

SYSTEMIC

SAY YES TO STEM IN THE CLASSROOM



Professionals Go Back To School Scheme

A Guide For Companies





Authors: Yvette Sweringa, Caterina Agnoletti

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Collaborators: Maïté Debry, Àgueda Gras-Velázquez, Evita Tasiopoulou, Viola Pinzi

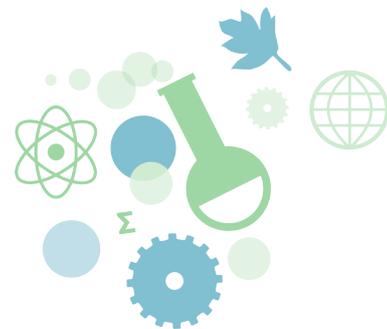
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SYSTEMIC: The overall objective of the SYSTEMIC project (“Say Yes to STEM In the Classroom”) is to increase young Europeans’ interest in maths, science, engineering and technology education and careers and to provide teachers with the appropriate pedagogical tools to enable them to teach STEM topics differently and in a more attractive way.

STEM Alliance: The STEM Alliance – inGenious Education and industry, brings together Industries, Ministries of Education and education stakeholders to promote Science, Technology, Engineering and Math education and careers to young European’s and address anticipated future skills gaps within the European Union. With the support of major industries and private partners, the STEM Alliance promote STEM jobs in all industrial sectors and contribute to build a STEM-skilled workforce. The STEM Alliance will join forces to improve and promote existing industry-education STEM initiatives (at national, European and global levels) and contribute to innovation in STEM teaching at all levels of education.

Introduction:

The “STEM Professionals Go Back To School” scheme is a [STEM Alliance](#) programme to engage company professionals (technicians, scientists, engineers, researchers or employment and recruiting managers) to visit schools and participate in collaborative activities with them. The aim is to close the gap between industry and education sectors, to raise pupils and teachers’ awareness on STEM careers and to promote STEM jobs.

The programme is taking place in spring 2017 with a peak of activities around the annual STEM Discovery Week, from the 24th to the 30th of April!

SYSTEMIC, funded by the Erasmus+ Programme of the European Union, is supporting this scheme by providing two guides, one for schools and one for companies interested in organising and carrying out school visits. The guides provide information, advice and useful tips that both parties can take into account before, during and after their collaborative activities. By doing so, schools and companies will collaborate constructively into organising visits and activities that will promote collaboration between the respective school and industry plus raise students’ awareness on STEM careers and future STEM jobs. The two STEM Professionals Go Back to Schools guides constitute Intellectual Output 6 of the Systemic project.

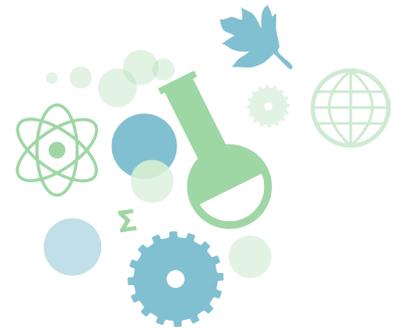
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Introduction to Professionals Go Back To School



Professionals go back to school is about Science, Technology, Engineering and Mathematics (STEM) professionals from companies (e.g. technicians, scientists, engineers, researchers or employment and recruiting managers) going to schools to talk about their job and experiences to the students. The purpose of these visits is to inspire young students about possible careers in STEM. In order to help the companies prepare for such a visit, we have put together this guide which includes advice and tips that will help you make the most out of this experience, before, during and after the visit. The schools will receive a similar guide for preparation.

Context – why is STEM so important?

Science, Technology, Engineering and Mathematics (STEM) skills are essential for maintaining an innovative, sustainable and competitive workforce in Europe. The business world is changing with an ever increasing speed and the need for STEM skills in the labour market is growing every year. The problem however is that growing demand is not met with a growing supply of STEM skilled youngsters. Many students, and in particular women, are not choosing a career in STEM, resulting in a skills gap. In addition there is little to no dialogue between companies and schools and they seem to operate on different worlds. The STEM Professionals Go Back to School campaign is a step to build a bridge between the two worlds and facilitate future alignment between them.



What is a STEM profession?

STEM professions include all jobs related to Science, Technology, Engineering and Mathematics such as the technician, scientist, engineer, researcher or employment and recruiting manager.

Examples: Aerospace Engineers, Astronomers, Applications developer, Geologist

Part 1 - A practical guide for companies in 5 simple steps

(click below to jump to a specific step)



Step 1 - Preparation

Who should be involved within the company?

