



EURO4SCIENCE

Exploring science and transdisciplinary learning through forensics

GUIDELINES FOR CSI_ENCE ENGAGING ACTIVITIES

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EURO4SCIENCE: EXPLORING “CSI EFFECT” AND FORENSIC SCIENCES TO BOOST THE APPEAL OF SCIENCE TO YOUNG PEOPLE AND REINFORCE INTERDISCIPLINARITY IN EUROPEAN HIGH SCHOOLS

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1. INTRODUCTION

The EURO4SCIENCE project aims at providing European schools with innovative practices, tools and methodologies, by engaging teachers and pupils of different ages and countries in exciting activities connected to the “CSI Theme”. The project produced two main outputs based on this theme: a **Forensic Science Education Toolbox** (with materials and activities for teachers and students); **CSI weeks** (events in schools with a range of activities engaging the whole learning community).

During the project, three **CSI weeks** were organised in Portugal, the UK and Bulgaria respectively. The CSI weeks had programme with different activities including: sharing experiences of Educational Forensic Science Projects; presentation of “CSI cases” and development of activities around them; bioethical debates; conferences and debates with teachers, students, and other stakeholders/organisations; Science fair, etc. For the preparation of the CSI weeks, two main documents were produced: in an early stage of the project, partners developed the **CSI_ENCE@SCHOOL COLLECTION**, with a list of activities that could be part of the CSI weeks; months later, a marketing strategy for the CSI weeks was developed to support the organisation and implementation of these events. These results produced in EURO4SCIENCE can be consulted in the project website www.euro4science.eu. The entities that wish of organize a CSI week, can contact the EURO4SCIENCE partners for advice.

The present document, **GUIDELINES FOR CSI_ENCE ENGAGING ACTIVITIES**, was produced based on the experience and feedback from the CSI weeks, as well as the content of the above-mentioned documents. The document can be used as guide especially for schools that want to organize this CSI Weeks or similar events in their cities/countries. Potential host organizations (schools) will find specific activities that can be carried out during the CSI week, the objectives to be achieved, the students and teachers to be involved, useful tips for the organization of the events and other relevant information.

It includes the following contents:

- Presentation of the CSI Weeks, their main goals and target groups
- Suggestions of activities for the CSI weeks
- Preparation of the CSI week, including strategies for CSI week Marketing Campaign
- Implementation and assessment of the CSI week

In attachment, several materials are provided (e.g. examples of programmes and infopacks of the CSI weeks, ideas for fiction stories and CSI cases) that can be used as inspiration and support to organise CSI weeks or similar events.

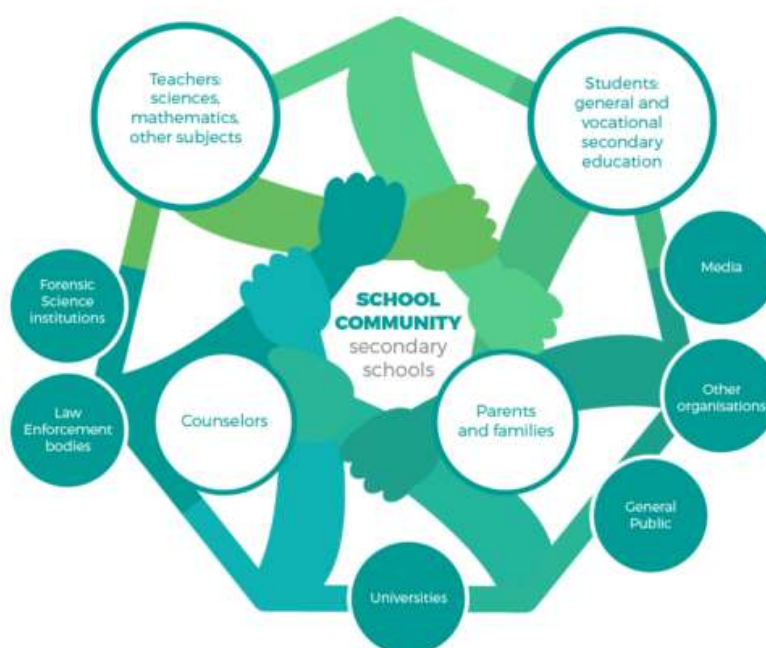
2. WHAT IS A “CSI WEEK”?

