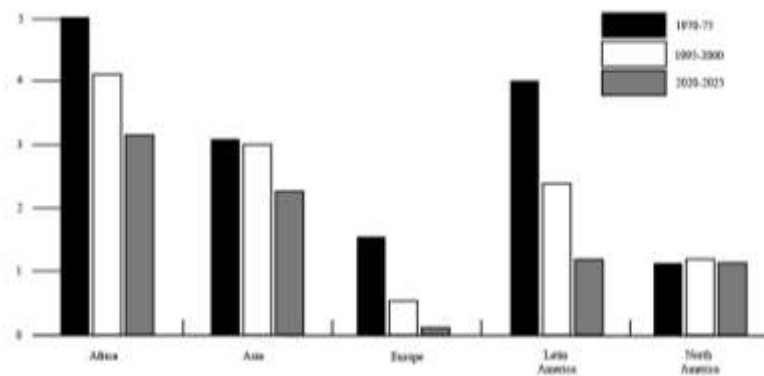
Task 1. Read the description about average annual urban growth rates and insert the missing words from the box into the gaps.

less	by contrast	over	under
the same	according	about	went down

This graph shows the average annual urban growth rate of 5 continents from 1970 to 2025. **(1)………** to the graph, Africa had about

5% average annual urban growth rate in 1970 and over 4% average annual urban growth rate in 1995 and in 2025 the average annual urban growth rate is expected to be just **(2)……..** 3%. For Asia the average annual urban growth rate was just over 3% in 1970 and 1995 and it was expected to be **(3)………** 2% in 2025. In Europe, **(4)………**, the average annual urban growth rate was only about 1.5% in 1970 and it **(5)………..** to about 0.5% in 1995, and in 2025 it will be **(6)……….** than 0.2%. In Latin America the average annual urban growth rate went from just **(7) …….** 4% in 1970 to just over 2% in 1995 and it will probably be just over 1% in 2025. In North America the average annual urban growth rate was about 1% in 1970 and 1995 and is expected to stay **(8)……..** in 2025.

From Visuals: writing about graphs, tables and diagrams by
G.Duigu

Task 2. Study the adverbials to describe quantifiers:
48% - a) less than half; b) just under half; c) nearly half; d) approximately half; e) almost half; f) about half;
52% - a) just over half; b) more than half.

*Note: we don't use article "a" before the word "half", but we use it before other amounts like "a third", "a quarter, ect."

Name the following quantifiers:
a) ≤ 3/4; ≥ 3/4; ±3/4
b) ≤ 2/5; ≥ 2/5; ±2/5
**c)** ≤ 1/3; ≥ 1/3; ±1/3

Task 3. Linkers help to create cohesion of the text. Place the words in the right column and translate them: *consequently, however, at the same time, to sum up, on the other hand, furthermore, whereas, in conclusion, ultimately, while, in addition, as a result, overall, moreover, in contrast, eventually, finally.*

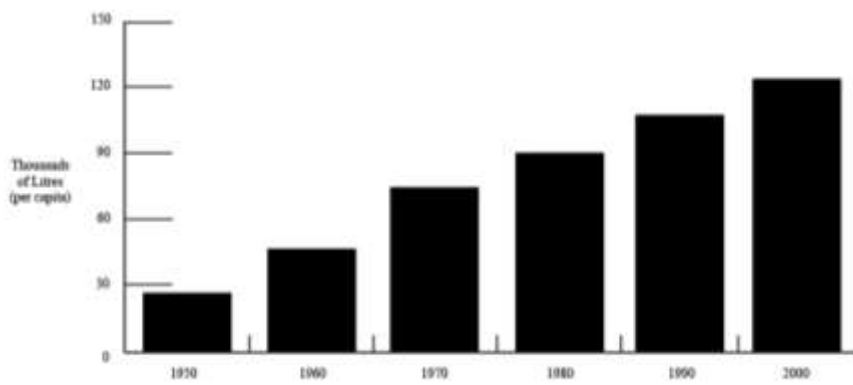| Add information	Contrast	Conclusion

Task 4. Choose one from two charts below and write your description applying the structure, vocabulary and linkers:

a) Top 10 offshore producing countries 2017
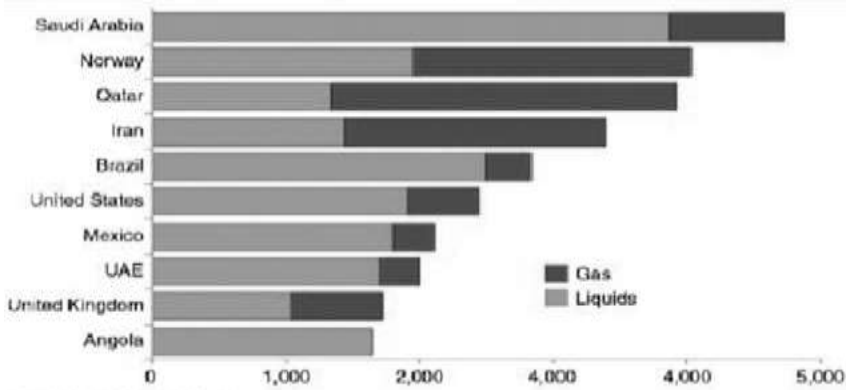
Source: Rystad Energy UCube

b) Annual water consumption: Europe
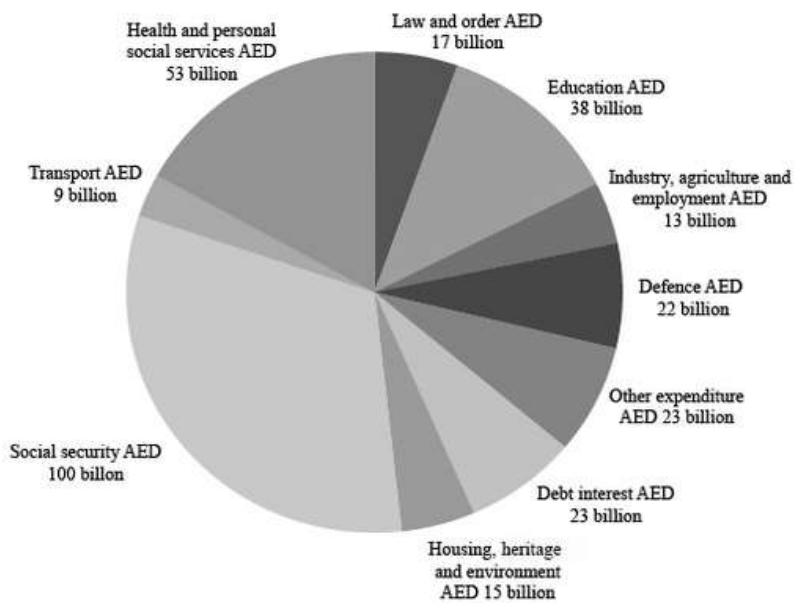
UNIT 4
PIE CHARTS

Task 1. Before reading the definition, answer the question: why this type of charts has such a name?

A pie chart is a circle divided into segments (slices, pieces, portions, sectors) from the middle to show how the total is divided up. A key or legend shows what each segment represents.

From Cambridge English for Scientists

4.1 Pie chart 1

Task 2. Translate the words into Russian. Use a dictionary:
housing heritage, to require, expenditure, debt interest, social security, allocation, authority.

Health and personal social services AED 53 billion; Law and order AED 17 billion; Education AED 38 billion; Industry, agriculture and employment AED 13 billion; Defence AED 22 billion; Other expenditure AED 23 billion; Debt interest AED 23 billion; Housing, heritage and environment AED 15 billion; Social security AED 100 billion; Transport AED 9 billion

Task 3. The chart above shows how much money is spent in the budget on different sectors by the UAE government in 2000. Read the text and name all useful adverbials to describe a graph:

The pie chart shows the national expenditure of the United Arab Emirates government in 2000. Generally speaking, the UAE government had a budget of over 300 billion AED and the highest portion of this budget was spent on social security and health and social services.