Identifying clear roles and responsibilities will help ensure the effectiveness of the visit.

- **The contact person.** This person will be in charge of keeping the contacts with the school and suggest and/or support the relevant STEM professional. Ideally this person should be the HR manager as he/she might easily identify the right professional. It can however also be the professional directly
- **The visiting STEM professional.** The ideal candidate would fulfill the following criteria, but keep in mind that these are just suggestions and may not fully correspond to your profile:
 - He/she works in STEM or knows about STEM profiles in demand
 - He/she is young and/or can relate to the students
 - He/she is passionate about his/her job
 - He/she is a good communicator and can present his/her job in a simple and engaging way

In order to break stereotypes and motivate young students they need to be able to see themselves as STEM professionals. These requirements are therefore very important as they would help the professional to connect with the students and vice versa. The stereotypes related to gender are also strong when it comes to STEM careers; companies should try to have a balance in terms of women and men engaging in this activity to make sure girls can identify with female role models.

Step 2. Align expectations with the school

Contact with the school – defining objectives

- At least two weeks in advance you will have a call with the contact person in the school to align on the objectives, the content and the practicalities of the visit.

Objectives and content

- Agree with the school on a simple set of objectives which should cover at least these three areas:
 - Desired outcomes
 - Key learnings for students
 - Presentation
 - Duration
 - Content (ideally there should be a link with the curriculum)
 - Questions to expect

Practicalities

Agree on the timeline and logistics needed for this visit. Don't forget to:

- the school will prepare an agenda for the day and should send this to you at least two weeks before the visit. Take the time to go through it. Schedule a call to go through the agenda and discuss details of the visit (presentation/practical activity)
- Check with the school for any supporting equipment (if needed)
- Discuss with the teacher the follow up of the event (e.g. evaluation process and next steps such as a second visit to the school or to the company)

Step 3. Prepare your presentation

What to talk about & how to prepare yourself

The content of the visit should be aligned with the objectives agreed with the school. Ask the school to help you with the activities, they are the experts.

Ask yourself:

- What is the goal of STEM Professionals Go Back to School?
- This is particularly important to be sure that you contextualize your visit and fully understand why you are there.
- What will I talk about and how should I structure my presentation?
- Consider including a brief introduction of your company, description of your current job but also of how you got there (from school to work).
- Who will be my audience (e.g. Primary school students? Secondary school students?) and what is their knowledge of your job field?
- What will they expect from me?
- How long should my presentation be to avoid losing attention?
- What kind of questions should I expect? (see some examples in the right pane above)

Examples of questions

- What kind of education should someone have to follow your profession?
- How much free time do you have?
- Is your job stressful?
- Why do you like your job?
- Do you earn a lot?
- Is there a difference between men and women in your job and in your company?
- Do you have a family?
- Does your job affect your private life?
- What a typical day in your office is like?
- What kind of technical skills does your job require?
- When did you know that this was the direction you wanted to follow?

Do

- Show a clear link between your job and STEM subjects. E.g. if you were passionate in mathematics at school and now you develop software, how do you apply mathematics to your job?
- Use some real examples of your daily activities to support your story i.e. a specific episode or even a practical exercise that might reproduce what you do in your job
- Be aware of unconscious biases on gender (for more information see appendix)

Don't

- Go too much into details - you will be able to catch student's attention only with a short but effective presentation
- Do not try to sell your product/service. You are at school firstly to share your professional experience in STEM, only secondly as an employee of your company

Step 4. Go back to school

What to expect

After a long time away from school you may need some time to get back in tune with the school environment and better understand your role and your audience. Remember that:

- You will be talking to students between 6 and 18 years old (clarify exact age upfront)
- Normally, if involved in practical exercises, students are more likely to understand the purpose of the meeting and to actively participate.
- You are dealing with young students. Therefore always keep in mind that your behavior will influence them.

Flow of the visit (proposed agenda)

AGENDA ITEM	TIME
Welcome and presentation of the speaker (by teacher)	10 minutes
STEM professional presentation: <ul style="list-style-type: none">• Presentation of company• Description of job	15-20 minutes
Role play/practical activity with the students	50 minutes
Q&A	30 minutes
Wrap-up and conclusion	10 minutes

Communicating with the teachers and students

Teachers

Teachers play a key role during the visit as they know their students and how to better communicate with them. The teacher will guide and support you on the day of the visit. Therefore, it is important that you discuss with him/her the details of your visit beforehand in order to be prepared and clarify the expectations from both sides.

