

# LA IMPORTANCIA DE LAS COMPETENCIAS ESPECÍFICAS EN EL NUEVO MARCO CURRICULAR. CONCRECIÓN EN ANDALUCÍA EN LA MATERIA DE BIOLOGÍA Y GEOLOGÍA

## THE IMPORTANCE OF SPECIFIC COMPETENCES IN THE NEW CURRICULAR FRAMEWORK. SPECIFIC COMPETENCES IN BIOLOGY AND GEOLOGY IN ANDALUSIA

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### **Resumen**

Con este artículo, repasaremos las peculiaridades del currículo en Andalucía, detallaremos cómo la estructura curricular, afectará al desarrollo de las programaciones didácticas, a través de un análisis de las competencias específicas de la materia de Biología y Geología de la Educación Secundaria Obligatoria. Las competencias específicas son un nuevo elemento curricular que se presentan como el foco de la programación docente, por ser el punto donde confluyen el reto de

elementos y por ser el punto de evaluación sobre el que se basan las decisiones docentes a nivel de materia.

Por otro lado, veremos cómo la nueva distribución de competencias otorgadas a las comunidades autónomas para el desarrollo del currículo, en la nueva modificación de la Ley Orgánica de Educación ha provocado que las necesidades de asesoramiento a los centros educativos por parte de la Inspección educativa sean dispares en cada rincón de nuestro país, no sólo debido a la diferenciación estructural del currículo en cada uno, sino al distinto grado de autonomía cedido desde la Administración educativa a los centros docentes.

**Palabras clave:** currículo, Andalucía, competencias específicas, Biología y Geología, asesoramiento, distribución de competencias, administración educativa.

### **Abstract**

Through this article, we will review the peculiarities of the curriculum in Andalusia, we will detail how the curricular structure will affect the development of the didactic programs, through an analysis of the specific competences of the subject of Biology and Geology of Compulsory Secondary Education. The specific competences are a new curricular element that are presented as the focus of the teaching program, since they are the point where the challenge of elements converge and because they are the evaluation point on which teaching decisions are based at the subject level.

On the other hand, we will see how the new distribution of competences granted to the autonomous communities for the development of the curriculum, in the new modification of the Organic Law of Education, has caused that the needs of advice to the educational centers by the Educational Inspection are disparate in each corner of our country, not only due to the structural differentiation of the curriculum in each one, but to the

different degree of autonomy granted by the educational Administration to the educational centers.

**Key words:** curriculum, Andalusia, specific competences, Biology and Geology, assessment, distribution of competences, educational Administration.

## 1. INTRODUCTION

Since the publication of the new modification of the Organic Law on Education, Organic Law 3/2020, of 29 December, which amends Organic Law 2/2006, of 3 May, on Education (LOMLOE), at the end of 2020, a multitude of articles have been published on what this new reform implies. During the 2021 academic year, once the new nomenclature of the elements of the curriculum and the new structure that relates them is made public, several authors have detailed how these elements fit and relate to each other, what they mean in the new regulatory framework.

This article aims to take a step further, moving from the theoretical framework to the applied one, and proposes some guidelines to understand and establish the general framework that will help us to program with this new curricular structure, with the already prescriptive competency-based approach that follows the publication of the four Royal Decrees that regulate the general education system, from the Early Childhood Education Stage to the Baccalaureate Stage.

It is important to highlight that, within the margin of autonomy of each autonomous community, differentiating parameters have been established, which will substantially modify the way of programming and planning teaching practice in each part of the national territory.

We will define the curricular structure in Andalusia, its differentiating characteristics, which will have a direct impact when establishing and designing didactic programs in this autonomous community.

In order to understand the new way of programming, it is important to make an analysis, a deeper study of the specific competences, a fundamental element in the new curricular structure, since it is the connection of the competence profiles, that is to say, of the key competences, with the basic knowledge of the subjects.

The specific competencies mark the point of origin from which to start when programming, in the event that a true competency-based approach to teaching is sought.

In this article we will analyze the specific competencies of the subject Biology and Geology at the Compulsory Secondary Education stage.

