



BigPicnic toolkit

# How to run science cafés

BigPicnic



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# **How to run science cafés**

**BigPicnic**

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# Table of partners

No	Name	Short name	Country
1	Botanic Gardens Conservation International	BGCI	United Kingdom
2	Universitaet Innsbruck	UIBK	Austria
3	University College London	UCL	United Kingdom
4	Agentschap Plantentuin Meise	APM	Belgium
5	Stichting Waag Society	WAAG	Netherlands
6	Comune Di Bergamo	BERG	Italy
7	Universiteit Leiden	UL	Netherlands
8	Uniwersytet Warszawski	UNIWARSAW	Poland
9	Universidade De Lisboa	ULISBOA	Portugal
10	Hellinikos Georgikos Organismos - Dimitra	HAO-BGGK	Greece
11	Sofiiski Universitet Sveti Kliment Ohridski	UBG	Bulgaria
12	Agencia Estatal Consejo Superior De Investigaciones Cientificas	CSIC	Spain
13	Universidad De Alcala	UAH	Spain
14	Landeshauptstadt Hannover	SBZH	Germany
15	Freie Universitaet Berlin	FUB-BGBM	Germany
16	Wissenschaftsladen Bonn Ev	WILABONN	Germany
17	Universitetet I Oslo	UiO	Norway
18	Tooro Botanical Gardens	TBG	Uganda
19	Royal Botanic Garden Edinburgh	RBGE	United Kingdom

# 1. Introduction

BigPicnic brings together the public, scientists, policy makers, and industry to generate dialogue and build greater understanding of whether and how a sustainable development of food systems may be achieved. As part of the project, science cafés were run in all partner countries to engage the public with this dialogue. Across the partnership, 102 science cafés took place attracting a total number of 6,052 participants. This toolkit draws on the collective expertise BigPicnic partners have established.



There is no right or wrong way to run a science café. Rather, it is important to design a format that meets the needs of the target group and is appropriate for the topic addressed. The BigPicnic partners have assembled a collection of innovative and creative ideas and ways to approach the key aim for every science café: *‘empowering people to talk to and learn from each other’*.

BigPicnic science cafés involve two key elements:

1. Science café topics are selected as part of a co-creation process
2. Science cafés are evaluated via a Team-Based Inquiry (TBI)

A science café toolkit website ([www.uibk.ac.at/projects/bigpicnic/science-cafe-tool-kit](http://www.uibk.ac.at/projects/bigpicnic/science-cafe-tool-kit)) has been developed to offer an accessible, dynamic version of this deliverable. The toolkit website also provides links to other BigPicnic deliverables that are relevant to running science cafés, such as the Co-creation Navigator ([www.ccn.waag.org](http://www.ccn.waag.org)) and the Practitioner’s Manual ([www.bgci.org/our-work/projects-and-case-studies/bigpicnic/](http://www.bgci.org/our-work/projects-and-case-studies/bigpicnic/)). Thus, interested readers will find detailed descriptions on how to embed the key BigPicnic elements (co-creation and evaluation) within their science cafés. Individuals and organisations (in particular botanic gardens, zoos, and museums) interested in running a science café are invited to browse the deliverable and/or accompanying website for ideas. We encourage you to expand the traditional science café format and to design a unique approach that meets the needs of all participants, scientist and non-scientists alike. So far, the science café toolkit website has been translated and published in English, Bulgarian, and German.

## 2. What is a science café?

Today many people do not feel connected to science, have difficulties in seeing how science and science research is linked to their everyday life and do not see opportunities to have an impact on its current and future development. To counteract this phenomenon, science cafés are organized not only in Europe but worldwide.

Science cafés welcome people who may or may not typically get involved with scientific discussions. Thus, they take place in a wide range of casual gathering spaces, connect different stakeholders and those who promote them to create an atmosphere where all participants feel encouraged to listen to others and to share their thoughts.

“Ignoring the fact that science is an integral part of human culture is a serious error if we want to overcome humanity's great challenges” (Kovac, 2006)

### Science café key aim

To empower people to talk to and learn from each other



*Museumsdorf Düppel, a workshop took place in the open-air area and a discussion in the museum café, where the guests could get food and drinks ©Botanic Garden and Botanical Museum, Freie Universität Berlin*

An informal venue may help the audience feel comfortable to discuss the topic at hand and to ask questions. It has the potential to attract an audience not already involved in science. People who might not come to a lecture at a university or a museum are often more likely to go along to an event in a bar, café or a public space. These venues put fewer barriers between those involved. Participants feel encouraged rather than intimidated to offer their opinion and people who are already at the venue feel comfortable to join in.