As is given in the diagram, the UAE government spent more than 300 billion AED in ten different sectors in 2000. Social security for the citizens cost the highest budget and it was exactly 100 billion AED. Health and personal social services, on the other hand, required more than 50 billion and this was the second largest budget money allocation for the UAE government in 2000. The UAE authority used 38 billion for education, 17 billion for law and order and 13 billion for job, industry and agriculture. Defence sector cost them 22 billion which was slightly lower than the debt interests the government paid this year. Housing, heritage and environment got 15 billion which was nearly the same as it was allocated for law and order. Finally, 9 billion was spent on the transportation sector and 23 million for other sectors which are not specifically mentioned in the chart.

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Task 4. Fill in the gaps with an appropriate word:

steady	gradually	approximately
remarkably	partly	slightly

1) Just 2 billion AED more are spent on housing heritage than on industry, agriculture and employment, which means that the first segment is just …………………. bigger than another one.

2) The average tariff rate decreased by …………… one third during the same period.

3) Silver peaked at €200 an ounce. It showed a ………… growth last year.

4) There hasn't been much movement in the price of gold. It remained ……………

5) Sales were increased ……… by favourable currency exchange rates.

6) Turnover decreased ………, so it didn't happen unexpectedly.

Task 5. Give several variants for the first sentence of the text. You may use the following phrases*: the graph indicates; reveals; represents; as is shown by the graph, as is illustrated.*

Task 6. Fill in the table where possible:

Verb	Adjective	Noun
differ	different	
		variant
decrease		
	similar	
distinguish		distinction
	compared	
grow		

Task 7. Open the brackets and put the verb in the correct grammar tense (Past Simple, Present Perfect or Past Perfect).

1. The use of the Internet _____ enormously since the 1990s. **(rise)**

2. Between 1950 and 1990 meat production in the world _____ significantly for all kinds of meat except sheep and goat meat. **(rise)**

3. By the end of the century the rate of urbanization _____. **(double)**

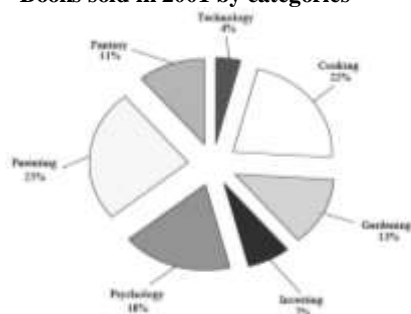**4.** In 1999 production _____, while imports increased. **(slow down)**

5. After peaking at 90 billion the following year, these calls _____ back to the 1995 figure **by** 2002. **(fall)**

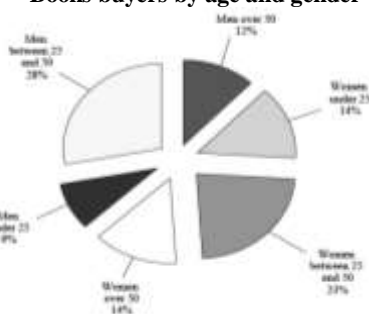**6.** Recently there _____ a steady decline. **(be)**

7. The consumption of fossil fuels _____ the highest levels in 1980s. **(reach)**

4.2 Pie chart 2

Books sold in 2001 by categories

Books buyers by age and gender

**Task 1. Read the text and pay attention to the phrases in bold, what do they describe?**

The pie charts compare quantities of books of various categories sold to customs belonging to different age groups and gender in 2001 by Famous Book Store. It can be clearly seen that parenting books are the most popular and **the biggest proportion** of books was sold to men between the ages of 25 and 50.

