Examination

The high school studies in Romania end up with a baccalaureate examination. Students who pass the baccalaureate exam receive the baccalaureate diploma. Only pupils in the technological and vocational branches are required to take additional examination- a qualification examination along with a baccalaureate examination. Students who pass the qualification examination receive a qualification certificate.

Post High-School (Non-University)

Post high-school education is provided through post-high schools. These schools offer professional training.

Duration: 1- 3 years

This form of education is conducted by the technological high-schools. High-school graduates whether they hold a baccalaureate diploma or not ca attend post high school education. Admission to such schools is free.

Specialization Areas: Theology, mechanics, aesthetics and human body health; informatics, agriculture, printing techniques, automation and electronics, food industry, commerce, electro-mechanics, Industrial chemistry, textile and leather industry, forestry, construction materials, manufacture of wood products, public constructions and installations, and tourism and food.

Grading System

Different levels of education in Romania have different grading scales.

Primary Education

Romanian primary schools use a 4-point grading scale.

Grade	Description (In English)	Description (In Romanian)
9-10	Very Good	Foarte Bine (FB)
7-8	Good	Bine (B)
5-6	Sufficient-Pass	Satisfăcător (S)
4 and less	Insufficient-Fail	Nesatisfăcător (I)

Secondary and Higher Education

In lower-secondary, high schools and higher education institutions, a 10-point grading scale is used. The minimum passing grade is 5. There is no 0.

Grade	Description	Equivalent ECTS
10	Excellent	A
9	Very good	A-minus-
8	Good	B
6-7	Satisfactory	C
5	Sufficient	E
1-4	Unsatisfactory	F

Academic Year

The school year in Romania is split up into 2 semesters:

The first semester commences in mid September and goes on until end of January, from kindergarten to high school.

The second semester starts from mid-February and continues until mid June, including 1-2 weeks break in April.

Summer vacations start from mid-June and ends in September.

Each semester is followed by 3 to 4 weeks of examinations.

THE ROMANIAN EDUCATIONAL SYSTEM

Age	Grade	ISCED	Educational levels				Qualification level
> 20		6 / 5	University education				5 / 4
		4	Pre-university/post-secondary school education Non-university Tertiary Education				3
19	XIII	3					
18	XII	3	Theoretical High school	Vocational High school	Technological High school	Technological High school	3
17	XI					Year of Completion	2
16	X	2	Theoretical Education	Vocational Education	Technological Education	Professional School	1
15	IX						
14	VIII	2	Comprehensive Education				
13	VII						
12	VI						
11	V						
10	IV	1					
9	III						
8	II						
7	I						
6	Preparatory Kindergarten	0	Preschool Education				
5	Full-kindergarten						
4	Mid-kindergarten						
3	Beginners-Kindergarten						

Baccalaureate Exam in Romania

High school pupils graduating from a College, Liceu or Grup Şcolar must sit for a National Baccalaureate Exam (In Romanian: Examenul Naţional de Bacalaureat, or bac). The national baccalaureate exam is a highly centralized national examination, and consists of two or three oral exams and four or five written exams, generally extending on the course of one and a half weeks in late June and September.

The examination is supervised by the high school teachers or university professors. Students who wish to enroll in a university are required to take the Baccalaureate exam.

Exam Structure .The National Baccalaureate Exam consists of six exams as follows:

Exam A/1 (Proba A/1)-Romanian Language and Literature (Oral Examination): This exam is an oral exam where the candidate selects a literature subject and a text comprehension subject randomly. Candidates are given 15 minutes to think. This exam is held in front of 3 people and is public.

Duration: 10 minutes

Exam C/1 (Proba C/1): This exam is taken by the candidates whose education is done in a language other than the Romanian, generally in the language of the ethnic group.

