



Castilla-La Mancha

CEIP TOMÁS ROMOJARO
Consejería de Educación, Cultura y Deportes
C/ Santo Tomás de Aquino,4 CP.: 45510 Fuensalida
Email: 45000977.cp@edu.iccm.es
Web: ceip-tomasromojaro.centros.castillalamancha.es

Co-funded by the
Erasmus+ Programme
of the European Union

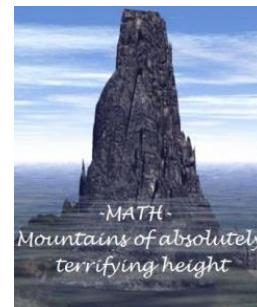


MATH

Mountains of Absolutely Terrifying Height

2017-1-DE03-KA201-035644

VG-IN-NW-17-24-035644



CREATING A DIDACTIC CONCEPT

Taking as reference our normative frame by which regulates the curriculum of Primary Education in Castilla la Mancha (Decree 54/2014, 07/10/2014), and carrying out an analysis of it, we can see how are established some minimum methodological guidelines to carry out the development of basic skills by our students in mathematical skills.

Before entering into the study and analysis of them, we offer some recommendations of how you can carry out the integration of one of the key competences (mathematical competence and basic competences in science and technology) in our curriculum and we present the following scheme



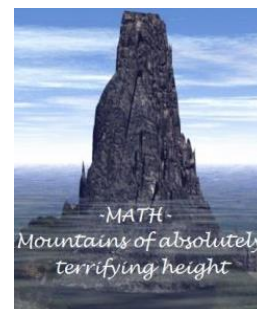
Castilla-La Mancha

MATH

Mountains of Absolutely Terrifying Height

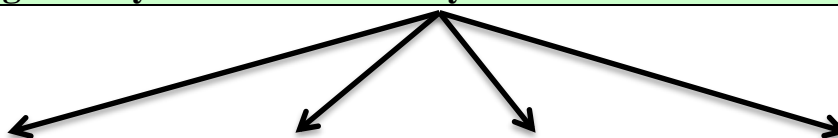
2017-1-DE03-KA201-035644

VG-IN-NW-17-24-035644



Mathematical competence and basic competences in science and technology.

Mathematical competence needs to work four main areas: numbers, algebra, geometry and statistics. They are interrelated as follows.



The quantity	Space and shape	Change and reactions	Uncertainty and data
To quantify the world, it is necessary to understand measurements, calculations, magnitudes, units, indicators, the relative size and the trend and numerical patterns.	Understanding of the perspective, the elaboration, and the reading of maps, the transformation of forms with or without technologies, interpretation of three-dimensional views, construction of form representations	Understand the fundamental types of change and when they take place, in order to use appropriate mathematical models to describe and predict it.	Recognition of the place of processes variation, quantify that variation, the admission of uncertainty and error in measurements and knowledge about chance. In addition, the elaboration, interpretation and evaluation of the results and conclusions

The curriculum guides the methodological work of mathematics from experience, where the learning contents start from what is known, working them from contexts of identification and problem solving. Mathematics must be learned from functional contexts that are related to situations of daily life, so that more complex knowledge can gradually be acquired from previous experiences and knowledge.



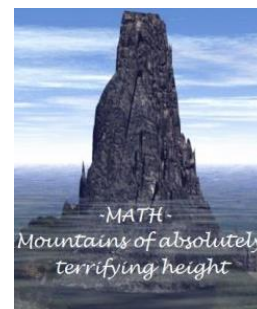
CEIP TOMÁS ROMOJARO
Consejería de Educación, Cultura y Deportes
C/ Santo Tomás de Aquino,4 CP.: 45510 Fuensalida
Email: 45000977.cp@edu.iccm.es
Web: ceip-tomasromojaro.centros.castillalamancha.es

Co-funded by the
Erasmus+ Programme
of the European Union



Castilla-La Mancha

MATH
Mountains of Absolutely Terrifying Height
2017-1-DE03-KA201-035644
VG-IN-NW-17-24-035644



In this way the problem solving processes are the main axis of the area of mathematics being the source and support of the learning of the area throughout the stage of Primary Education. We must understand that from the resolution of a mathematical problem we need and use many of the basic skills that are intended to develop in our students: read, reflect, plan a resolution process, establish action strategies, procedures and revise them, modify the plan if it is necessary, check the solution, create new problems and communicate the results