The two dominant categories, parenting (25%) and cooking (22%), are followed very closely by psychology, with **only 4% less** sales than cooking books. Sales of fantasy and gardening literature recorded much smaller figures, 11 and 13% respectively. Books on technology or investment were **the two least popular categories**, with only 7% sales being on books about investment and 4% on technology books.

Most of the books were sold to men and women from 25 to 50 years of age (23 and 28% respectively). Sales figures among women older than 50 or younger than 25, as well as among men over 50, were **very similar**, 12 and 14%. Only 9% of the books were purchased by men under 25.

www.testbig.com

Task 2. Translate the following phrases and make as many sentences as possible to describe the model of a pie chart below: *the biggest segment, total quantity, roughly (close to) a third, exactly a fifth (20%), less than half, just under, around three quarters, a small (the lowest) percentage, precisely, a quarter, slightly below, a very small proportion.*
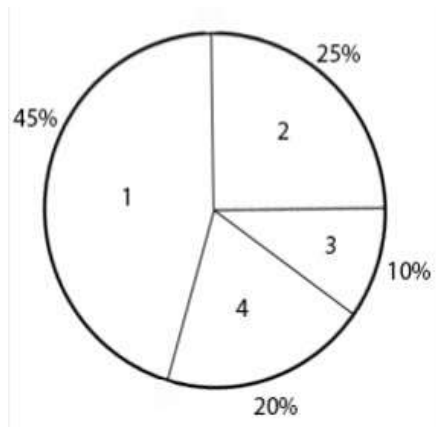

Examples:

Segment 1 makes up almost half of the total.

Segment 3 accounts for 10% of the total.

Task 3. Read and translate useful phrases to make comparison. Fill in the gaps with your own examples.

1. Compared to ....., the change in ..... was dramatic.

2. The figure for ..... showed a ..... percent rise, **whereas** those for ..... fell by ..... percent.

3. In **neither ..... nor** ..... was there any significant fall.

4. While the ..... went up substantially, the ..... increased slowly.

5. The number of ..... declined **as rapidly** in ..... **as** in ..... .

6. In both ..... and ....., the proportion of ..... was growing.

7. The percentage of ..... in ..... dropped **much faster than** in.... .

Task 4. Compare two charts below and write a description. The charts illustrate sources of energy in the USA in 1980s and 1990s.

1980

1990

Oil | Natural Gas | Coal | Hydroelectric Power | Nuclear Power
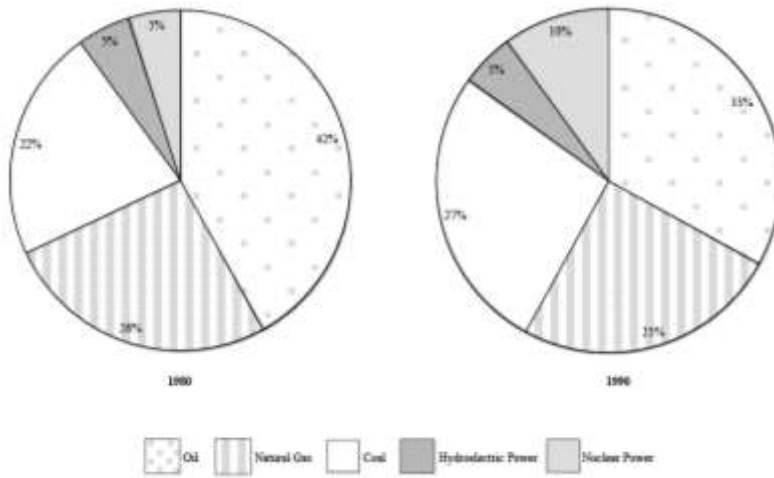
Task 5. Read general recommendations and complete the list with your own ones.

1. Never start a sentence with a figure.

2. Start your description with the most significant information.

3. If there is no time marked, you should assume it is present.

4. Don't write your opinion.

5. If there are two different charts, write one overview sentence about each chart.

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