Duration: 10 minutes

Exam B (Proba B) - A foreign language (Oral Examination): This exam is an oral exam wherein the candidate is required to select a foreign language from the following options: Russian, English, German, Spanish, French, Portuguese and Italian. The selection of the foreign language is done upon registration for the examination. The candidate is required to select randomly 1 subject with 2 questions- reading comprehension and speaking. A 15 minutes thinking time is given to the candidate to build their answers.

Duration (answering time): 10 minutes

Exam A/2 (Proba A/2) - Romanian Language and Literature (Written Examination): The Exam A/2 is a written exam that comprises of an essay on a literature topic and a text consisting of 10-20 questions. The text-based questions are like to find a metaphor and an oxymoron in the text or comment the following passage in 10 or less lines.

Exam C/2 (Proba C/2): This exam is for those whose teaching is done in a language other than Romanian.

Exam D (Proba D): This is a written examination and consists of a compulsory subject depending on the study programme followed in high school. Candidates who have completed technical or services programme, or real studies can take up math. Candidates who have completed humane studies or vocational studies can select between Romanian History and Geography. However, the difficulty level of the exam varies depending on the academic programme undertaken in the high school.

The exam consists of multiple-choice questions (15%), fill in the gaps (15%) and detailed answers type questions.

Duration: 3 hours

Exam D (Proba D): This is a written exam wherein the candidates can select the subject of their choice from the fields considered as the central part of the academic programme followed in high school. A real studies student can select from chemistry, physics, biology and computer programming; a technical student/railway mechanic can select from mechanical Instruments and machines, physics, technical instruments and measures or railway maintenance; a human studies/languages student can select from Latin or a different language than the one in Exam B.

Students who select basic accounting- services program are required to use an account sheet illustrating the function of each account.

Exam E (Proba E): This exam can be written or practical. Candidates select from the subjects that were taught in high school. A real studies student can select up to 20 subjects, from philosophy to physical education; a student in humane studies/social sciences can select from math to biology as well as physical education.

Candidates can sit for the exams in any language, except for the language exam.

Scoring

A scale of 1 to 10 is being used and each examination is marked from 1 to 10 with 10 indicating the best. Two decimal marking is used for written exams and an integer for an oral exam. Each exam is checked and marked by two separate correctors agreeing on the mark based on a nationwide guideline.

The total mark for the baccalaureate exam is the arithmetic mean average of the 6 or 8 marks acquired. In order to pass, a pupil must get an average score of a minimum 6.00 and at least 5.00 at each of the individual examinations. A pupil who scores 10 is awarded special honors (Absolvent cu Merite Deosebite).

If the student fails in an exam, he/she can retake the exam in which failed. One can retake the exam 5 times.

Subjects

A: Romanian language - oral examination

B: Maternal Language (different from Romanian and studies) - oral examination

C: foreign language - oral and written examination. This exam is graded on the CEFR scale, from A1 to B2

D: Computers-This exam tests the computer skills

Written Exams

Profile	Compulsory Subject	Subject to be Chosen
Theoretical: Sciences	Mathematics	Computer Science, Physics, Biology or Chemistry
Theoretical: Humanities	History	Geography, Logic, Psychology, Economics, Sociology, Philosophy
Technological: Technical	Mathematics	Computer Science, Physics, Biology or Chemistry
Technological: Services	Mathematics	Geography, Logic, Psychology, Economics, Sociology, Philosophy
Vocational: Pedagogy	History	Geography, Logic, Psychology, Economics, Sociology, Philosophy
Vocational: Military	Mathematics	Computer Science, Physics, Biology or Chemistry
Vocational: Other	History	Geography, Logic, Psychology, Economics, Sociology, Philosophy

