

Academic English

English for Students of Mathematics and Mechanics

Supplementary Exercises

Part II

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The tasks are based on «*English for Students of Mathematics and Mechanics*»
by Y.I. Mindeli.

Unit 1

Task 18. Make a list of word-combinations from the text that you think best characterize the language of mathematics. Add two or three words/word combinations of your own. Now do task 18 on p.12.

Unit 2

Task 2 p.17. (*At home*) Read the text and put down the main points. Then put the text away and comment on each point, using your own words as far as possible.

Read Supplementary Tasks 1 and 2 (pp.24-25). Say if the following statements are true (T), false (F) or the information is not given (NG).

1. This section will explain why the notion of a set is fundamental.
2. The list of undefined terms in mathematics is relatively short.
3. The set of membership is widely employed in all branches of mathematics.
4. There are three cases considering the object's belonging to a set.
5. Sets with identical members are equal, even if the order of the members varies.
6. There are several ways to describe empty sets.
7. There are several axioms concerning sets, void sets in particular.

Information for Task 17 p.23.

(*At home*) Study the following information about definitions (source: <http://owl.english.purdue.edu/owl/resource/622/01/>) and answer the following questions:

Writing Definitions

A formal definition is based upon a concise, logical pattern that includes as much information as it can within a minimum amount of space. The primary reason to include definitions in your writing is to avoid misunderstanding with your audience. A formal definition consists of three parts.

- The term (word or phrase) to be defined.
- The class of object or concept to which the term belongs.
- The differentiating characteristics that distinguish it from all others of its class.

For example:

Water (*term*) is a liquid (*class*) made up of molecules of hydrogen and oxygen in the ratio of 2 to 1 (*differentiating characteristics*).

Comic books (*term*) are sequential and narrative publications (*class*) consisting of illustrations, captions, dialogue balloons, and often focus on super-powered heroes (*differentiating characteristics*).

Astronomy (*term*) is a branch of scientific study (*class*) primarily concerned with celestial objects inside and outside of the earth's atmosphere (*differentiating characteristics*).

Additional Tips for Writing Definitions

- Avoid defining with "X is when" and "X is where" statements. These introductory adverb phrases should be avoided. Define a noun with a noun, a verb with a verb, and so forth.
- Do not define a word by mere repetition or merely restating the word, for example,
"Rhyming poetry consists of lines that contain end rhymes."
It is better to write: "Rhyming poetry is an art form consisting of lines whose final words consistently contain identical, final stressed vowel sounds."
- Define a word in simple and familiar terms. Your definition of an unfamiliar word should not lead your audience towards looking up more words in order to understand your definition.
- Keep the *class* portion of your definition small but adequate. It should be large enough to include all members of the term you are defining but no larger.
- Avoid adding personal details to definitions. Although you may think the story about your Grandfather will perfectly encapsulate the concept of stinginess, your audience may fail to relate. Offering personal definitions may only increase the likeliness of misinterpretation that you are trying to avoid.

Questions:

1. What is a formal definition?
2. Of what parts does it consist?
3. What are the tips for defining a word?

Unit 3

Task 2 p.33: Single out the main points of the text. Think of the questions that concern the main points and ask your questions in a chain, remembering to do that in an appropriate way (see the previous term, asking for explanations).

Asking for explanations. To do that politely, you should start with *can* or *could*. It's also a good idea to use *just* to show you are not going to speak for a long time¹. After you have received an answer, you should say *thank you*. For example,

- I was just wondering, could you tell me a bit/explain...
- Could you just clarify...
- I just would like to know if...
- (this one is not for the first question) Thank you. Just one more thing/question though.

Unit 4

Task 16 p.52: do the task and justify your answer.

Unit 5

(At home) Translate one of Supplementary Texts (pp.63-64) in written form.

Unit 6

Text p.65. Read the text and translate it, then answer the questions (Task 3). Now turn to lines 43-69 again and try to restate the same idea, using twice as few words as there are in original (you should use about 125 words).