The CSI weeks (and other results of the EURO4SCIENCE project) have a much wider and ambitious objective than promoting the learning of sciences through innovative methods. In fact, we believe that these activities can help to combat early school dropout, as they take place in High Schools (secondary schools) and may involve students of different ages: students between 14 and 16 years old can be asked to carry out activities directed to younger students (11-13 years old), as younger students tend to use the older ones as “role-models”. With this methodology, not only high school students take an active role in the implementation of the CSI week, but they have a decisive influence in motivating younger students to scientific subjects, hence deviating them from potential early dropout.

2.1. CSI WEEK TARGET GROUPS

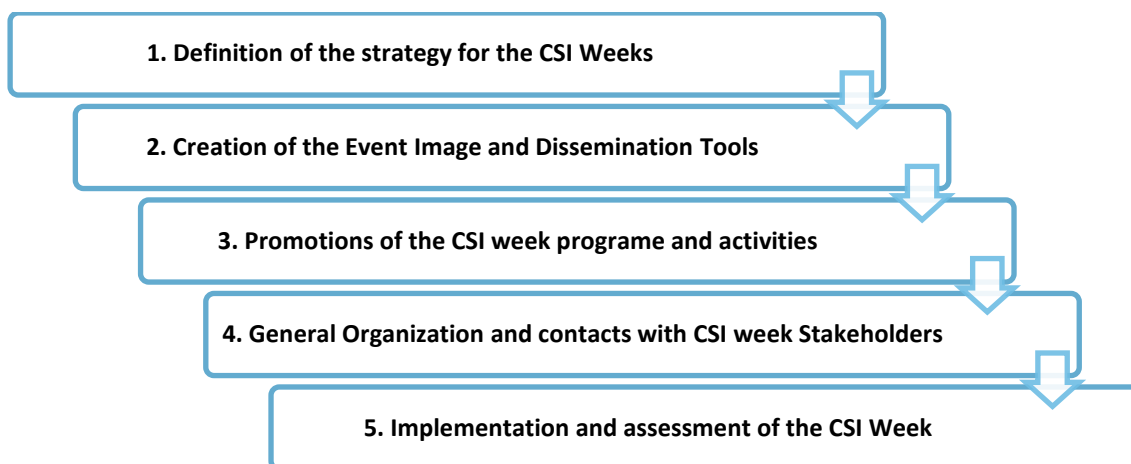
The CSI Weeks main target groups are teachers and students. However, as described in the table below and the picture thereafter there are different levels of involvement/interest to various other groups.

Main groups	Description
European teachers of sciences	Teachers of natural sciences namely biology, chemistry and other subjects, especially those of secondary schools
European students	Students from general and vocational education, not only those studying sciences but also other fields such as arts and social sciences (age of 16 years as a reference).
Other groups	<ul style="list-style-type: none"> - Other members of the school community (e.g. counsellors, parents and families) - Universities (e.g. Educational Departments), will be invited to monitor the project. - Law Enforcement and Forensic Science institutions, who will be asked to collaborate adding a professional point of view. - Local /national media - Public at large



2.2. MAIN STEPS OF THE CSI WEEK

The organisation of a CSI Week involves several stages as described in the figure below:



1 – The first step is related to the whole structure of the initial idea we have for CSI Week. At this stage we start working on the initial logistics issues, as the definition of the organizing team, date and place to hold the event.

2 – The second Step has to do with the definition of the strategy to be implemented, including the marketing strategy.

3 – With the strategy well defined, **the third step** is related with the promotion of the event, in the first moment near the key stakeholders and after that near the general public.

4 – In parallel with a strong dissemination campaign, it is time to start the organization of the event in detail. The whole logistics activities, speakers, participants, catering, meals, documentation support, etc., is planned at this stage.

5 – Then comes the implementation of the CSI week. At this stage, all the activities and logistics should be perfectly planned and the responsible marketing and dissemination of the event should monitor and record all details of the event so that the collected data can be analysed in the next step.

6 - The last step is related to the event assessment and evaluation, where the general results (qualitative and quantitative) and feedbacks should be analysed. This phase ends with the production of a general document about the event and its results, which among other issues it should include the lessons learned of the event and future activities that flow from it.