ABOUT

MATHEMATICS

Even before they learn to speak, children organize their information about numbers, space, and time in much more complex ways than we think. Recent research shows that most 9-month-olds are receptive to concepts such as "bigger as" or "smaller than", but also to the relationships between the number and size of objects. We use quantity information daily to organize our experience of the world from the first months of life. Quantity seems to be a powerful tool for making predictions about how objects should behave, to work. But although numbers and computational operations are essential to our daily lives, we have difficulty understanding mathematics, which we avoid or even refuse since primary school.
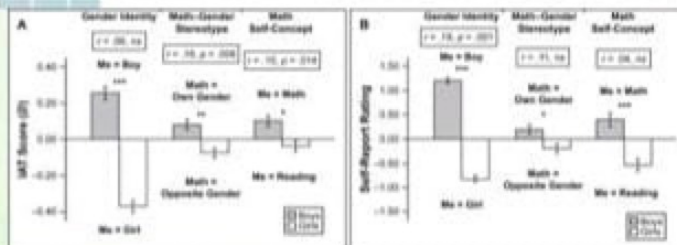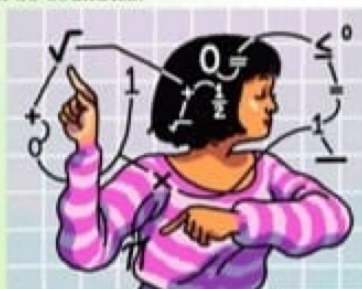
Mathematics for girls and boys

Children often express the stereotype that mathematics is for boys, and Romanian or foreign languages for girls, starting as early as the second grade, applying this stereotype to themselves: boys identify with mathematics, while girls do not. Numerous psychological studies suggest that, as far as girls are concerned, the lack of interest in mathematics would come from a cultural context, leading to the emergence of a cultural stereotype.

Some studies in psychology conducted at Villanova University show that girls are no less inclined towards mathematical skills than boys. But girls' lack of confidence in their own mathematical computing skills explains that they are less oriented than boys towards choosing a career in science, technology or engineering. To demonstrate this result, the researchers evaluated 493,495 students aged 14 to 16 in 69 countries.

Also, another experiment of the University of Chicago reveals that middle school teachers, who have a reluctance to the mathematical sciences, pass on the stereotype that boys, and not girls, do better in mathematics, and girls who subliminally take on these prejudices will no longer excel in this discipline.

This aspect can also be reinforced by the fact that most of the teachers of human sciences are female, and in the real field (mathematics, physics) male.