Students

Try to go back to your years at school and to place yourself into the shoes of a student. What would you like to know about a job & career?

Students will not just ask questions related to your career (e.g. your studies and previous professional experiences, why you chose that job, etc.). Expect also questions related to your salary, your family, your work/life balance, etc.



Step 5. After the event: Evaluation & Follow up

Evaluation, Measurement & debrief

After the event, the contact point ensures to follow up and asks for feedback. This ideally is done through:

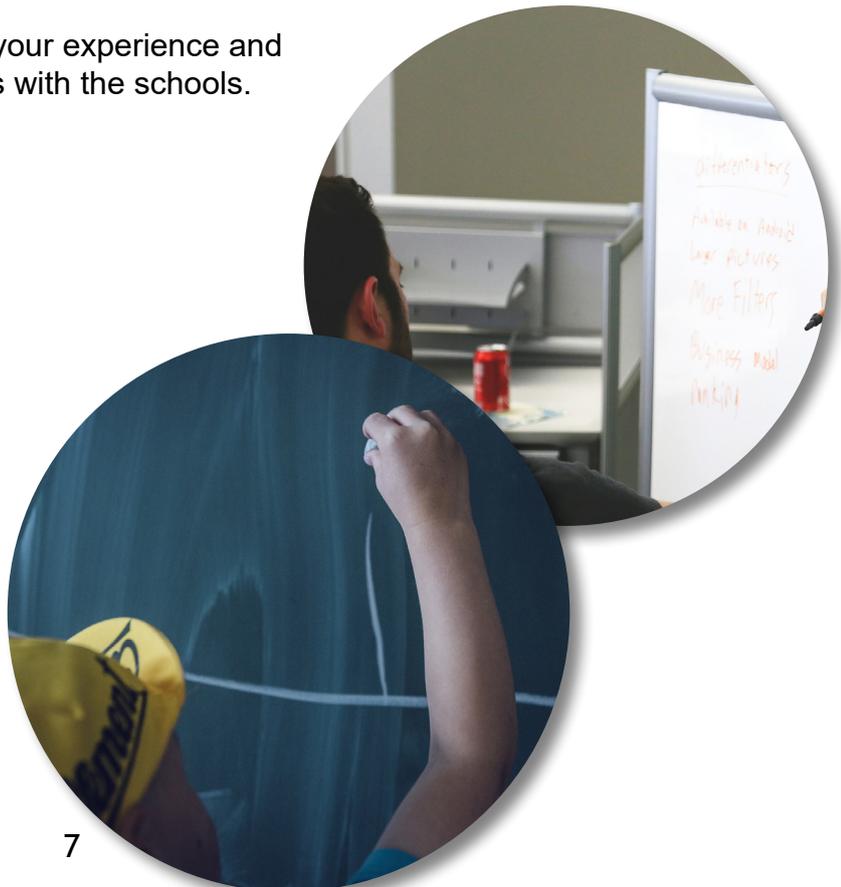
- Evaluation form (for students) previously prepared and distributed to the students at the end of the visit. The form is provided on the PGB2S page (www.stemalliance.eu/pgbs) and contains a number of questions to assess and measure the level of satisfaction of the event in terms of structure and lessons learned by the students.
- Debrief call to further discuss the feedback and agree on next steps (e.g. planning a site visit).

Communication

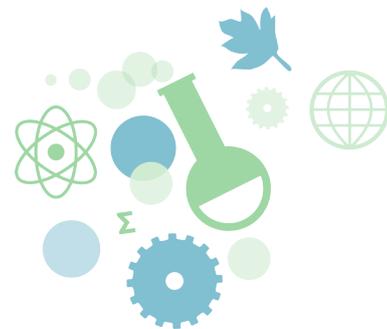
- Share your experience on the social media (e.g. Facebook, Twitter, etc.) to get more professionals on board. You can use the links of the [STEM Alliance](http://www.stemalliance.eu) and the official hashtag for the STEM Professionals Go Back to School campaign #PGB2S.
- N.B. Pictures where students can be identified and other materials containing information about the students are subject to privacy protection laws as they are considered personal data. As such, always check with the school and your regulatory affairs department how to manage these data before utilizing them on social networks or the company website.