3. SUGGESTIONS OF ACTIVITIES FOR THE CSI WEEKS

In the CSI week, the organising entities could apply all the activities presented in the EURO4SCIENCE forensics toolbox. As example of some possible activities for the CSI week we have: sharing experiences of Educational Forensic Science Projects; presentation of “CSI cases” and development of activities around them, such as theatre/drama with a crime scene scenario; bioethical debates; conferences and debates with teachers, students, and other stakeholders/organisations with law enforcement and forensic scientists; implementation of the toolbox; Science fair.

Next, we present suggestions of activities that can be organised within a CSI week:

Project presentations by students in poster format

The creation of posters related to scientific research carried out over previous months, scientific communication projects, student and teacher co-construction of teaching resources/lesson plans etc. could be organised as a competition. An exhibition of the posters could be organised afterwards.

Duration: 1-2 hours

Debate on selected topic

Discussion of a topic proposed by the teachers or students. The topic will be mentioned earlier in the CSI week programme to allow students to prepare some arguments, to read relevant articles and become more familiar with the theme. Some exemplary topics could be offered. The discussions should be held on round tables. On each round table there will be one student, performing the role of coordinator, giving time limits to the participants and monitoring the process. An external guest could be invited for the debate. The external guest could be person/people who work for the crime investigation services, police, a biologist etc. The aim of this activity is to stimulate the students’ logical thinking by presenting their own ideas and defending thesis by using real world arguments. At the same time the debate will raise the students’ interest in the subject matter and will stress the importance of science in everyday life.

Theme Suggestions: Cloning, Bioethical issues, the importance of chemistry/biology/ physics for the CSI.

Duration: 1,5 - 2 hours

Materials required: Round tables and chairs. Multimedia to present important points related to the topic of the debate

Possible number of participants: Between 10-15 per table, depending on the students who are interested in the topic

Puzzle games

Puzzles of the human body, the internal part of a cell, simple chemical processes, graphics of crime scenes with evidence, etc. which will be attached to large boards with magnets or tapes. These puzzles could be purchased or created in advance by students. This activity aims at stimulating the creativity of the students who create the puzzles and the interest of those students who will solve the puzzles.

Duration: 1 hour

Materials required: Large board, paper with the printed or painted image of the puzzles, tape or magnets, etc.(if the puzzle is handmade)

Possible number of participants: 5-10 students to develop the puzzles. The puzzles could be solved unlimited times

Projection of videos dedicated to science

Documentaries from National Geographic, Discovery Channel or other films connected to science could be shown to students. These could be connected to criminology, psychology and science. The aim of this activity is to increase the students' interest in a simple way using channels which are familiar to the students. This activity will allow the engagement of students who dislike reading or face challenges reading such as lower literacy levels.

Duration: 1 hour

Materials required: Multimedia, computer, suitable room

Possible number of participants: 20-30 per movie, depending on the room provided

Quiz with interesting facts

The quizzes should contain simple but interesting facts related to CSI or/and science and will be delivered by the participating students to their younger peers. This activity will be useful and for both the students who prepare and participate in the quizzes. They will learn new facts connected to the topics covered.

Duration: 1 hour

Materials required: Paper/card for the students who will prepare the quiz

Possible number of participants: 10 to prepare the quiz questions, 2 to deliver the game, and 20-30 participants

Workshop for students

Workshop with different activities on separate tables. The activities could be new or similar to those used during the teachers' workshop but simplified and as such easier to implement. This activity aims to directly engage students and raise their interest in forensic science and criminology. The workshop will be led by exchange students and host country students, using the toolbox activities for inspiration and/or developed in collaboration with individuals/organisations with experience in running such workshops.

Example of activities: Invisible writing, finger prints, etc.

Duration: 1-2 hours

Materials required: *Dependent on the activity selected/ paper, pencil, milk, lemon, brush etc.*

Possible number of participants: 4 tables with 5 participants per table

Discussion

A discussion focused on the how students perceive criminology and CSI, what is the reality and what is fiction found in movies; the aim of these activities is to differentiate between myths and reality using CSI movies and stories.

Suggested topics for discussion: "Criminology through the children's /youth eyes"; "My favourite encyclopaedia";

Duration: 1-2 hours

Materials required: Tables and chairs, suitable room

Possible number of participants: 20-30 students

Real Professions presentation

Presentations of 10 professions linked to science will be delivered. These presentations will be prepared and delivered by the students to their peers. External guests, representing these professions, could be also invited if possible. The aim of this activity is to reveal the real “face” of certain professions, to familiarise students with professions they are unaware of, to integrate an element of primary career guidance. The students will be more aware of the importance of school subjects required for these professions.

