# QUESTIONNAIRES FOR TEACHERS

## PRE QUESTIONNAIRES FOR TEACHERS PARTICIPATING IN STEM ACTIVITIES DESIGNED AND USED BY FLORIDA SECUNDÀRIA & SINS CARDENER



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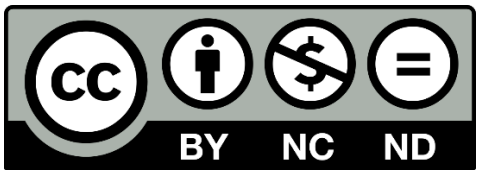




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# PRE-QUESTIONNAIRE

## *QUESTIONNAIRE GUIDELINES*

This questionnaire was used before the implementation of the project of the scientific conference at Florida secundària and SINS Cardener secondary schools. We asked teachers participating in the scientific conference to answer the questions in a sincere and personal way.

The purpose of the questionnaire is to know the opinions of the teachers in order to adapt and improve the training provided in the workshops and assess the impact on their self-efficacy in STEM and knowledge of strategies to raise self-efficacy in teens.

## *IDENTIFICATION OF THE PARTICIPANT*

1. **Mail address**

2. **Full name**

3. **What do you think it means taking into account equity in STEM education? What does it mean? (give examples)**

## *WHAT IMPACT DO I THINK I HAVE AS A TEACHER STE(A)M?*

We speak of the students' STEM stance to talk about the way in which students feel and think about the topics, contents, professions and all kinds of activities related to STEM, as well as the way in which they publicly express their opinions and / or feelings. It has been detected that there are 5 key elements that influence this positioning of students:

- Your interest in STEM
- Your professional aspirations
- Your identity in STEM
- Your STEM capacity
- Your self-efficacy in STEM

In this section we ask that you reflect on your teaching style and look at identifying what influence you think you have in each of these elements.

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**4. In what aspects of STEM stance of students do you think that your teaching style (activities you do, promoted values, etc.) influences more?**

| | What I do in the classroom has no influence | What I do in the classroom has little influence | What I do in the classroom influences moderately | What I do in the classroom influences moderatelly | What I do in the classroom has a lot of influence, but I do not consider it when it comes to planning my activities | What I do in the classroom has a lot of influence and I take it into account when planning my activities |
|---|---|---|---|---|---|---|
| Interest in STE(A)M (e.g. I am not interested in the activity...) | | | | | | |
| Aspirations in STE(A)M (p.e. I decide not to choose the elective of sciences in 4th of ESO) | | | | | | |
| Identity in STE(A)M (i.e. I am a STE(A)M person because I like to disassemble appliances) | | | | | | |

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| Capacity in STE(A)M (i.e. I was able to carry out a search) | | | | | | |
| Self-efficacy in STE(A)M, which corresponds to the belief of the students in their own abilities to carry out a successful task in a successful way (i.e. I think I am not able to solve this problem) | | | | | | |

5. **Give us an example of how you work in the classroom the aspects of the STEM stance of students in which you think you have more influence as a STE(A)M teacher.**

## *STRATEGIES TO PROMOTE SELF-EFFICACY STEM - TEACHING EXPERIENCE*

Self-efficacy (the belief in own capacities to carry out a task in a successful way) is one of the most important elements of the STEM stance of the students, which are often given little attention. In this section we would like to focus on this element and, in particular, on the strategies that exist for working in the classroom. To structure the look, we have grouped these strategies into four types:

- Strategies related to the promotion of self-regulation of students before, during and after the activity
- Strategies related to actions to promote success in learning
- Strategies related to the generation of a positive classroom environment
- Strategies related to the influence of other agents in the educational community