## **2. A NEW CURRICULAR FRAMEWORK**

At the end of the year 2020, the Organic Law 3/2020, of December 29, which modifies the Organic Law 2/2006, of May 3, on Education (LOMLOE), was published. This new version of the Educational Law aims to modify the organizational and curricular parameters, to guarantee quality and equity in education, while at the same time it involves an update of the educational system and an adaptation of this to the international framework. This law has been developed in the different educational stages, from 4 Royal Decrees published in the first quarter of the year 2022, the Royal Decree 95/2022, of February 1, which establishes the organization and the minimum teachings of the Infant Education, the Royal Decree 157/2022, of March 1, which establishes the organization and the minimum teachings of the Infant Education, the Royal Decree 157/2022, of March 1, which establishes the organization and minimum teachings of Primary Education, Royal Decree 217/2022, of March 29, which establishes the organization and minimum teachings of Compulsory Secondary Education and, finally, Royal Decree 243/2022, of April 5, which establishes the organization and minimum teachings of the Baccalaureate.

The importance of inclusion, of equity, of an education for all, is enacted from the very definition of the curriculum, already in article 6 of the LOMLOE where it is detailed:

### *Article 6. Curriculum.*

*1. For the purposes of the provisions of this Law, the curriculum is understood to be the set of objectives, competences, contents, pedagogical methods, and evaluation criteria of each of the teachings*

*regulated in this Law. In the case of vocational training courses, the learning outcomes shall be considered part of the curriculum.*

In the following section, the need to make the curriculum accessible to all is highlighted; curricular elements cannot, under any circumstances, be a barrier to education and to the development of students.

*2. The curriculum will be oriented to facilitate the educational development of the students, guaranteeing their integral formation, contributing to the full development of their personality, preparing them for the full exercise of human rights, of an active and democratic citizenship in today's society. In no case may it be a barrier that generates school dropout or prevents access to and enjoyment of the right to education.*

These two points of the Organic Law will serve as an introduction, on the one hand, to the new curricular elements proposed in the Royal Decrees of the stages, concretized in Andalusia in a singular way, and on the other hand, to the approach of learning situations as pedagogical proposals based on active methodologies, in which curricular elements are combined precisely to make the curriculum accessible to guarantee inclusion and educational quality, reaching all students through a diversified set of activities, where the DUA guidelines and principles are present, making the curricular elements more flexible and concrete to guarantee the learning of each and every student, regardless of their personal, social or cultural characteristics..

These learning situations, structures, or programming units, where all the curricular elements are related, will be included in the didactic programs, whose regulatory framework has not changed in Andalusia, but not the content of the document that will have to be elaborated under the new curricular parameters and the new methodological and evaluative paradigm.

### **3. CURRICULAR STRUCTURE IN ANDALUSIA**

In July 2021, the Ministry of Education and Vocational Training distributes the drafts of the Royal Decrees, where for the first time, the new curricular reality that will be implemented in September 2022 is stated. It is at that moment, when in Andalusia and in the rest of the autonomous communities, begins to be designed, what will be the prescribed curriculum in the classrooms to develop the provisions of the fifth final provision of the LOMLOE, on the implementation schedule. This provision stipulates that for the 2022/23 academic year, the modifications introduced in the curriculum, organization and objectives of Primary Education, Compulsory Secondary Education, Basic Grade Training Cycles and Baccalaureate must be applied in the odd courses.

The decisions of the Administration must be careful with the margin of competences assigned to it in the Organic Law, so that the minimum curricula established in the Royal Decrees will be completed by the different educational Administrations, as provided for in article 6.4 and 6.5 of the LOMLOE, following the following parameters.

*4. The minimum teachings shall require 50 percent of the school timetables for the Autonomous Communities that have a co-official language and 60 percent for those that do not.*

*5. The educational Administrations will establish the curriculum of the different teachings regulated in the present Law, of which the basic aspects indicated in previous sections will form part. The educational centers shall develop and complete, as the case may be, the curriculum of the different stages and cycles in the use of their autonomy and as set forth in Chapter II of Title V of the present Law. The educational Administrations shall determine the percentage of the school timetables available to the educational centers in order to guarantee the integrated development of all the competences of the stage and the incorporation of the contents of a transversal nature to all the areas, subjects, and fields.*

Under no circumstances can the educational Administration in question invade the competences of the Government, as detailed in article 6 bis on the distribution of competences.