Duration: 2-3 hours

Materials required: Multimedia, computer, suitable room

Possible number of participants: 30-50 students, depending on capacity of the room provided

Collection of blades, petals, etc.

The students will be asked to bring into school previously collected blades, petals, herbs, flowers, etc. in order to contribute to the implementation of the activity. These will be used for constructing a common collage from the collected materials. The common collage will be dedicated to a topic selected by students or teachers. This activity aims to stimulate creativity and the ability to work as a team.

Examples of Topic: Representing the school / planet, etc. with flowers; recreating some biological or chemistry process, etc.

Duration: 2-4 hours

Materials required: Blades, petals, herbs, flowers, glue, paper, coloured pencils

Possible number of participants: 20 students approx., depending on the number of collages.

Role plays

1) Role plays representing the prosecution of real criminal cases. The performance of the students in the roles of prosecutors, judges and lawyers will be open for observation by the other students. This activity aims to engage students in real world topics and to familiarise them with different professions connected to the topic.

2) Crime science investigation re-enactment, including collection of clues/evidence which are analysed to allow students to generate theories/identify suspects; the clues generated could come from lessons through analysis of crime scene samples/other documents – this allows whole school and transdisciplinary involvement in CSI week. In lesson activities may include

- Science – analysis of samples (microscopes, blood analysis, chromatography, spectroscopy)
- English – news reporting, role play to recreate the crime
- Geography – mapping/ analysis of soil data
- History – genealogy, evaluation of source material
- Maths – statistical analysis (e.g. relating to DNA fingerprinting)
- Art – production/exhibition of science related artwork

Duration: 1-2 hours

Materials required: Suitable room; paper for the students participating in the activity, previously selected case by the teachers.

Possible number of participants: 10-15 participating in the role play and unlimited audience

Study visit

Visits to law enforcement labs and headquarters, or other laboratories, research centre or etc. could be made. This activity aims to show the students the real environment of the selected places and the professions of the people who work there. Science subjects in real world situations will be presented.

Duration: 1-3 hours

Possible number of participants: 10-20 students

Visits of Points of interest

Visit to scientific centres, museums or botanical gardens, zoos, galleries or similar places depending on the hosting city.

Duration: 1-3 hours

Possible number of participants: Dependent on the location selected

Informational visits at school

Visits or talks regarding people, places or TV series related to forensics could be organised. External speakers such as university lecturers, scientists or other professionals could be invited. This activity aims to familiarise students with the real world context of forensic science.

Duration: 1 hour

Possible number of participants: 30-50 students

Knowledge exchange sessions

Sessions for students to share experiences from the CSI weeks in their countries will be organised. During these sessions PowerPoint presentations, movies, pictures will be presented. The aim of this activity is to foster the intercultural element of the project and to present good practice from other countries. An exhibition with these materials related to science could be organised.

Duration: 1-2 hours

Materials required: Multimedia, computer

Possible number of participants: 30-50 students

International competition

This will connect forensics and the Arts. The competition would be launched before the CSI week and the winners would be announced in the CSI week. The idea is to recreate the solving of a crime using forensics.

The main aim is to give a new overview of the science.

Examples of competition materials: Drawings, theatre, photos, video clips etc.

Materials required: Dependent on the competition selected

Possible number of participants: unlimited

Reading of essays on the topic “My future related to science”

Students will be asked to write an essay on the topic. Afterwards, selected essays, written by the students, will be read to the other students. This activity could be combined with some of the other activities (for example debate, discussion of round tables).

Duration: 1 hour

Possible number of participants: Dependent on the number of students who are interested

Crime fiction writing workshop

Crime fiction writer(s) could be invited into school to run a workshop. The students could produce short stories in run up to workshop and develop these under expert tutelage or start new stories inspired by input from authors. In this event a short story competition could be integrated. The teachers read and shortlist best entries then send to crime fiction authors to judge winners.

Duration: 1-2 hours

Possible number of participants: 40-50 students

Drama production

Students put on a murder mystery play (with possible audience interrogation). The students could write their own play with support from teachers or use scripts available from various organisations. The final result could be a story or movie. This activity will stimulate the creativity and teamwork skills of the students.

