

Option: mathematics

Level: master degree

Module: English

Note- this handout is about English language and math in general. It is made for you to get some information about your field.

In case you want to ask for something do not hesitate to contact me by email that founded below.

WHAT IS ENGLISH

English is the main language of more than fifty countries; we can mention United Kingdom, Ireland, the United States of America, Canada, Australia, and New Zealand...

Worldwide, there are over 400 million native speakers of English, and over one billion more people speak it as a second language, it is the most widely spoken language on the planet taking into account native and non-native speakers. We use the term “global lingua franca” and “world language” to describe the English language.

It belongs to the West Germanic group of Indo-European languages. Much of its vocabulary is Germanic, heavily influenced by Latin and French, though it has also borrowed many words from 350 languages all over the world from Arabic, Turkish, Hindi, Spanish and Italian...

The influence of the English language has also spread globally through American pop culture, music, movies, advertising, and TV shows.

English as an additional language (EAL)

"It is encouraging ... that more and more educators today are challenging the native speaker fallacy and pointing out the many strengths of competent teachers of English who share a first language with their students and have gone through the process of learning **English as an additional language**."(Sandra Lee McKay, *Teaching English as an International Language*. Oxford University Press, 2002). Therefore, the term **English as an additional language** acknowledges that learners are already competent speakers of at least one home language, it refers to learners whose first language is not English. Learners may be fluent in several other languages and dialects even if they are attending schools whose first language is English.

English as a second language (ELS)

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English as a second language **ELS** is a traditional term for the use or study of the English language by non-native speakers in an English-speaking environment. Also it is a term used to describe English as another language that learners or students trying to take. It come on a second degree after their first language (their mother language) weather it is Arabic, French, Japanese..

English as a foreign language EFL

EFL known as English for speakers of other two or more languages. English learned by a student who speaks more than two languages already. For example, Algeria is a multilingual country with two official languages (Arabic and Berber) from here we can say that English is the foreign language a student can learn.

Arabic was the only and official language in **Algeria** since 1963. Moreover the **Berber**, which has had national language status since 2016. These two languages are the native tongue of over 99% of the population of Algeria.

➤ **Other multilingual countries that English considered as a foreign language**

1. **Moldova** small country with four official languages these are Moldovan, Russian, Gagauz, Ukrainian.
2. **The Netherlands** also has four official languages. These are Dutch, Frisian, Limburgish, and Papiamentu.
3. **Switzerland** with four official languages "German, French, Italian and Romansh."
4. **Serbia** with nine official languages these are Serbian, Croatian, Romanian, Ruthenian, Hungarian, Slovak, Czech, Bosnian, Bulgarian, and Albanian.

Differences between ESL and EFL

ESL and **EFL** are not the same in the context of World Englishes, but they are often considered equivalent otherwise. And even when considered separate, classifying a country or region as ESL- or EFL-speaking is difficult, as Charles Barber explains briefly in the following excerpt.

"The distinction between second language and **foreign language** is not ... a sharp one, and there are cases, like Indonesia, where classification is disputable. Moreover, there is a considerable amount of variation in the roles played by second languages, for example in education, in the fields of discourse used, and in the giving of prestige or power. In India, the medium of instruction in schools was changed from English to the regional languages after Independence, and subsequently there has been a gradual process of Indianization of the universities, which at one time were all English-medium," (Barber 2000).

What is mathematics

The study of the measurement, relationships, and properties of quantities and sets, using numbers and symbols. Arithmetic, algebra, geometry, and calculus are branches of mathematics.

Otherwise, it is an abstract representational system used in the study of numbers, shapes, structure, change and the relationships between these concepts.

Mathematicians know what mathematics is but have difficulty saying it. I have heard: Mathematics is the craft of creating new knowledge from old, using deductive logic and abstraction. The theory of formal patterns. Mathematics is the study of quantity. A discipline that includes the natural numbers and plane and solid geometry. The science that draws necessary conclusions. Symbolic logic. The study of structures. The account we give of the timeless architecture of the cosmos. The poetry of logical ideas. Statements related by very strict rules of deduction. A means of seeking a deductive pathway from a set of axioms to a set of propositions or their denials. A science involving things you cannot see, whose presence is confined to the imagination. A proto-text whose existence is only postulated. A precise conceptual apparatus. The study of ideas that can be handled as if they were real things. The manipulation of the meaningless symbols of a first-order language according to explicit, syntactical rules. A field in which the properties and interactions of idealized objects are examined. The science of skillful operations with concepts and rules invented for the purpose. Conjectures, questions, intelligent guesses, and heuristic arguments about what is probably true. The longest continuous human thought. Laboriously constructed intuition. The thing that scientific ideas, as they grow toward perfection, become. An ideal reality. A story that has been written for thousands of years, is always being added to, and might never be finished. The largest coherent artifact that's been built by civilization. Only a formal game. What mathematicians do, the way musicians do music.

The father of mathematics

Pythagoras (570 –495 BC) was credited with many mathematical discoveries, including the Pythagorean Theorem, the five regular solids, the **sphericity of the Earth** and the identity of the morning and evening stars as the planet Venus.

Archimedes (287-212 BC) is best known for his discovery of the relation between the surface and volume of a sphere and its circumscribing cylinder. He is also celebrated by the story that he determined the proportion of gold and silver in a wreath made for Hieron by weighing it in water. While this could be true, the story that describes him leaping from his bath and running naked through the streets shouting, "I have found it!" is probably a colourful myth.

Egypt and Rome had no concept of zero. Case in point: The year 2020 in Roman numerals is MM XX. It was not until 400 BC that the Babylonians introduced $\Lambda \Lambda$ to denote **an empty place for what became zero**. A millennium later, in seventh century AD, zero appears in an equation as $1-1=0$ in a treatise of Brahma by Brahmagupta.

Some utterances related to math

- Some people think men are naturally more skilled at **mathematics** than women are, do you think so?
- You need to know basic **mathematics** in order to study statistics.
- Asian students generally seem to be well ahead in tests of **mathematics**.
- Recent research suggests that dogs may have a basic **mathematical** ability to count objects.
- **Albert Einstein** was a **physicist**, not a mathematician