Taking all this into account, Andalusia particularizes its curriculum, both structurally and in terms of contents and values promulgated from the curricular developments, or even through the pedagogical principles established in each of the educational stages.

a. From the structural point of view

In Andalusia, there are two important issues that complete the ministerial proposal and that will affect the design of learning situations and the programs themselves.

The first of these is the proposal of competency profiles for each of the cycles, in the Infant Education stage, for each cycle of the Primary Education stage and for the second year in the Compulsory Secondary Education stage, so that, in each cycle, the teaching teams have a reference for decision making, adapted to the maturational age of the students. These profiles have been created by sequencing the expected performances at the end of the sixth or fourth year of ESO, as appropriate. The performances detailed in the operational descriptors of the ministerial profiles, for example, the Competency Profile for the sixth year of Primary School and the Exit Profile for the fourth year of ESO, have been adapted to each cycle by sequencing and grading them.

In the Primary Education stage, article 14 on evaluation of Royal Decree 157/2022, of March 1, states that "the evaluation of students will be global, continuous and formative, and will take into account the degree of development of key competencies and their progress in the learning processes as a whole". If we pay attention to article 15, on promotion, we read that "at the end of each cycle, the teaching team will adopt the decisions related to the promotion of the students in a collegiate manner, taking especially into consideration the information and criteria of the tutor



and that, at the end of each of the cycles, the tutor will issue a report on the degree of acquisition of the key competences by each student, indicating, if necessary, the reinforcement measures to be considered in the following cycle or stage".

Both for evaluation and promotion, the degree of development of the key competences must be taken as a reference, in Andalusia, this reference is established by the Administration itself, the degree of adequate development of each operative descriptor is indicated in the relevant competence profile.

The same happens with the Secondary stage, in article 15, on Evaluation of the Royal Decree 217/2022, of March 29, in which we can read that "the evaluation of the learning process of the students of Compulsory Secondary Education will be continuous, formative and integrative and that in the evaluation of the learning process of the students, the achievement of the objectives established for the stage and the degree of acquisition of the key competences foreseen in the Exit Profile must be taken into account as ultimate referents, from each and every one of the subjects or areas".

These competency profiles established for each cycle or time period, as is the case of the second year of ESO, will be reflected both in the final cycle reports of the Infant and Primary stages, as well as in the ESO Guidance Council.

Another important novelty in the Andalusian proposal, which will determine the teaching programs, is that the curricular specification proposed in the instructions that develop the curriculum for this year is an annual proposal, so that, although the specific competencies are common for the stages in each area or subject, the evaluation criteria are defined for each course, as well as the basic knowledge. This is proposed for the Primary, Secondary and Baccalaureate stages; however, the Early Childhood Education stage follows the curricular proposal of Royal Decree 95/2022, of February 1,

which establishes the organization and minimum teachings of Early Childhood Education, the curricular elements are presented by cycles.

The specific competencies of each area, subject or field are worked on in a complete manner in each course, through the evaluation criteria that are linked to them and that have been designed by graduating the ministerial evaluation criteria, adapting them to the course and level of development of the capacities that it describes, the expected in that course. The basic knowledge has been linked to the criteria in an orientative and flexible way, so that the relationship can be modified if the teachers so decide.

This annual structure is intended to speed up the implementation of the curriculum, as well as to generate a certain homologation of the educational system in Andalusia, guaranteeing a joint educational response of all schools, regardless of their location or characteristics. The fact of having the proposals already established on an annual basis will facilitate the planning work of teachers, and the fact of being able to distribute the knowledge in a flexible way, and to specify them to their context, will allow an adequate degree of autonomy to the centers to adjust the educational response to their closest reality.

b. From the point of view of content

In Andalusia we have opted to include basic knowledge related to social and environmental sustainability, we have particularized certain basic knowledge that was formulated in a very general way and above all we have included knowledge related to Andalusian culture, *flamenco*, history, customs, the Andalusian social, cultural and landscape environment. All this to comply with our educational law, Law 17/2007, of December 10, 2007, of Education of Andalusia, which in its article 40. Andalusian culture states that "the curriculum should include the presence of content and activities related to the natural environment, history, culture and other differentiating facts of Andalusia, such as flamenco, so that they are known, valued and respected

as our own heritage and within the framework of Spanish and universal culture".