Duration: 1-2 hours

Materials required: The students will decide what to use and will procure the materials by themselves

Possible number of participants: 10-20

Career talks/stands

Local scientific and engineering companies could send representatives into school to explain the details of their jobs to students. Former students could be also invited. This activity aims at give primary counselling connected to scientific careers.

Duration: 1-2 hours

Materials required: N/A

Possible number of participants: 50-60

4. PREPARATION OF THE CSI WEEKS

For organising a CSI week, schools should also make all efforts to involve other relevant organisations in the implementation of the CSI week, including universities, police and criminal departments, professionals connected to forensic sciences, local authorities, among others. Organisers should mobilise from an early stage several people/organisations that can contribute to organise and implement the CSI weeks, e.g. sponsors that can provide materials for different activities, representatives from institutions who can participate in specific activities (e.g. detectives, police officers, etc.).

In terms of timing, it is very important for the organising entity, in cooperation with local schools and other local organisations, to define the most suitable week to organise this activity. One priority here is to have into account the school calendar (not to overlap holidays, exams seasons, etc.) and, when possible, consider other aspects such as weather conditions (for possible activities outside) and other factors that might influence (e.g. pricing of travel and accommodation in certain periods in case the event hosts students from other schools).

4.1. MARKETING CAMPAIGN

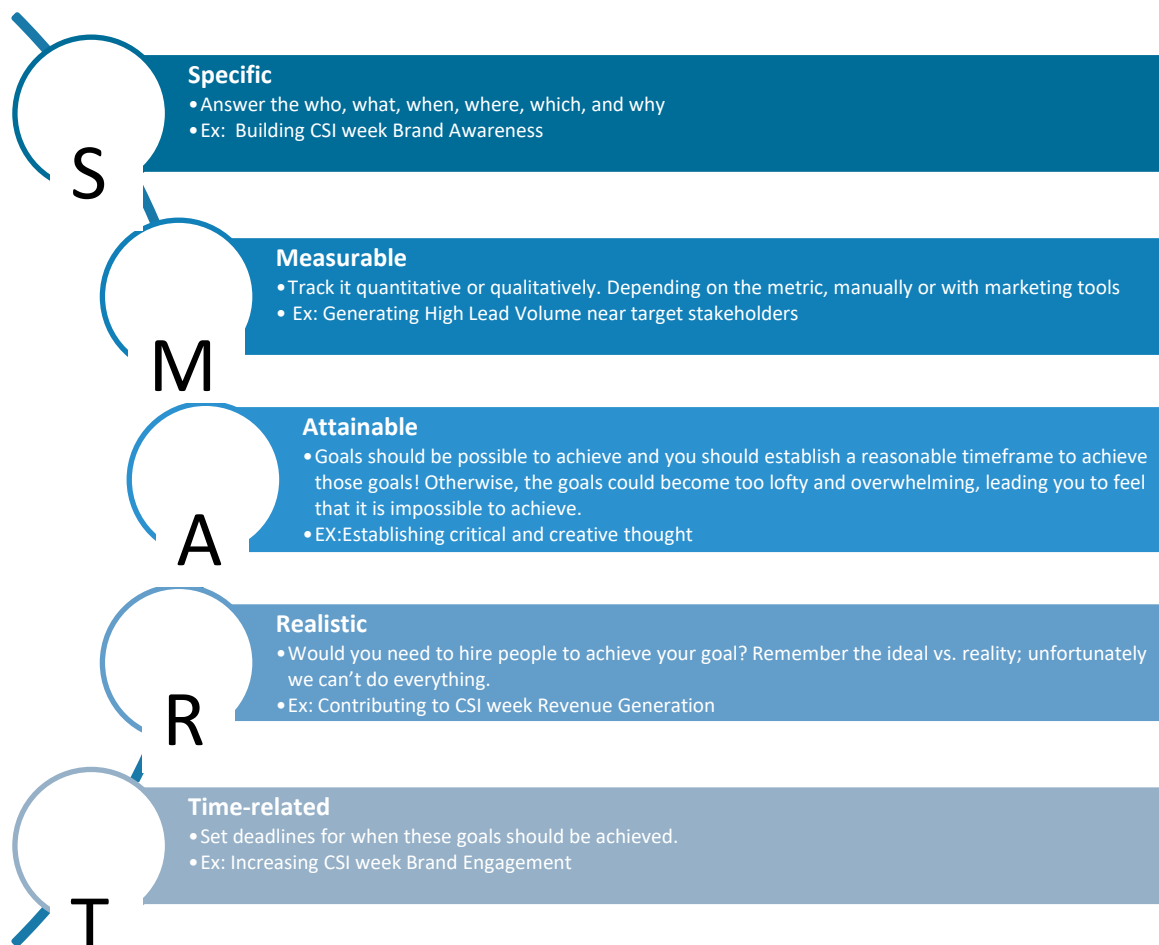
During the preparation of the CSI weeks, promotion is a key element. To have success on the marketing campaign the organizers of the CSI weeks are encouraged to use a methodology based on 5 main pillars:

- Building CSI week Brand Awareness
- Generating High Lead Volume near target stakeholders
- Establishing critical and creative thought
- Contributing to CSI week Revenue Generation
- Increasing CSI week Brand Engagement

The CSI weeks should be highly promoted at local, national and international level and, whenever possible, be conciliated with local events. Therefore, a marketing campaign should be organised at an early stage to:

- Maximizing the impact of the CSI Week activities and raise awareness about the importance of Forensic Sciences to stimulate learning;
- Recruit participants for the CSI Week events;
- Informing target groups about the activities and materials available and create conditions for them to further use them;
- Promote the active involvement of key actors and increase the networking with other schools and organisations inside and outside the school community.

While preparing the marketing campaign, a commonly used framework can be used for setting the goals of the CSI Weeks: the SMART criteria commonly attributed to Peter Drucker's management by objectives.



The CSI weeks should be disseminated internally in the partner institutions and networks to which the organizer entity belongs. The CSI weeks also should be disseminated externally to the target groups, to associated partners and to the wider public, more specifically:

- Partner schools, associated schools and other potentially interested schools.
- Teachers, especially teachers of sciences: teachers of natural sciences (namely biology, chemistry) of Secondary vocational students. Also teachers from other subjects, especially those involved in compulsory education.
- Students: Especially those in the fields of science, those involved in compulsory education, students from secondary general education and younger students.
- Other members of the school community (e.g. counsellors, parents, local /national media) will be invited to assist the CSI Week activities.
- Universities (for example Educational Departments) will be invited to monitor the experience of Project. Aiming at a wide outreach, the Projects results will be disseminated by promoting presentations on education meetings and congresses at national and international level and by assuring publication in peer review international journals.
- Law Enforcement and Forensic Science institutions of each participating country.
- Media.

If possible, the CSI weeks should have their own image/logo, to be visible in all related documentation, or web-based and print-based material used for the promotion of the event. Below one example:



The public campaign to increase the visibility of CSI weeks should use very powerful communication channels, very familiar for the generality of the target groups. Each target group is different so different target groups require different tools and strategies. The principal channels to be used in the CSI weeks marketing campaign are:

- ☑ **Twitter:** CSI Week organizers will be encouraged to tweet about the CSI Week through their own Twitter account (where this exists). A hashtag such *#CSIweekportugal* may be adopted to highlight the reference to the tool. At an initial stage the information should be focused on attracting stakeholders to know more about this event; and a later stage the communication can focus on other more specific themes that should be highlight.
- ☑ **Internal communication tool (ex: Yammer, Facebook group...):** Information about the CSI Week will be posted in an internal communication group created for increase the communication between the direct partners involved in the organization of the CSI Week.
- ☑ **LinkedIN:** Partners will be encouraged to post information on the CSI Week on their own profiles, as well as in groups in which they are engaged and that may be interested in the tool. It could be interesting to create a private group to discuss with experts some topics related with CSI weeks themes.
- ☑ **Facebook page:** CSI Week organizers will be encouraged to post about the CSI Weeks through their own account. It could be interesting to create a public page to interact directly with the general public that follow the CSI Week brand.
- ☑ **Web-sites and on-line pages:** CSI Week organizers will be encouraged to publish information on the CSI Week on their institutional web-sites, as well as in other on-line pages they might be managing (e.g. project's pages, blogs...).
- ☑ **Media and newsletters:** CSI Week organizers will be encouraged to issue press releases about the CSI Week to try to publish information about the event in media and newsletters.
- ☑ **Meetings and events:** CSI Week organizers will be encouraged to spread information about the CSI Week concept at any meeting and/or event they attend.
- ☑ **Mobilisation of relevant actors:** the CSI Week brand was developed based on the work previously done by EURO4SCIENCE consortium, their stakeholders, and thematic Networks. The representatives of these groups shall be contacted to encourage them to disseminate information to their network members.
- ☑ **Other tools:** CSI Week organizers will develop their own dissemination materials as Leaflets, newsletters, PPT, posters, and Website.