What's Next

- Follow up on what you agreed during the debrief call.
- If you plan to have a second visit to the school or to organize a visit to your plants, try to propose already some dates and keep the contacts with the school. Ideally, the date for the second visit should not be too far as this would help leveraging the learnings of the first visit to bring further the discussion.
- Continue to use the PGBS tool to share your experience and participate in other collaborative activities with the schools.



Part 2 - Get Inspired: Best Practices



For your inspiration, find below some examples of successful projects between businesses and schools:

Recordings and summary articles of webinars and chats from the STEM Alliance with professionals talking about their career.

- **STEM Alliance Webinar:** Perspectives on STEM and Energy careers. Read the article and watch the recording of this webinar to see how company professionals talk with teachers about their careers:
 - Wouter Bleukx, BU Manager Organic Chlorine Derivatives at INOVYN, Chairperson of the Young EPCA Think Tank.
 - Harbinder Bhanvra, Business Manager Olefins & Gases at SABIC, member of the Young EPCA Think Tank.
 - Annemiek Mensert, Reservoir Engineer at Shell E&P.
 - Link: <http://www.stemalliance.eu/webinar-2-after>
- **STEM Alliance Webinar:** Careers to shape the future of technology: Read the article and watch the recording of this webinar to hear two professionals discuss their careers and the link to developments in technology:
 - Nuria Llin, Manager for Texas Instruments University Program in Europe, Middle East and Africa.
 - Stephan Griebel, Director for Business Development and Alliances Europe for educational solutions for inquiry based learning in K-12 at Texas Instruments Education Technology.
 - Link: <http://www.stemalliance.eu/webinar-3-after>
- **Chemistry & Supply Chain:** A Chat on Careers: Read the article and watch the recording to learn more about this Chat organised in collaboration with EPCA (the European Petrochemical Association) with experts in the field talking about their careers to school children.
 - Michael Koch, Head of Safety, Health, Environment & Quality (SHEQ) & Training, BERTSCHI.
 - Christoph Girmann, National Operations Manager Netherlands & Germany, AGILITY LOGISTICS.
 - Link: <http://www.stemalliance.eu/chat-1-after>

Experience of an IBM professional who went back to school to engage with children through a [programming and robotics club](#).

“Projects like these have pushed the children out of their comfort zones to become mini project managers, analysts and programming whiz kids. They’ve learned skills that help them function successfully in a world rapidly becoming digitized and technologically complex”

Sally Jones, Availability Manager at IBM

Other resources:

Female surgeons, firefighters and RAF pilots meet primary school pupils: <http://www.dailymail.co.uk/femail/article-3606869/Children-stunned-meet-female-firefighters-surgeons-RAF-pilots-drawing-MEN-doing-jobs.html>

Resources

Pre-visit Checklist

Use this pre-visit checklist as a way to help keep yourself and your school organized as you are

Have you appointed a contact person from the company as responsible for the visit?

Has the objective of the visit been discussed and agreed upon with the school?

Have you registered your upcoming event/visit in the PGBS tool?

Have you agreed on supporting equipment (e.g. projector, laboratories, etc.) with your school?

Have you developed your presentation and discussed interactive activities with the teacher?

Have you checked with the school whether you need insurance or fill in consent forms for the visit?

Have you agreed on how to follow up after the visit?

Code of Conduct Checklist

Do not use inappropriate words

Be aware of gender unconscious biases (see appendix for more info)

Do not bring drugs or alcohol (smoking is also not permitted)

Avoid personal relationships (if a personal relationship already exists, please report it in advance)

Do not seek financial gain

Do not publish pictures on social media without having the consent of students' parents

Respect data privacy and confidential information

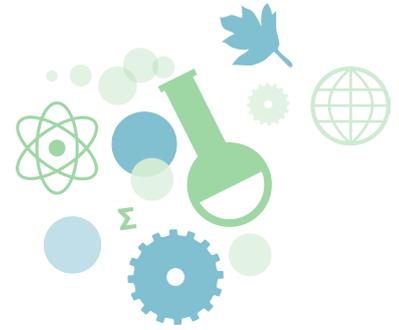
Appendix

Code of Conduct Checklist



Avoiding unconscious biases on gender

- Always use “he/she” when writing or talking about a professional in STEM
- Stress the role of both women and men in your company
- When using videos or images of STEM professionals find a balance to include both men and women
- Useful resources about unconscious bias on gender:
 - [Gender-Career Implicit Association Test](#)
 - [Huffington Post article](#) on unconscious mind-sets
 - [Harvard Business Review article](#): The 5 Biases Pushing Women Out of STEM



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