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**6. To what degree have you used any of the following strategies related to the promotion of self-regulation of students before, during and after the activity?**

| | I have never used this strategy in the classroom | I rarely use this strategy in the classroom | I sometimes use this strategy in the classroom | I often use this strategy in the classroom | I use this strategy very frequently in the classroom, but I do not take it into account when planning my activities | I use this strategy very frequently in the classroom and I take it into account when planning my activities |
|---|---|---|---|---|---|---|
| Promote students to be aware of their progress throughout the activity (eg helping them to find themselves, know where they are in relation to the objective of the activity ...) | | | | | | |
| Promote that students develop more efficient strategies to carry out a task (eg help them to make a problem resolution scheme, help them to discriminate the relevant information of the secondary ...) | | | | | | |

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| Promote emotional education (eg help them overcome anxiety before an exam). | | | | | | |

## 7. Strategies related to actions to promote success in learning…

| | I have never used this strategy in the class-room | I rarely use this strategy in the class-room | I some-times use this strategy in the class-room | I often use this strategy in the class-room | I use this strategy very frequen-tly in the class-room, but I do not take it into account when planning my activities | I use this strategy very frequen-tly in the class-room and I take it into account when planning my activities |
|---|---|---|---|---|---|---|
| Classify and sequence the learning objectives and / or the key ideas that want to work in an activity in increasing order of difficulty, establishing an initial level suitable for all students | | | | | | |
| Customize the activity at the various learning rhythms (e.g., | | | | | | |

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| propose different ways in which the same activity can be carried out) | | | | | | |

## 8. Strategies related to the generation of a positive classroom environment

| | I have never used this strategy in the class-room | I rarely use this strategy in the class-room | I sometimes use this strategy in the class-room | I often use this strategy in the class-room | I use this strategy very frequen-tly in the class-room, but I do not take it into account when planning my activities | I use this strategy very frequen-tly in the class-room and I take it into account when planning my activities |
|---|---|---|---|---|---|---|
| Promote cooperative activities instead of competitive activities to promote peer learning | | | | | | |
| Review verbal and non-verbal judgments to emphasize positive messages (e.g., promote optimism) | | | | | | |
| Change the roles of students in the classroom (eg review how roles are shared in a project to break down negative | | | | | | |

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| associations between students and roles) | | | | | | |
| Promote exchanges between peers (eg carry out tutorials of equal to equal) | | | | | | |

## 9. Strategies related to the positive influence of other agents in the educational community

| | I have never used this strategy in the classroom | I rarely use this strategy in the classroom | I sometimes use this strategy in the classroom | I often use this strategy in the classroom | I use this strategy very frequently in the classroom, but I do not take it into account when planning my activities | I use this strategy very frequently in the classroom and I take it into account when planning my activities |
|---|---|---|---|---|---|---|
| Engage students in exchanges or experiences with ste(A)M people who show confidence and ability to adapt to failure | | | | | | |
| Develop confidence in one's own capacity as a teacher, or the | | | | | | |

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| ability of and teaching partners, to influence students | | | | | | |
| Involve families in STE(A)M activities so that their children can show their successes to the family and feel they are valued positively | | | | | | |

**10. After seeing the different types of strategies with which self-efficacy in STEM can be promoted in the classroom, what do you think would require more teaching training?**

☐ Strategies related to self-regulation of students.

☐ Strategies related to didactic actions to promote good learning in STE(A)M.

☐ Strategies related to the classroom environment.

☐ Strategies related to other educational agents.

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## *STRATEGIES TO PROMOTE SELF-EFFICACY STEM - TEACHING SELF-EFFICACY*