In terms of timing for the implementation of the marketing campaign, and as soon as the CSI week organizers is set and made available the date of the event, the following planning is proposed:

Channel	When
Twitter	<ul style="list-style-type: none"> • At the time of the launch of the CSI Week event date • Continuously (e.g. a new tweet related to any new update) • Retweet the most important tweets
Internal communication tool	<ul style="list-style-type: none"> • At the time of the launch of the CSI week event date • As “posts” of other messages, as for instance when announcing relevant news related to this CSI Week. • Continuously (use this tool and the email for continuous internal communication)
LinkedIn	<ul style="list-style-type: none"> • At the time of the launch of the CSI Week Event date • Continuously (e.g. a new tweet related to any new update)
Facebook	<ul style="list-style-type: none"> • At the time of the launch of the CSI week event date • Continuously (e.g. a new post related to any new update)
Web-sites and on-line pages	<ul style="list-style-type: none"> • At the time of the launch of the CSI week event date • Continuously (e.g. share news and relevant information)
Media and newsletters	<ul style="list-style-type: none"> • At the time of the launch of the repository • As a “footnote” of other press releases, as for instance when announcing new projects/collaborations
Meetings and events	<ul style="list-style-type: none"> • Continuously
Mobilisation of relevant actors	<ul style="list-style-type: none"> • At the time of the launch of the CSI week event date • Continuously until Step 4 of the CSI week general methodology

5. IMPLEMENTATION AND ASSESSMENT OF THE CSI WEEKS

After all the preparatory work, the implementation of the CSI weeks depends widely on the programme established, as well as number and type of participants invited to participate. As it occurred in EURO4SCIENCE, the CSI week can involve the mobility of school pupils and staff members, being necessary a more elaborated logistic plan. Involving different schools from different countries makes the event more interesting as pupils from other countries will participate in the CSI week of the hosting country and exchange experiences.

In case the CSI weeks include students from other schools/foreign students, the students from the hosting school present something typical for their country to welcome their foreign peers: traditional songs, dances, movies, stories, etc. The aim of this activity is to familiarise the visiting students with the local culture and traditions. The students from the hosting school can also organise a guided visit to the school, to present the school building, lessons, facilities and rules to the visiting students and teachers. The aim of this activity is to familiarise the guests with the school setting making them feel more comfortable when participating in future activities.

Besides the materials required for the implementation of the activities planned for the CSI, don't forget to prepare attendance lists and evaluation questionnaires.

Instead of the traditional paper attendance list (which may be difficult to implement in a school environment, because of the personal data and number of participants), large paper sheets could be placed in the area where the most of the CSI Week activities will be undertaken. Pencils and black ink will be also provided and the students will be asked to put their fingerprints on the white sheets. In that way we will be able to calculate the average number of students who participated in the CSI week activities.

It is also important to carry out an assessment of the CSI weeks encompassing the stages of preparation, implementation and follow up of the CSI weeks. Besides indicators reported from the intensive marketing campaign, other indicators should be considered to collect all the information needed to analyse the real impact of the event and its quality. Some of these indicators include:

- Degree of satisfaction of all actors involved in the preparation and implementation of the events (e.g. partners, teachers, students, associated partners, external organisations supporting the CSI weeks).
- Assessment of cost-efficiency for the organisation and implementation of the event.
- Competences developed during the preparation and implementation of the CSI week.
- Suggestions of improvement for future editions.

In annex, we provide additional of materials that can inspire various types of activities for the CSI weeks, as well as support the preparation of these events.

- **Annex 1 - Information for participants:** this annex includes 3 documents one example of the CSI programs, as well as two examples of information sent by schools organizing CSI weeks to students of other visiting schools.
- **Annex 2 - Programmes of the CSI weeks:** this annex includes 3 presentations of the activities held in the three CSI weeks organized in the EURO4SCIENCE project.
- **Annex 3 - Extra CSI cases:** these are fictional cases, some of them created by students, that can be used to contextualize and implement the activities of the Toolbox.

Besides, of course, the activities of the Forensic Science Toolbox can be used, as well as the teachers and students guides available in all languages in the EURO4SCIENCE website.

ANNEX