There is no one right (or wrong) way to run a science café, however, this guide will introduce you to ideas and approaches taken by botanic gardens all over Europe and will help you to get started with designing your own science café. It will support you to define your goals and decide how you want to engage people and set the scene.

This toolkit is divided into the following sections/questions:

- WHAT counts as a good topic to address?
- WHO should take part?
- WHERE should it take place?
- How much TIME must be scheduled?
- HOW to plan your event
- DOs and DON'Ts



## 2.1. WHAT counts as a good topic?

Any topic that is interesting to the public makes a great science café topic.

The topic should raise broader community awareness about science, and the link to peoples' lives and societal developments. Science is a social endeavour and part of the cultural heritage of the western world. There is no clear distinction between science and non-science but the epistemology of the knowledge can be scientific or non-scientific.

Topics that are discussed controversially in the media may have aroused the interests of a larger group of people already. These topics can be important on a local, regional or national level and therefore may have a greater potential to create an emotional appeal to a larger audience.

### Go for a co-creation approach:

We recommend using a co-creation approach to choose a topic. You will find a variety of methods and activities to facilitate such a process in the Co-creation Navigator ([www.ccn.waag.org](http://www.ccn.waag.org)).

Co-creation is an innovative and participatory process, which aims to create shared ownership between people in charge and community partners and other stakeholders. Co-creation enables professionals to co-operate with and learn from others, to build a connection between groups that would not normally meet.

Invite people who have different professional and cultural backgrounds and represent different target groups you want to reach with your science café. Ask them what they want to talk and learn about and choose your science café topic accordingly.

“It’s about collective creativity – in a creative process a different dialogue between people is started. It’s not about finding the right idea, it’s about finding a multitude of ideas”

A quote from Bergamo Botanical Garden  
“Lorenzo Rota”



### Co-creation for science cafés and exhibitions

**The National Museum of Natural History and Science, University of Lisbon’s** co-creation process involved representatives from the BigPicnic team, researchers, nutritionists, and NGO representatives (Neighbours Association, Local Seeds Association). Through a series of co-creation sessions, this group selected some themes/topics for the science cafés. These were: 1) Healthy and sustainable food; 2) Food: Well-being and tradition; 3) Health and food; 4) Sustainability, waste and food; 5) Food and sustainable consumption, and 6) Future of food. In addition, through one of the co-creation sessions, the group also agreed on a format for the science cafés that involved groups of participants working together to choose the best collective questions to pose to invited speakers. There were 2 to 4 guests in each science café and included food and agriculture related researchers, policy makers, nutritionists, and food NGO representatives.

Science cafés can also, conversely, be used as a source of ideas that can contribute to the development of other initiatives.

### Science cafés to co-create an exhibition

**Bergamo Botanical Garden “Lorenzo Rota”** used a science café to help them develop an exhibition. The event involved a nutritionist and two agronomy researchers on cereals, fruit, and vegetables. The event took place in the Valley of Biodiversity section of the garden on the 21st June 2017. The science café was developed to create a close relationship between public and scientific research, collect data and ideas for an exhibition on food security, pilot a new way of getting the public involved, and make the concept of food security more popular.

Due to the fact that the topics of the BigPicnic science cafés were chosen with local stakeholders they varied widely across the partnership. Examples include:

- ‘Household food security’ - Tooro Botanical Gardens
- ‘Food is communication. Food cultures and nutrition for a world with a future.’ This science café had a special focus on meat consumption - School Biology Centre Hannover, Germany
- ‘Beekeeping in the city - mission possible’ - University Botanic Gardens Sofia University “St. Kliment Ohridski”, Bulgaria

A full list of topics selected for science cafés as part of the BigPicnic project can be found in *Deliverable D.4.1 Partner evaluation reports on science café implementation*.

## 2.2. WHO should take part?

The topic your co-creation team has chosen will inform how you design your science café. A topic, which needs to be considered from different perspectives, requires experts representing these different perspectives. A topic that is very specific may only require one scientist.

In the case of BigPicnic, all science cafés looked at an aspect of food security. Themes and topics summarized under the umbrella term food security are societal as well as scientific issues. Thus, a science café falls short if scientists are the only experts invited.