**11. How capable do you feel of using these strategies in the classroom, and generate impact on students, regardless of your experience?**

| | Not capable at all | Not capable at all, but I could try it | A little capable | Quite capable | Very capable | Totally capable |
|---|---|---|---|---|---|---|
| Promote students to be aware of their progress throughout the activity (eg helping them to find themselves, know where they are in relation to the objective of the activity ...) | | | | | | |
| Promote that students develop more efficient strategies to carry out a task (eg help them to make a problem resolution scheme, help them to discriminate the relevant information of the secondary ...) | | | | | | |
| Promote emotional education (e.g. help them overcome anxiety). | | | | | | |
| Promote emotional education (e.g. help them overcome anxiety). | | | | | | |
| Classify and sequence the learning objectives and / or the key ideas that want to work in an activity in increasing order of difficulty, establishing an initial level suitable for all students | | | | | | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Customize the activity at the various learning rhythms (e.g., propose different ways in which the same activity can be carried out) | | | | | | |
| Promote cooperative activities instead of competitive activities | | | | | | |
| Review verbal and non-verbal judgments to emphasize positive messages (e.g., promote optimism) | | | | | | |
| Change the roles of students in the classroom (eg review how roles are shared in a project to break down negative associations between students and roles) | | | | | | |
| Promote exchanges between peers (eg carry out tutorials of equal to equal) | | | | | | |
| Engage students and students in exchanges or experiences with STEM / STEAM people who show confidence and ability to adapt to failure | | | | | | |
| Develop confidence in one's own capacity as a teacher, or the ability of and teaching partners, to influence students | | | | | | |
| Involve families in STEM / STEAM activities so that their children can show their successes to the family and feel they are valued positively | | | | | | |

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## *GENDER IN STEM*

In the field of the promotion of equity and a suitable STEM position, several issues associated with gender have been identified. Here are some possible options and we ask you to check the box that you think appropriate, depending on the degree of knowledge / experience you have before these problems.

**12. To what extent do you know (did you get information, did you see it in your classroom, ...)?**

| | Not at all | Very sligh-tly | A little | Pretty much | A lot | Very much |
|---|---|---|---|---|---|---|
| The girls feel less involved in science classes than boys. | | | | | | |
| Interest in STEM is decreasing throughout the school, especially pronounced in girls. | | | | | | |
| In post-compulsory studies, girls are focused on health, biology and medicine, and boys on communication technologies, physics, engineering ... | | | | | | |
| Girls see that their female identities are incompatible with the dominant stereotype of scientist as a man. | | | | | | |
| Given a difficulty, the girls are discouraged from the STE(A)M more than boys. | | | | | | |
| Given a same academic outcome, girls appreciate their performance worse than boys. | | | | | | |
| The perception of self-efficacy (beliefs about one's own abilities) is lower than their real ability, especially in girls. | | | | | | |

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|---|---|---|---|---|---|---|
| The girls are more modest and the boys are getting more up to themselves in the academic field with similar achievements. | | | | | | |

**13. Choose the issue or issues of gender in which you think that you address more in your day to day as a STE(A)M teacher and explain how you work or do it.**

## *PERSONAL AND PROFESSIONAL DATA*

Remember that we will always maintain the confidentiality of the data.

**14. Provide your gender**

- ☐ Male
- ☐ Female
- ☐ Other

**15. What are your initial studies?**

- ☐ Scientific field (Biology, Environmental Sciences, Geology, Physics, Chemistry)
- ☐ Mathematical field (Mathematics, Statistics)
- ☐ Technology area (Computer engineering, Industrial engineering, Communications engineering ... etc.)
- ☐ Social sciences (Geography, History, Economics, Psychology, Anthropology, Communication Sciences, Pedagogy ...)
- ☐ Linguistic scope (Philology ...)
- ☐ Artistic field (Music, Fine Arts ...)
- ☐ Physical education (INEF, CAFE ...)
- ☐ Area of culture and values (Religious Sciences, Philosophy)
- ☐ Other

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**16. What is your experience as a teacher?**

☐ Between 1 and 5 years

☐ Between 5 and 10 years

☐ Between 10 and 15 years

☐ More than 15 years

**17. What is your teaching experience with STE (A) M projects?**

☐ Less than one year (it is the first year)

☐ Between 1 and 2 years

☐ Between 3 and 5 years

☐ Between 6 and 10 years

☐ More than 10 years

**Thank you for your answers!**

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