c. From the pedagogical principles promoted

They are the concretions of the principles of the current Organic Law of Education, the LOMLOE, for each educational stage. They are not a curricular element as such, but they are elements that will guide the teaching planning and will have a clear reflection in the teaching program. Pedagogical principles are understood as conditioning factors for the implementation of the curriculum and the achievement of learning. If we pay attention to article 6 of the Royal Decrees on Pedagogical Principles, we conclude that communication, critical thinking, logical-mathematical skills, foreign languages, the grouping of areas or subjects in knowledge areas, measures to attend to diversity, among others, will be the set of actions to be applied in a general way in each area, subject, or field to achieve educational success, equity, and quality of teaching.

In Andalusia, according to what has been determined in the drafts of the Decrees that have been disseminated, the pedagogical principles will be: communication and reading comprehension, orality; work by competencies; integration and use of information and communication technologies; promotion of sustainable development; Universal Design for Learning (DUA); use of emotional intelligence tools; recognition of the importance of the cultural and natural heritage of our community, its history, its landscapes, its folklore, the different varieties of the Andalusian language and the diversity of its artistic manifestations, including flamenco, music, literature and painting, as well as the contributions of its women and men to the construction of the Andalusian cultural heritage.

The development of meaningful projects for students and the promotion of entrepreneurship will also be part of the curriculum development, and finally, the development of activities to deepen the skills and methods of

collection, systematization and presentation of information that strengthen mathematical reasoning skills and abilities.

All of these principles should be taken into account at all stages, with nuances at each level, depending on the maturity level of the students, and should be taken into account in the didactic programs when planning learning situations.

#### **4. PROGRAMMATIC DOCUMENTS IN ANDALUSIA, THEIR MODIFICATION AND GUIDELINES FOR ADVICE**

In the Andalusian community, the normative framework that regulates the specifications of the educational projects, as well as the didactic programs, has not undergone any changes. It is important to point out that in Andalusia we have, as a framework document, the Center Plans, which contain the Educational Project, the Management Project and the Organization and Operation Regulations.

Beyond the change produced in the wording of article 121 of the LOMLOE on the Educational Project, which introduces changes that were already practiced in our community, such as the aspects referring to the Self-Evaluation Report, the wording of the Decrees that regulate the structure and content of the educational programs and projects has not undergone changes and neither have the Draft Curricular Decrees under elaboration.

This does not mean that they should not be reviewed and formulated in the light of the changes proposed in this new reform, not only in the curricular aspects, in their concreteness and contextualization, but also in the promotion of new values, principles, forms of organization, which affect decision-making in aspects such as evaluation or promotion, as well as classroom dynamics.

Before modifying and redesigning the programs, with the new curricular structure, we must begin by reviewing the educational projects, establishing new agreements, new common guidelines, recognizing the pedagogical

principles that must be present in all areas, subjects, or fields, making common methodological proposals, establishing objective criteria that allow us to decide on the evaluation or promotion of students, etc.

The new framework must encompass everything from the beginning, it must start from the beginning with the implementation of these changes, which must be agreed and consensual and always be adapted to the context of each center, so that the decisions, finally, must be reflected in the pedagogical programs or proposals of each cycle or department.

It will be at this point, in the reformulation of the documents where the identity, the purposes of the school institutions are framed, where we must be especially careful, both when advising, on the part of the Educational Inspection, and when designing the educational proposals by the center, which must be suitable to achieve the goals proposed by the educational community, always within the legal framework that is proper to it.

If we pay attention to the regulatory norm, it will be Decree 149/2009, of May 12, which regulates the centers that teach the first cycle of early childhood education, Decree 327/2010, of July 13, which approves the Organic Regulations of the Institutes of Secondary Education and Decree 328/2010, of July 13, which approves the Organic Regulations of the Institutes of Secondary Education and Decree 328/2010, of July 13, which approves the Organic Regulations of the Institutes of Secondary Education, which approves the Organic Regulations of second grade nursery schools, primary schools, infant and primary schools, and specific public centers for special education, which regulate the pedagogical proposals or didactic programs, as appropriate, in our community.