### Invite appropriate experts:

Ensure that your invited speakers are experts in the chosen topic and able to respond appropriately to questions from the public. It can be helpful if they have an open personality and enjoy talking to people from varied backgrounds.

Expert practitioners, e.g. cooks, bakers, chefs, etc. may act as a bridge between scientists and participants. Depending on the given topic, even children could become experts when it comes to decision making in schools.

### Invite an appropriate number of participants:

Between 20 and 50 participants is a good number for your science café audience. Many more than this and your audience may be left without having their questions answered. Too few and there may not be enough questions, ideas or perspectives among the audience to keep the discussion flowing. However, a small group may lead to a more in depth discussion and may help some people to express their own ideas more easily.

In the **BigPicnic project** a range of target groups to work with/include were chosen. Individuals from these groups were represented during the co-creation phase and were invited to attend the science café events. These included: People living in deprived areas, African diaspora people, teenagers, policy makers, students, teachers (formal education institutions), adults, families, lawyers, farmers, cooks, educators (informal education institutions), social services employees, volunteers, producers, researchers, and visitors of the gardens.



*Chef as an expert in Bergamo, Italy ©Bergamo Botanical Garden photo archive*

**Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University** organised an event in collaboration with the University's Ecocampus department and Health promoter group about sustainable food on campus. The participants of this event included:

University professors (9); Researchers (2); Decision makers at Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University (1); Decision makers from other universities (1); Food suppliers (4); NGO workers (1); Environmental educators (1); Environmental organizations workers (3); Botanic garden staff (4); Other university staff (6); TOTAL: 32 people. The event involved short talks, followed by a debate. This was followed by a sustainable breakfast tasting under the principles of local and quality product, followed by a co-creative activity that focused on the establishment of the basic sustainability criteria that was deemed important for the university caterers to consider.



*Science café for families with small children. ©Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University*



*Share the harvest of the season, both in vegetables and in knowledge ©Hortus Botanicus Leiden*



Science café topic: More food sovereignty: preserving food with fermentation. Organised by the **Botanic Garden and Botanical Museum, Freie Universität Berlin**, Young-Mi Park-Snowden: Author of a cookbook about Korean food; Manuela Marin: Oecotrophologist and nutritionist, and Matthias Fritsch, Artist and activist for a sustainable life were invited.

In total the science café was attended by 43 visitors, 3 speakers, 4 members of the Denkwerkstatt NAHrungswandel (for a fermentation workshop), and 1 student assistant. The event included discussions about cultural and traditional aspects of fermentation and fermented food in Korean culture, and included a fermentation workshop where visitors had the opportunity to try a wide range of fermented products, produce their own sauerkraut, kimchi and other fermented vegetables and learned how fermentation works.



Farmers in Uganda ©Tooro Botanical Gardens

The **University of Warsaw Botanic Garden** organised a science café on the subject of GMOs. They invited two scientists from different sectors to present the subject. The first, Paweł Golik, a geneticist from the Department of Genetics of the University of Warsaw Faculty of Biology and the second, Renata Hryciuk, an anthropologist from the University of Warsaw Institute of Ethnology and Cultural Anthropology researching food culture and systems. These two perspectives showed that GMO (and other gene-editing technologies) have a major impact on conservation issues as well as social conditions and political systems, and can be considered both a problem and a solution.



Contemporary witnesses as experts about food in the post war period in Berlin, Germany ©Botanic Garden and Botanical Museum, Freie Universität Berlin



A science café for kids in the Biblo, a nearby children's library ©Natural History Museum, University of Oslo



Science café for children ©Natural History Museum, University of Oslo

### 2.3. WHERE should it take place?

Choose a venue with a welcoming entrance, appropriate to the topic, and suitable to the target group you want to address. Scientists, experts, and the public should be able to move and talk freely.

Experience has shown that coffee shops, bookstores, bars, botanic gardens, museums, zoos, community centres or even outdoor public venues and natural spaces provide perfect conditions to run science cafés. Exceptional venues and places, which are not always open to the public, contribute to the fact that the science café is something special.

To establish a tradition with people meeting at a particular place such as a visitor centre, pub or café it is recommended that you stick to a given weekday, time, and week intervals in which the science café takes place.

The venue (design of the room, media equipment, etc.) will inform how to set up the room. It will have an influence on whether small group discussions or lecture formats with larger groups are more appropriate. According to its characteristics, you will position your invited experts in the front, in the middle of a circle or another place. Thus, the course is set for how the interaction between participants can and will take place.