In order to put these methodological orientations into practice, it is necessary to organize our classroom in such a way that it encourages an active methodology that allows us to carry out cooperative learning through mathematical workshops or small projects with a globalizing and interdisciplinary nature that integrates the contents of all the stage of Primary Education. We must be able to create a mathematical environment where the most important thing is cooperative learning, work by projects and the use of technological means and information and communication technologies as tools in these work

Created the space and the environment to carry out in the mathematical practices with our students, the curriculum guides us in how to carry out the work and development of the problems in the students, so teachers must be aware that solving problems requires the teaching of a procedure that students must acquire and practice from their earliest age. This procedure should include the following steps:

1. Reading and comprehension of the statement
2. Identification of what is asked



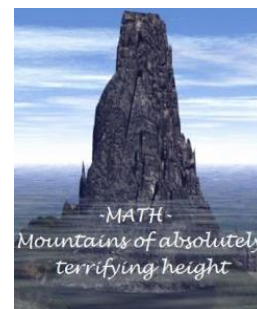
Castilla-La Mancha

MATH

Mountains of Absolutely Terrifying Height

2017-1-DE03-KA201-035644

VG-IN-NW-17-24-035644



3. Search for strategies for resolution
4. Application of the strategies
5. Resolution of the problem
6. Analysis of the results

These steps should be explained orally or in writing during the development of the process using a specific mathematical vocabulary adapted to each situation

These brief reflections are methodological guidelines that are proposed from our normative framework, which regulates the teaching-learning process of students and they are taken into account by teachers who teach math lessons in our community schools.

After years of experience and several studies it has been tested that currently we can talk about different learning processes that are carried out in schools. On the one hand, we find those teachers who direct their teaching from the traditional learning process with the following characteristics:

- The teachers only transmit the information to the students.
- The professor assumes the role of expert or professional authority.
- Teachers organize their exhibitions based on the mathematical contents they want to transmit.
- Students are passive students and listeners of information.



CEIP TOMÁS ROMOJARO
Consejería de Educación, Cultura y Deportes
C/ Santo Tomás de Aquino,4 CP.: 45510 Fuensalida
Email: 45000977.cp@edu.iccm.es
Web: ceip-tomasromojaro.centros.castillalamancha.es

Co-funded by the
Erasmus+ Programme
of the European Union



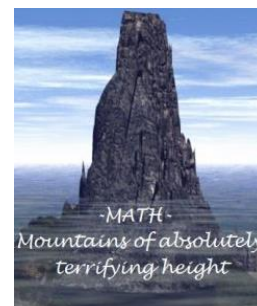
Castilla-La Mancha

MATH

Mountains of Absolutely Terrifying Height

2017-1-DE03-KA201-035644

VG-IN-NW-17-24-035644



- Students work individually (the spatial distribution of the classroom is individualized)
- The teacher's expositions are based on unidirectional communication.
- Learning is individual and competitive.
- Students transcribe, absorb, memorize and repeat information for specific activities such as tests or exams.

This traditional learning process is in the school of the 21st century. Although we must also bear in mind that, currently, there are new educational learning processes that allow teachers to enjoy the methodological guidelines proposed by the curriculum and making students the lead actors of school learning.

After years of experience, analysis and studies of different educational models and currents, a cooperative learning model based on the STEAM is defended, classroom projects that are directed to the disciplines of science, technology, engineering, art and mathematics. Through these multidisciplinary projects students are allowed to incorporate curricular knowledge of these subjects as well as to develop competences, attitudes and specific behaviors such as team work, digital competence, initiative or decision making. Technology is considered as the link between other subjects, on the one hand because projects can be based on creating technology, and on the other hand using it to develop something new and communicating through ICT.

These classroom projects will take into account all the tools and methodologies available in the school and used by teachers and students (gamification, learning-services, robotics, use of social networks, flipped classroom ...)



CEIP TOMÁS ROMOJARO
Consejería de Educación, Cultura y Deportes
C/ Santo Tomás de Aquino,4 CP.: 45510 Fuensalida
Email: 45000977.cp@edu.iccm.es
Web: ceip-tomasromojaro.centros.castillalamancha.es

Co-funded by the
Erasmus+ Programme
of the European Union



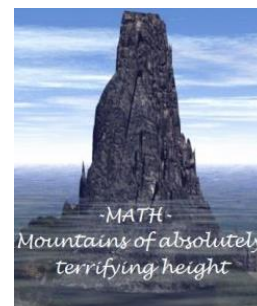
Castilla-La Mancha

MATH

Mountains of Absolutely Terrifying Height

2017-1-DE03-KA201-035644

VG-IN-NW-17-24-035644



In our school, we defend carrying out project-based learning (PBL), which offers the following characteristics:

- Students take the responsibility of learning and creating bonds of links between the teacher and the student.
- Teachers have the role of facilitator, tutor, guide or advisor.
- Teachers design their course based on open problems.
- The teachers seek to improve the initiative of the students and motivate them. They see the students as subjects who can learn individually.
- The students, forming small groups, interact with the teachers who offer them feedback.
- Students work in teams to solve problems, acquire and apply knowledge in a variety of contexts.
- Students interact and learn in a collaborative environment.
- Students actively participate in solving problems, identify learning needs, investigate, learn, apply and solve problems.