## **5. SPECIFIC COMPETENCES AND LEARNING SITUATIONS IN BIOLOGY AND GEOLOGY. THEIR IMPORTANCE IN DECISION MAKING**

The new curricular structure in particular, and the new educational reform in general, aims at a new way of teaching, based on active student learning, on competency learning, based on performance. Learning situations must be based on previous experiences, be contextualized, and respect the integral development of students in all their dimensions, taking into account their potentialities, interests and needs. All learning situations should encourage students to transfer the learning acquired to the resolution of a problem in their daily lives, and learning situations should be motivating, due to their usefulness and proximity.

In Andalusia, and in neighbouring communities, a series of guidelines have been published with the aim of helping in the design of learning situations. In our region, in addition to the instructions at the beginning of the course where the guidelines to be followed for their design are described, the centers have a digital module, immersed in the center management system, designed by the Administration itself, available to teachers, where learning situations can be generated and shared with all those who use the tool.

The proposal of the learning situation should begin with the choice of the specific competencies to be developed by the students. Once it is clear which dimension of the subject is to be developed, which skill is to be worked on, the rest of the elements of the learning situation will have to be adapted to the specific competencies selected.

We are not going to detail more aspects about the learning situations, but it is important to know that it is in these programming units where the specific competences unfold all their meaning, as we can read in their definition extracted from article 2 of any of the Royal Decrees developing the minimum curricula:

*Specific competencies are performances that students must be able to perform in activities or situations that require the basic knowledge of each subject or field. The specific competencies constitute an element of connection between, on the one hand, the student's Exit Profile and, on*

*the other hand, the basic knowledge of the subjects or fields and the evaluation criteria.*

These specific competencies, their correct attainment at the appropriate grade level for each course or age, will be the reference for making teaching decisions in each area or subject, as stated in article 15. Evaluation of Royal Decree 217/2022, of March 29:

*3. In the evaluation of the student's learning process, the achievement of the objectives established for the stage and the degree of acquisition of the key competencies foreseen in the Exit Profile must be taken into account as the ultimate references, from each and every one of the subjects or areas.*

*4. The integrative nature of the evaluation will not prevent teachers from carrying out the evaluation of each subject or area in a differentiated manner, taking into account their evaluation criteria.*

The key competencies are evaluated, but in their concreteness in the different subjects. The only item that links both elements, the key competencies, and the subjects, are the specific competencies. The fact that they are a reflection of the key competencies in each area is a starting point, a common nexus for decision-making in the teaching teams, which will have to decide whether or not the students are prepared to be promoted or to be promoted on the basis of the degree of development of these competencies.

Reading article 17. Title of Graduate in Compulsory Secondary Education, of the same Royal Decree, we see that:

*1. Students who at the end of Compulsory Secondary Education have acquired, in the opinion of the teaching team, the key competences established in the Exit Profile and have achieved the objectives of the stage, without prejudice to the provisions of article 20.3, will obtain the title of Graduate in Compulsory Secondary Education.*

*2. Decisions on the awarding of the diploma shall be taken collegially by the student's teaching staff. The educational Administrations may establish criteria to guide the decision-making of the teaching teams in relation to the degree of acquisition of the key competences established in the Exit Profile and in terms of the achievement of the objectives of the stage, provided that such criteria do not imply the establishment of the number or type of subjects not passed.*

In these precepts, the need to evaluate key competencies is again emphasized, in this case for obtaining the ESO diploma, in short, in observing the expected performances in each subject, determined in the specific competencies.

This point in common of some specific competences with others is found in the operative descriptors. It will be this point, the degree of development of each descriptor, which will allow the teaching teams to decide, so each teacher will have to obtain the necessary evidence to be able to contrast this data and share this information with his or her colleagues in the center's evaluation sessions.