Math Prejudice

In kindergarten, girls and boys are equals when it comes to working with numbers. But by the second grade, girls have fallen behind.
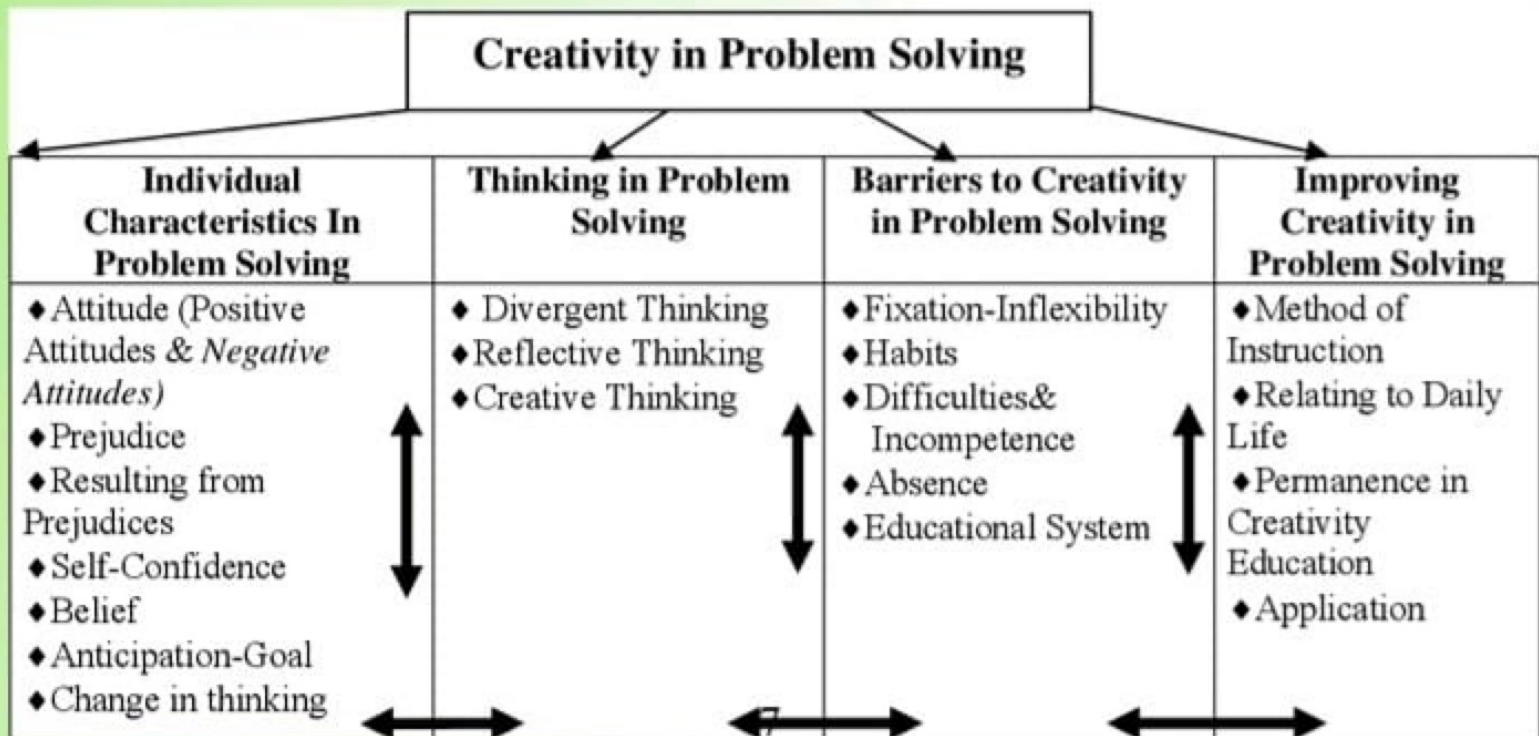

Mathematicians are old and boring.

Math is not for girls.

Mathematicians are unworldly.

Mathematicians are all nerds.

Creativity in Problem Solving

Individual Characteristics In Problem Solving	Thinking in Problem Solving	Barriers to Creativity in Problem Solving	Improving Creativity in Problem Solving
◆Attitude (Positive Attitudes & *Negative Attitudes)* ◆Prejudice ◆Resulting from Prejudices ◆Self-Confidence ◆Belief ◆Anticipation-Goal ◆Change in thinking	◆Divergent Thinking ◆Reflective Thinking ◆Creative Thinking	◆Fixation-Inflexibility ◆Habits ◆Difficulties& Incompetence ◆Absence ◆Educational System	◆Method of Instruction ◆Relating to Daily Life ◆Permanence in Creativity Education ◆Application

Romanian Team

LEARNING MATHS

Mathematics is taught almost everywhere in the world. However, there are some countries that stand out from. This information is based on the Programme for International Student Assessment (PISA). This report measures students´ academic performance in mathematics, science and reading on a global scale. Its aim is to provide useful information so that the countries can compare each other and improve their educational system. This are some of the countries which have higher results: Switzerland, Singapore, South Korea, Japan, Netherlands, Finland...

Math is the same all over the world, because it is a universal and exact science. Nevertheless, it is true that how it is learned can change depending on the country as well as the demand of this science. For example, let's talk about some countries:

● **South Korea**: There, math has a leading role compared to other subjects, using it even as a base for the others, so the level is one of the strictest and best ones. Shanghai Mastery is a very popular method there. There are about 35 students per class in South Korea, so the number is not as important as how mathematics is taught.

Shanghai Mastery:

They focus on just one math concept and do not move on to the next one until ALL children have learned it.