The activities and topics you choose to engage participants (WHAT) need to be selected and facilitated keeping the characteristics of the venue in mind (e.g. you may not be able to bring along your own food and drinks if you run your science café in a bar or restaurant).



Science café held in a pub as an event in the evening ©Botanical Garden of the University Vienna

**Royal Botanic Garden Edinburgh** wanted to use their science cafés to reach individuals in small local socially deprived communities. They decided to run one of their events entitled *Thought for Food* in the small town of Loanhead to the south of Edinburgh and selected a venue that would act as a familiar and comfortable setting for the target audience. Loanhead developed from coal mining in the area. The closure of the mines in the 1980s resulted in job losses and deprivation. Using a newly developed local library and community centre as an appropriate setting for a science café they ran an event as part of the Midlothian Science Festival programme.



Science café outdoors on the Kulturforum (large square between different museums), where a Food Market took place as part of the Food Revolution exhibition ©Botanic Garden and Botanical Museum, Freie Universität Berlin

On the 20th October 2017, a science café entitled *Good Eating* was organized at an open kitchen (suitable for cooking and eating) at the local market place by the **University of Innsbruck**. This location in a building in the centre of the city was chosen as it is where local merchants sell their local and global products on a daily basis. A number of local farmers are also present here each Friday selling their locally produced goods. This was a suitable location for the event as it is a place visited by both locals and tourists, and allowed for close contact with important stakeholders to be established.



Bazar Szembeka, one of the oldest and most well-known of Warsaw's open-air food markets ©University of Warsaw Botanic Garden



Outdoor science café ©Tooro Botanical Gardens

## 2.4. How much TIME must be scheduled?

How long such an event should last depends on HOW it is designed, WHERE it takes place, WHAT it is hoped will be achieved and WHO is invited.

A science café that put experts and their knowledge at the centre and asks participants to listen to talks, ask questions, and listen to answers should not take much longer than 1.5-2 hours.

A science café, which asks participants to engage in activities and small group discussion and invites them to walk around and move freely, may last up to 3 hours or longer. Consider the format most appropriate to your event.

The **University of Botanic Gardens of Sofia University “St Kliment Ohridski”** ran a science café entitled *From nature through traditions to the table: Ethnobotanical data on using wild growth plants for food*. This event was held in the garden’s Mediterranean glasshouse and lasted 2.5 hours. It consisted of a talk about the ethnobotanical study of wild vascular plants traditionally used for human consumption in Bulgaria and the Balkans. This was followed by a discussion in which experts and participants shared knowledge and culinary experiences associated with edible plants and human activities. The setting and length of the event allowed the participants to remain active and engaged in the topic.

**Juan Carlos I Royal Botanic Gardens, Alcalá de Henares University** organized a science café entitled *Pollinators: an essential resource at risk*. This was a full day event lasting for 8 hours. The aim of this science café was to analyse the problems related to the pollinator crisis. This problem required input and action from a range of sectors. Therefore, a wide range of public were invited. This included experts in the field (technicians and researchers), policy makers, and general public (120 people in total). Thanks to the involvement of Brihuega council the event took place within the castle of Brihuega. This town is the capital of La Alcarria, honeybee region par excellence, where the dependence on pollinators is especially important for survival and economic

growth. The event took place in July as the city is decorated with lavender handcrafts at this time to celebrate the splendour of its lavender fields.

The daylong event allowed the organizers to cover the topic in detail. The morning consisted of a number of talks on humans and apiculture - providing a detailed background to the subject. This was followed by a debate and lunch. In the afternoon, the talks focused on the crisis of pollinators and again finished with a debate, conclusions, and recommendations. Finally, a honey tasting was organized. This longer event gave the opportunity for a range of experts to be involved and showcase the different stakeholders and aspects of this topic.



Visiting a lavender field ©Juan Carlos I Royal Botanic Gardens, University of Alcalá

## 2.5. HOW to run your event?

Using the previous toolkit sections, you will have decided on a topic for your science café (WHAT), the experts that you need to invite (WHO), and chosen a location (WHERE). This section deals with promoting, running, and evaluating your event.