In addition to the many advantages offered by these new methodological processes, they also make it easier for us to carry out a completely different assessment than the traditional one. That is, in these new trends the assessment process is a tool through which the student is given the responsibility of assess their learning and training process, enhancing the individualized, qualitative and formative evaluation, that is, the students can evaluate



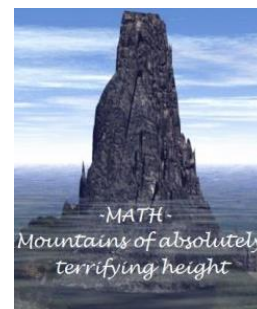
CEIP TOMÁS ROMOJARO
Consejería de Educación, Cultura y Deportes
C/ Santo Tomás de Aquino,4 CP.: 45510 Fuensalida
Email: 45000977.cp@edu.iccm.es
Web: ceip-tomasromojaro.centros.castillalamancha.es

Co-funded by the
Erasmus+ Programme
of the European Union



Castilla-La Mancha

MATH
Mountains of Absolutely Terrifying Height
2017-1-DE03-KA201-035644
VG-IN-NW-17-24-035644



yourself, your colleagues, the tutor, the teamwork process and the results of the process.

We have been trying to work with these new educational practices in our school (two years ago) and now we can talk about very positive results. Our main methodology is “Flipped Classroom” in which students are responsible for their own learning. We take advantage of YouTube channels that present the contents to work and students prepare themselves the contents in their houses everyday. Then, from small and quick assessments made with applications for tablets or smartphones (kahoot, plickers or socrative), teachers detect in which content there is greater difficulty of learning by our students. We take advantage of these deficiencies to reinforce the contents through the presentations in "pptx" or "prize" that are provided to our students. Once we have solved the doubts, the students work in groups of 5/6 carrying out a team work that allows the cooperation and collaboration between them. If some group does not know how to solve some kind of problems, ask the tutor for help, which previously ensures that no one of the group knows how to solve it; then it is the teacher who indicates the way, never resolves the doubt.

Our students can enjoy in their classrooms with the most important and attractive resource: their own Tablet or Smartphone, because they do not use text books in their lessons. From there we put into practice the work with different applications such as paddlet or aurasma, facilitating a greater motivation than the textbook can offer.

The most interesting thing about this methodological approach is that the school must adapt to the evolution of new technologies, it must not be left behind, and it can advance in this society called “technological period” and as



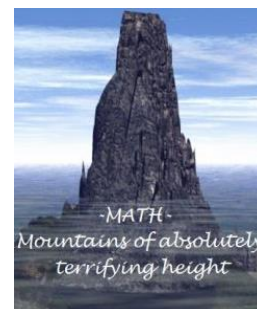
Castilla-La Mancha

CEIP TOMÁS ROMOJARO
Consejería de Educación, Cultura y Deportes
C/ Santo Tomás de Aquino,4 CP.: 45510 Fuensalida
Email: 45000977.cp@edu.iccm.es
Web: ceip-tomasromojaro.centros.castillalamancha.es

Co-funded by the
Erasmus+ Programme
of the European Union



MATH
Mountains of Absolutely Terrifying Height
2017-1-DE03-KA201-035644
VG-IN-NW-17-24-035644



Gerver said (Gerver R., 2014, p.24), "the teacher must interfere less and stimulate more".



Castilla-La Mancha

CEIP TOMÁS ROMOJARO
Consejería de Educación, Cultura y Deportes
C/ Santo Tomás de Aquino,4 CP.: 45510 Fuensalida
Email: 45000977.cp@edu.iccm.es
Web: ceip-tomasromojaro.centros.castillalamancha.es

Co-funded by the
Erasmus+ Programme
of the European Union



MATH
Mountains of Absolutely Terrifying Height
2017-1-DE03-KA201-035644
VG-IN-NW-17-24-035644