● **Netherlands:** They are another great country for the learning of math, as the Netherlands´s educational system is very practical; it provides knowledge from informal to formal. Moreover, they use the vision of its applications to different problems. The key is that the classes are by levels, not only by age and that in education it is invested more than 41 billion euros!

● **Switzerland**: In order to PISA, Switzerland is on top of learning math in Europe, having a similar level to the Asiatic countries. They are known for their method of explaining math of ordinary life and in a really interesting way. School failure in this country is very low: 5.5%, compared to Spanish one: 28%. Education is completely free, including all school supplies (pens and erasers). Besides, there are approximately 20 students per class.
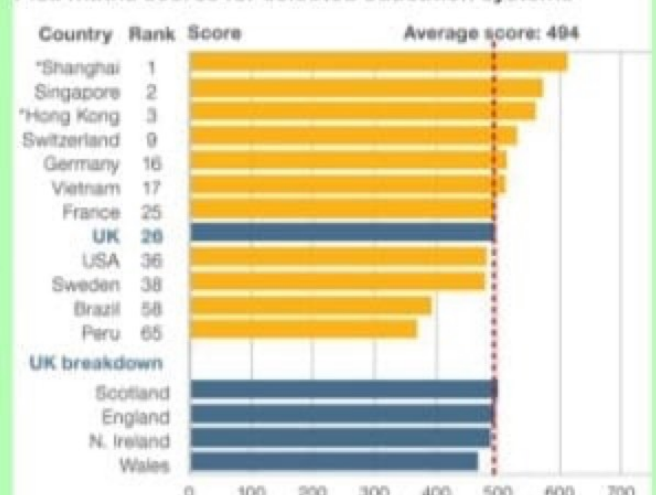
● **Finland**: A secondary school student in Spain receives 1,054 teaching hours each year, 246 hours more than a Finnish, but the difference does not later translate into better academic results. Finland invests 14,636 million of euros in education, while Spain only five million. Another difference is that in Finland there is a maximum of 24 students per class while in Spain there are approximately 30.

Another very effective method used to learn mathematics is the "**card method**" which consists of writing a summary of the class on them, including formulas, definitions, properties, etc. With this method, you unconsciously learn the content of the cards more easily.

Pisa maths scores for selected education systems

Country	Rank	Score
*Shanghai	1	
Singapore	2	
*Hong Kong	3	
Switzerland	9	
Germany	16	
Vietnam	17	
France	25	
UK	26	
USA	36	
Sweden	38	
Brazil	58	
Peru	65	
UK breakdown		
Scotland		
England		
N. Ireland		
Wales		

Average score: 494

Source: OECD

*China does not participate as a country, but is represented by cities such as Shanghai and Hong Kong

Mathematics survey

Students from high school has been asked about what they think and like more about maths. Around 100 students answered the survey, 57% of these students were females and the other 43% were males.

It could be observed that most of the answers where from 2nd ESO and 1st BCH with about 30% each, followed by 1st ESO (16%) and 2 Baccalaureate (10%). These results are interesting as most of the answers where from 2nd ESO and 1st BCH and comparing with other courses is really high, which means that these two have more interest on math's that the other courses.

1.What do you think about mathematics?
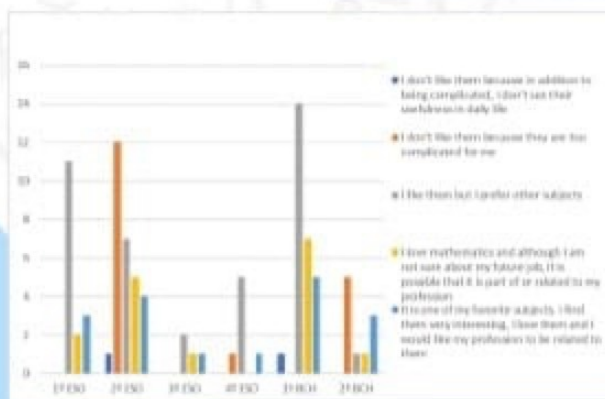
This graph shows the students' opinion about mathematics. It can be seen that most of students like the subject but prefer others. On the other part, this graph also shows that most of students don't like mathematics.