## **6. SPECIFIC COMPETENCES OF THE SUBJECT BIOLOGY AND GEOLOGY**

Royal Decree 217/2022, of March 29, establishes that this subject, Biology and Geology, will be taught between the first and third year of ESO in alternation with Physics and Chemistry. In Andalusia, it has been chosen, as provided in the joint Instruction 1 /2022, of June 23, of the General Directorate of Educational Planning and Evaluation and the General Directorate of Vocational Training, which establishes aspects of Organization and Operation for the centers that teach Compulsory Secondary Education for the 2022/2023 course, to teach it compulsorily in both the first and third year of ESO.



This implies that, being the specific competences common for the three courses, in Andalusia, we have two different profiles as references, one for Biology and Geology of the first year of ESO, which will have its reference in the operative descriptors of the competence profile of the second year of ESO and another for Biology and Geology of the 3rd year of ESO, which will have as a reference the descriptors of the Exit Profile. The specific competences of the subject Biology and Geology of Compulsory Secondary Education are 6.

#### 6.1. General concepts and relationship to the evaluation criteria

We should remember that the specific competencies are concretions of the key competencies, of the operative descriptors that have been specified for each area or subject. They are the second level of concreteness of the key competencies defined for the subjects.

Each specific competency must have reflected in its formulation some nuance, in the form of performance or context, that links it to the specific operational descriptor to which it is related.

In addition, its formulation must respond to what, how and for what and/or where, of student learning. They are related to the evaluation criteria associated with it, which complete and specify it, being these also formulated as performances with a clear competency approach. The evaluation criteria cannot be separated from the specific competency to which they are linked.

#### 6.2. Specific competencies of ESO Biology and Geology.

In this subject, we find 6 specific competences. We will analyse the first of them, the rest are listed below.

- 1. Interpret and transmit scientific information and data, arguing about them and using different formats, in order to analyse concepts and processes of biological and geological sciences.**

To achieve the correct performance of this specific competence, it is necessary to promote or highlight in the classroom: the importance of scientific development, the need for information exchange, collaboration between individuals, information sharing, data collection and critical analysis. In addition, in order to transmit scientific information efficiently, a critical participation of citizens must be encouraged, it must be made clear that science and technology are the engine of important social changes, that the active participation of students in society increasingly requires an understanding of the latest discoveries and scientific and technological advances to interpret and critically evaluate, in the light of these, the information that floods the media. All this will allow them to draw their own conclusions, make coherent decisions and establish constructive communicative interactions through reasoned and respectful argumentation.

**This specific competency is connected to the following descriptors of the Exit Profile: CCL1, CCL2, CCL5, STEM4, CD2, CD3, CCEC4.**

Throughout the text that enunciates and describes it, the evidence of the 7 operational descriptors with which this competence is linked must be detected.

In Andalusia, in order to evaluate the correct performance of the descriptors through the specific competences, we will have to review which profile should be taken as a reference.

In the first year of ESO, we will have as a reference the descriptors of the Profile of the second year of ESO and in the third year of ESO, as a reference we will have the Exit Profile of the fourth year of ESO.

Let us see if this is the case, if the competency stated has reflections of the descriptors to which they are related:

- A. CCL1, CCL2 and CCL5 are descriptors related to competence in linguistic communication. With the development of this specific competence, students will express themselves, understand and

communicate correctly. These are skills that the student will develop with this specific competency, "to interpret and transmit scientific information and data, arguing about them", so they are clearly linked to the descriptors detailed above. Each of the descriptors that appear in the profiles are detailed below.