¹ Armer, T. Cambridge English for Scientists, Cambridge, 2011

Unit 7

Midterm test

Unit 8

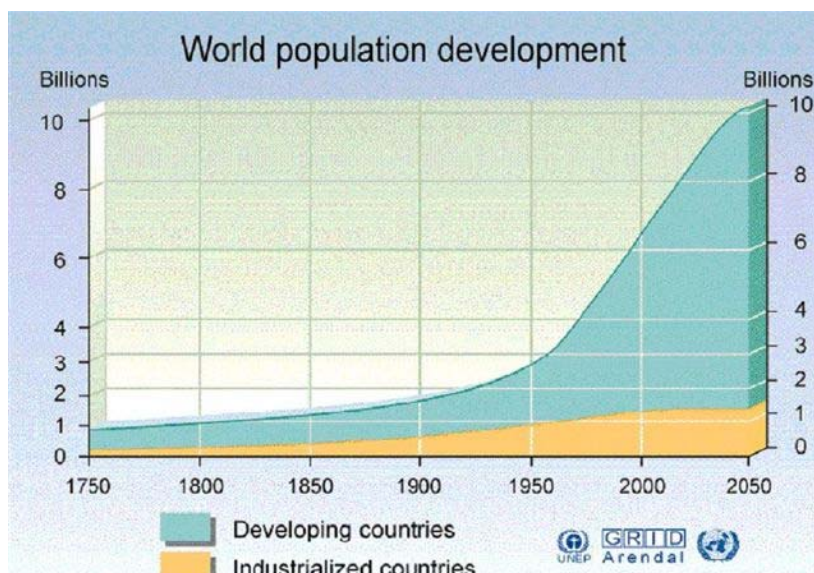
(At home) Make up a list of linking words you know and bring it to class. Compare your lists with your groupmates and add the words from your groupmates' lists to yours.

Task 15 p.93. Do point 1. Write down the point of consideration in the text. Now comment on each point orally, remembering to use linkers to make a coherent text. Now do point 2 of task 15.