This agrees with the general opinion that students and social media has about mathematics, considering the subject quite difficult, as it is not easy to understand.

2. About the teaching of mathematics in high school...

This second graph shows the answers about the subject in school, and the perception that students have about its way of teaching.

As it is shown, great part of students, specially 2°ESO and 1° BCH, consider that the subject is taught correctly.

This is especially relevant in terms of education quality, as students are happy with their teachers and the way the teach mathematics.
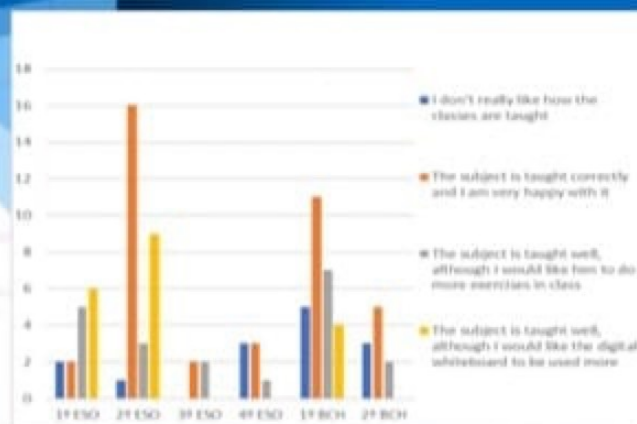
3. Are you having difficulties with mathematics in your course?

This question was taught to improve students reflexing about mathematics, and avoid they fail in the final subject grade. As students have answered, they consider that they can improve their performance in the subject, as some things can be improved and they can keep up with the material.

Answers in 2°ESO need to open a reflection process, thinking why they think that mathematics is more difficult that year

## 4.What topic of mathematics do you like more?

This graph show a great result from all the years, as most of students, no matter their age, consider that arithmetic and algebra is the mathematics topic that they like more.

This can be understandable as they study it every year, getting more confidence about numbers and equations, among others, as years pass.
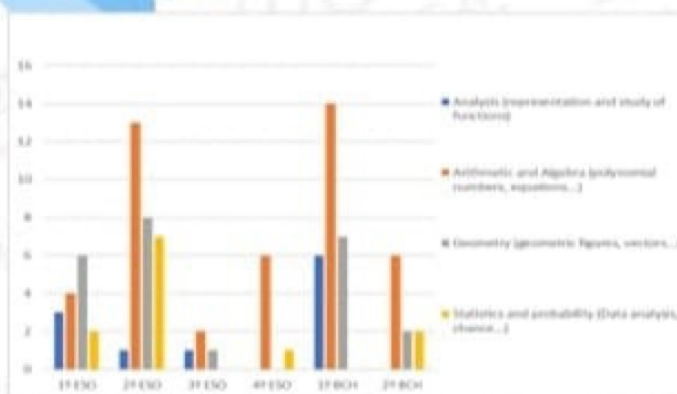

5.The topic that result the most difficult to you
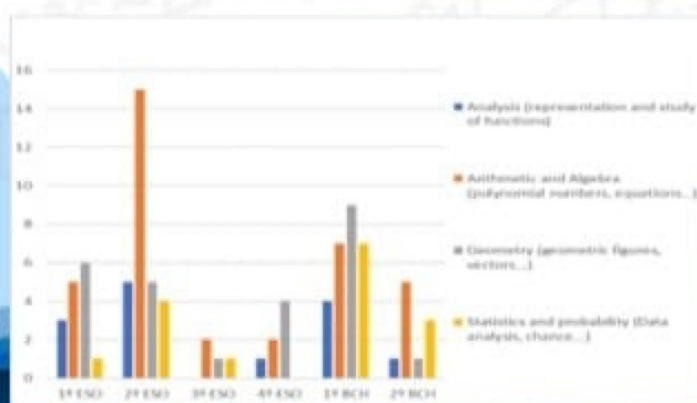
Considering the previous graph and this one, students from 2ºESO and 2º BCH like more arithmetic and algebra, but they also consider it as the most difficult part of math's. On the other hand, 1ºESO and 1º BCH like more geometry, not considering it the most difficult one.