Competency profile for second year of ESO	Exit Profile
CCL1. (Profile of second year of ESO). Express him/herself in oral, written, signed or multimodal form, progressively initiating him/herself in the use of coherence, correction and appropriateness in different personal, social and educational environments and participates actively and appropriately in communicative interactions, showing a respectful attitude, both for the exchange of information and creation of knowledge as well as to establish personal links.	CCL1. (Exit Profile). Express themselves orally, in writing, signed or multimodal with coherence, correctness and appropriateness to different social contexts, and participate in communicative interactions with cooperative and respectful attitude both to exchange information, create knowledge and transmit opinions, as well as to build personal relationships.
CCL2. (Profile of second year of ESO). Understands, interprets and evaluates with a reflective attitude oral, written, signed or multimodal texts of relative complexity corresponding to different personal, social and educational fields, participating actively and exchanging opinions in different contexts and situations to build knowledge.	CCL2. (Exit Profile). Understand, interpret and critically evaluate oral, written, signed or multimodal texts of the personal, social, educational and professional fields to participate in different contexts in an active and informed way and to build knowledge.
CCL5. (Profile of second year of ESO). Puts their communicative practices at the service of democratic coexistence, the dialogic management of conflicts and the equal rights of all people, identifying and applying strategies to detect discriminatory uses, as well as rejecting abuses of power, to	CCL5. (Exit Profile). Puts their communicative practices at the service of democratic coexistence, the dialogic resolution of conflicts and the equal rights of all people, avoiding discriminatory uses, as well as abuses of power to promote the use not only effective but also ethical of the different

promote an effective and ethical use of different communication systems.	communication systems.
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B. STEM4. Mathematical competence and competence in science, technology, and engineering. The specific competence 1 of the subject of Biology and Geology, completes this descriptor, related to the use of data, analysis, experimentation, etc. Recall that this competence is "to interpret and transmit scientific information and data, arguing about them and using different formats, to analyse concepts and processes of biological and geological sciences". The descriptor in the two reference levels is detailed below.

Secondary School Profile	Exit Profile
STEM4. (ESO second year profile). Interpret and transmit the most relevant elements focused on the analysis and case studies linked to scientific, mathematical and technological experiments, methods and results, in different formats (tables, diagrams, graphs, formulas, schemes...) and taking advantage of digital culture in a critical way, using the appropriate mathematical language, to acquire, share and transmit new knowledge.	STEM4. (Exit Profile). Interpret and transmit the most relevant elements of scientific, mathematical and technological processes, reasoning, demonstrations, methods and results in a clear and precise way and in different formats (graphs, tables, diagrams, formulas, schemes, symbols...), and taking critical advantage of digital culture and including mathematical-formal language, with ethics and responsibility to share and build new knowledge.

C. CD2 and CD3, the digital competence, also has its reflection in the specific competence 1 of the subject, through its development students will use digital tools, share knowledge, communicate safely and work in collaborative virtual environments.

Profile of the second year of ESO	Exit Profile
CD2. (Profile of the second year of ESO).	CD2. (Exit Profile). Manages and uses his/her

Manage their personal digital learning environment, integrating some digital resources and tools and initiating in the search and selection of information processing strategies, identifying the most appropriate according to their needs to build knowledge and creative digital content.	personal digital learning environment to build knowledge and create digital contents, through information processing strategies and the use of different digital tools, selecting and configuring the most appropriate one according to the task and his/her lifelong learning needs.
CD3. (Profile of second year of ESO). Participate and collaborate through virtual tools or platforms that allow them to interact and communicate appropriately through cooperative work, sharing content, information, and data, to build an appropriate digital identity, reflective and civic, through an active use of digital technologies, performing a responsible management of their actions on the network.	CD3 (Exit Profile). Communicates, participates, collaborates, and interacts by sharing content, data and information through virtual tools or platforms, and responsibly manages their actions, presence, and visibility on the network, to exercise an active, civic, and reflective digital citizenship.

D. CCEC4. The competence in cultural awareness and expressions is reflected in specific competence 1, through descriptor 4, linked to creativity, collaborative work, and personal growth.

Profile of the second year of ESO	Exit Profile
CCEC4. (Profile of the second year of ESO). Knows and is interpreted in the creative use of various media and plastic, visual, audiovisual, sound or body techniques, selecting the most appropriate to its purpose, for the creation of artistic and cultural products both individually and collaboratively and valuing the opportunities for personal, social and labor development.	CCEC4 (Exit Profile). Knows, selects, and creatively uses different media and supports, as well as plastic, visual, audiovisual, sound or body techniques, for the creation of artistic and cultural products, both individually and collaboratively, identifying opportunities for personal, social, and labor development, as well as entrepreneurship.

The same would occur with the rest of the specific competencies. We could analyse and detect the presence of the operational descriptors of the profiles in their design and description.