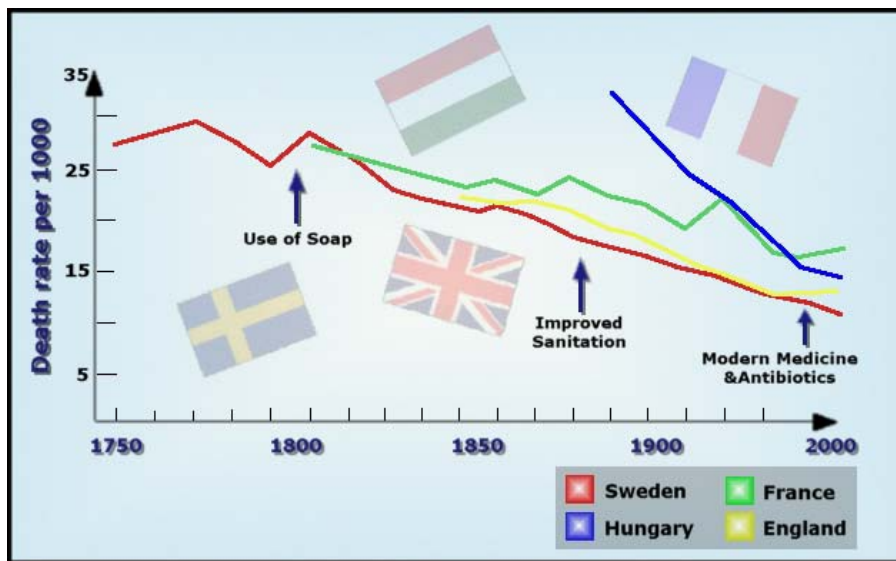
Unit 9

Task 16 p.103

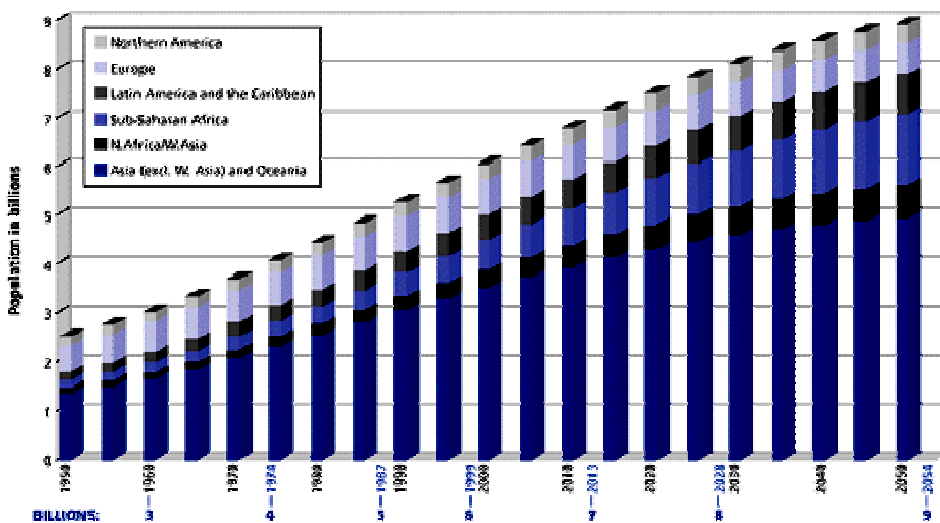
(At home) Do Unit 27 (Describing Graphs) from "Academic Vocabulary in Use". Describe the following graphs (make notes and bring them to the next class).



Source: http://www.wrsc.org/attach_image/world-population-projected-2050-developing-and-developed-countries?order=type&sort=asc



Source: http://atwarwithliesandpollution.blogspot.com/2010/03/human-population-must-go-down_08.html



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(At home) Watch the video “How Many People Can Live on Planet Earth? (part 5 of 6)” (0:47-2:18) at http://www.youtube.com/watch?v=bkqnhm_KnU&feature=BFa&list=PL6DA2E24DD385096C

What problem is discussed in it? Sum up the main ideas put forward in the video. Look for more information (read at least 2 articles) on the problem and bring the description of the diagram.

(In class) Study the following ways to express your opinion:

I (don't) think/believe/suppose that...

As for me,...

From my point of view, ...

In my opinion, ...

It seems to me that...

I fully agree that...

I can't agree that...

I am for...

I am against...

Look at the following sentences. Both variants **in bold** are possible, but which one is appropriate for a scientific discussion? Why? (adapted from Armer, T. Cambridge English for Scientists, Cambridge, 2011)

1. **I think we could/ We can** create a material which **will/ could be used to** harvest water from fog.
2. Yes, **that might be possible/ we can**, but **it wouldn't be/ I don't believe it would be** any better than the lotus-inspired surfaces that Meera and Zein are working on.
3. That's true, **but it seems to me that/ but** it would be more efficient.

Make the sentences below more polite by using less direct language.

1. I think that biomimetic solar panels which move with the sun can be created by using alternative materials and designs.
2. They will be useful in developing areas, where motor-based sun-tracking panels are not affordable.
3. Also, solar panels that track the sun are probably more efficient at generating power than those in a fixed position.

Now split into two groups and discuss the following question: *Do the governments have a right to control people's private life by instructing them how many children they should have?*

Group A is for introducing birth rate control policy, **group B** is against (or partly against) it. Remember to be polite, to use linking words and the information that you have (both from home and the graphs) to justify your point of view.

Home assignment: write 3-4 paragraphs expressing your opinion on the problem.

To get a positive mark for this aspect (Units 1-9), you should:

- Get positive marks for all written tasks.
- Get a positive mark for the midterm test.
- Submit a written summary of any supplementary text from Units 10-12 and translate into Russian any text from the units mentioned in written form (you should translate 20-22 lines).