6. Algebra

All groups, no matter their age, don't consider algebra as something difficult. Taking into account the previous graph, it can be concluded that the arithmetic part is difficult for students, making the fail the exams sometimes.
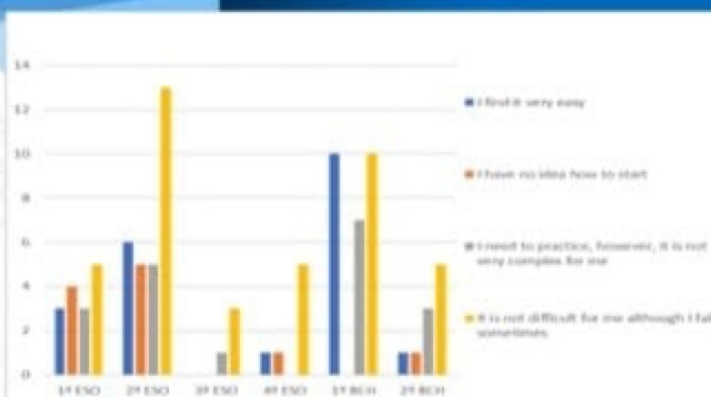

7.Geometry

Regarding the geometry part, not many student think about not having any idea about how to start. On the other hand, and in algebra, they consider that it is not difficult, but it can be tricky sometimes, making them fail some exams.

On the other hand, many students from 1ºESO, 2ºESO and 1ºBCH consider that geometry is easy, in comparison with the other parts of mathematics.
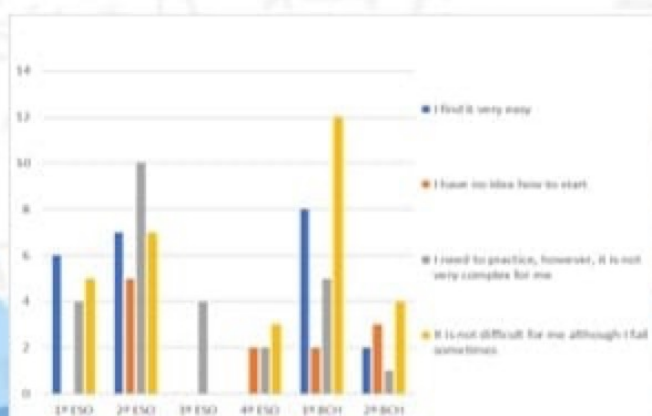
8. Study and representation of functions
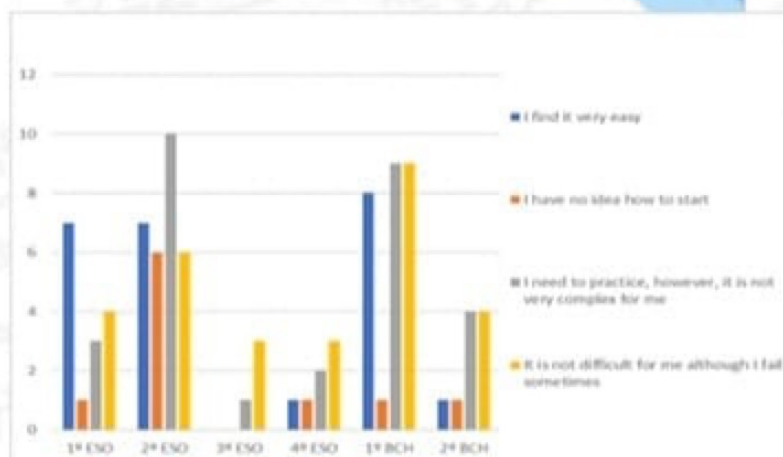
Students normally love functions, and its representations on the plane. This coincides with the results of this questions, as students from 1ºESO, 2º ESO and 1º BCH consider it really easy.