*2. Identify, locate, and select information, contrasting its veracity, organizing, and critically evaluating it, to solve questions related to biological and geological sciences.*

*This specific competency is connected to the following descriptors of the Exit Profile: CCL3, STEM4, CD1, CD2, CD3, CD4, CD5, CPSAA4.*

*3. Plan and develop research projects, following the steps of scientific methodologies and cooperating, when necessary, to investigate aspects related to geological and biological sciences.*

*This specific competence is connected with the following descriptors of the Exit Profile: CCL1, CCL2, STEM2, STEM3, STEM4, CD1, CD2, CPSAA3, CE3.*

*4. Use reasoning and computational thinking, critically analyzing the answers and solutions and reformulating the procedure, if necessary, to solve problems or give explanation to everyday life processes related to Biology and Geology,*

*This specific competency connects to the following descriptors of the Exit Profile: STEM1, STEM2, CD5, CPSAA5, CE1, CE3, CCEC4.*

*5. Analyze the effects of certain actions on the environment and health, based on the fundamentals of biological and Earth sciences, to promote and adopt habits that avoid or minimize negative environmental impacts, are compatible with sustainable development and allow to maintain and improve individual and collective health, all within the framework of the Andalusian environment.*

*This specific competence is connected with the following descriptors of the Exit Profile: STEM2, STEM5, CD4, CPSAA1, CPSAA2, CC3, CC4, CE1.*

*6. Analyze the elements of a specific landscape valuing it as natural heritage and using knowledge of Geology and earth sciences to explain its geological history, propose actions aimed at its protection and identify possible natural hazards.*

*This specific competence is connected with the following descriptors of the Exit Profile: STEM1, STEM2, STEM4, STEM5, CD1, CC4, CE1, CCEC1.*

From this subject, 24 operative descriptors of the 34 that there are in total in each one of the competency profiles are worked. Seven of the eight key competences are developed, the multilingual competence is missing, and not all the descriptors are worked on, that is, the citizenship competence, the entrepreneurial competence and the competence in cultural awareness and expression would be incomplete.

If an Andalusian teacher had to decide whether a student has passed or failed the subject, he/she would have to determine the optimal development of each specific competency to pass the subject, and in the evaluation sessions, in case of having to make decisions about promotion or graduation (which would not be the case since Biology and Geology is taught in third grade), he/she would have to provide information about the degree of development of the operational descriptors of these competencies, since let us remember that decisions are made based on the degree of development of the competencies. Teachers must have sufficient tools to detect performances, in order to be able to evaluate descriptors; this would be the key to successfully carry out what the regulations promote.

The operational descriptors should be evaluated among all the members of the teaching team, that is the common link, the descriptors of the competency profiles. It is these profiles, the key competencies, detailed in operational descriptors where the connection for collegial decision-making by the teaching team lies.

With respect to the basic knowledge, linked to each specific competency, through the link with the evaluation criteria, they have been divided between

the two courses. It has been decided to separate the blocks of knowledge in such a way that only the one related to procedures and attitudes, the so-called scientific project, coincides, while the rest of the blocks have been distributed between the first and third years of ESO.

In the first year, the cell, living beings, ecology and sustainability and part of the Geology block and in the third year of ESO, the human body, healthy habits and health and disease blocks, as well as part of the Geology block.

## **9. CONCLUSION**

This analysis shows that the new reform, by proposing such an open curricular model, with which the intention has been to transfer more autonomy to the centers, establishing curricular elements minimally and unequally in the different stages, has allowed the autonomous communities to determine small educational systems that bear little resemblance to each other, which makes difficult the task of generating unified or homologated guidelines at a centralized level, both for the elaboration of educational projects and in the concretion of didactic programs. It will be the administrations themselves, with the support of the Education Inspectorate, who will have to specify for each community the guidelines for designing the curriculum in each center, depending on the margin of autonomy determined. This is a great challenge for the entire educational community, for the teachers, for the centers, for the educational inspectorate and, finally, for the regional and national administration itself.

On the other hand, the importance of changing the focus of teaching programming, from programming by knowledge to programming by competencies, is highlighted, all this in order to be able to evaluate and make decisions in accordance with the provisions of the new state and regional regulations.



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