On the other hand, 3ºESO and 4ºESO consider difficult, understandable answers and in the Spanish educational system, functions get really difficult in that years.

9.Statistics and probability

Finally, this graph shows a quite balanced results with almost the same number of votes in the four possibilities.

With the same percentage (24.7%) the students say that the subject of statistics and probability is not difficult for them but they need to practice more. However, 26.8% of the students find the subject easy and 23.7% do not know how to start in this.
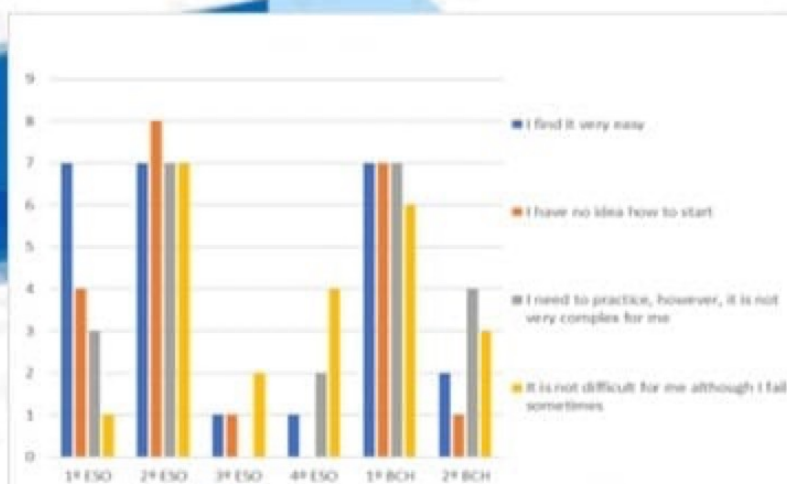
CONCLUSION

As we have been able to observe in the results of the graphs, we can conclude that most people don't really have prejudicies about mathematics, as they think that it is a good subject but at the same time, they prefer other subjects. In addition, our analysis show that students like least the algebra part, while the one they like most is statistics and probability, as it is usually consider the easy part of mathematics.

Prejudices of mathematics

Why do many students hate Mathematics?

According to the mathematician and psychologist Diego Alonso Cánovas, the hatred of mathematics is not something only exclusive to young Spaniards, this is due to a series of factors :

- intrinsic difficulty
- the student is not willing to consume mental energy
- biological reasons
- also one thing that we believe is important is that it is a cumulative subject therefore to understand a new concept you need to have assimilated the previous concepts well

Girls are less good at mathematics

Women are 3.7 times less likely than men to study science, simply because they do not feel capable. This is due to the absence of a discourse that reminds us that men and women are equally capable in terms of intelligence

The data for Spain is also quite revealing. If in 1985 there was practically parity between male and female students enrolled in Mathematics, and even in the year 2000 women represented 60% of the total

Mathematics is useless

FALSE! Obviously, mathematics is useful for many things in life. It helps pupils to be logical, to reason in an orderly way and to have a mind prepared for thought and criticism. For example, did you know that Google uses arrays for its search engine? maths is also used, for example, in medicine, when we use it to reconstruct images of the human body from certain points

Maths lovers are boring people

It is a fact that mathematics is a subject that requires a lot of concentration, hard work and perseverance, but that does not stop anyone from making the most of their free time and enjoying life

You can't be good at mathematics if you're not good at it.

Studies show that being good at math is a matter of hard work as much, if not more, than innate talent.

It is true that some people are good at studying this subject, but to be good at it you have to:

- Attend remedial classes and tutoring
- Take private maths lessons
- Attend revision and remedial courses during the holidays.
- Spend more time revising than watching TV.