Promote the event

- Existing networks - Museums, botanic gardens, and zoos usually have very well established networks and these should be used to promote science café events amongst people already linked to the institution.
- New connections/networks - Members of the co-creation team should be thought of as valuable links to new networks. Through these representatives, you can promote your events to new individuals, groups, and organisations.
- New connections/networks - Ask invited experts to spread the invitation in their associations and social networks.
- Media promotion - Use traditional (radio, newspapers, TV, etc.) and social media (Twitter, Facebook, etc.) to promote your event.
- Link to exiting events - Link a science café to a well-established event, which has proven to attract visitors already.
- Word of mouth - Word of mouth (analogue and digital) is still the most effective form of marketing. It is a helpful strategy to plan for a sequence of science cafés right from the start, as participants will inform their friends and social networks about them. Experience has shown that even if only few participants show up at the first science café numbers increased at the subsequent events.
- Start promoting your event early and maximize your activities in the final week before the science café takes place.
- Be aware that your event complies with national and European privacy policies when gathering contact details and compiling email invitation lists for future science cafés.

### Promoting the event



Royal Botanic Garden of Madrid, Spain



Hortus Botanicus Leiden, Netherlands



Botanical Garden of the University of Vienna, Austria

## Offer engaging moments:

Alongside short expert talks to stimulate discussion, which is the common approach to science café delivery, we recommend additional ice-breaker activities to promote a relaxed atmosphere and facilitate the interaction between experts and participants. These activities help to break down barriers and level the playing field.

Hands-on activities such as cooking, doing experiments, observing living creatures, art and craft activities, games, provocative objects, interactive exhibits or short video clips, music, etc. have proven to be successful at BigPicnic science cafés.

## Facilitation and hosting:

In addition to your expert, you will need someone to host the event - introducing speakers, informing the audience about timings, health and safety issues, etc. Additionally, you will need someone to facilitate the discussion. This may be the same person or two different people. For facilitation, choose a person who can adapt well to the participants as one can never predict exactly what will happen. The facilitator must pay attention to group dynamics and has to intervene if particular people start to dominate the conversation.



Collective cooking ©Botanical Garden of the University Vienna



Mikroskope ©Botanic Garden Meise



Building a home for insects ©Botanic Garden and Botanical Museum, Freie Universität Berlin



"No food no peace" singer and dancer ©Tooro Botanical Gardens

## Evaluate the event:

Evaluation of your science café is an important step in continuing to hold successful science cafés. Evaluate each science café, so you can learn what worked and what did not and apply lessons learned to your next event.

There are different ways to collect information, which will help you to determine the outcomes of your science café and whether it was effective to achieve the goals you had in mind when planning it.

To get started you need to answer the following three questions:

- What are the most important goals you want to achieve?
- How can you tell if you have achieved these goals?
- What information do you have to collect to answer your evaluation question?

In the BigPicnic project, a Team-Based Inquiry (TBI) approach was used. TBI is a practical approach to data collection and evaluation, built on a cycle of question, investigate, reflect, and improve. Evaluation often focuses on the impact of a project. TBI also gives professionals the opportunity to reflect on the process and practice development and is illustrated below.

Further information and a collection of evaluation tools can be found in the BigPicnic TBI Practitioner's Manual ([www.bgci.org/resources/bgci-tools-and-resources/bigpicnic-resources/](http://www.bgci.org/resources/bgci-tools-and-resources/bigpicnic-resources/)).



The knitting interviewer  
©Hortus Botanicus Leiden



©The TBI diagram  
is adapted from  
Pattison et al. (2014)

**Botanic Garden Meise** organised a science café on the link between bees as pollinators and food security. This was an evening event which included an ice-breaker activity (a quiz) that provided an interesting approach to data collection and evaluation.

**7:30 – 8:15pm:** Welcome, quiz: what would disappear from your plate if pollinators disappeared?

**8:15 – 8:20:** Introduction of speakers

**8:20 – 8:45:** Speaker: Jolien Smessaert (KULeuven, PhD student) on the importance of pollinating insects for the Belgian apple and pear cultivation. During the talk, people could taste different nectar concentrations.

**8:45 – 9:10:** Speaker: Piet Stoffelen (BGM scientist) on 'Biodiversity, climate, pollination and the future of our coffee'. During this talk, participants could taste pure Arabica and pure Canephora coffee and make a guess which coffee was of what type.

**9:10 – 9:20:** Break, with possibility to look at different coffee plants and beans, taste coffee honey, look at wild bees with binoculars, ... or chat and drink a honey beer.

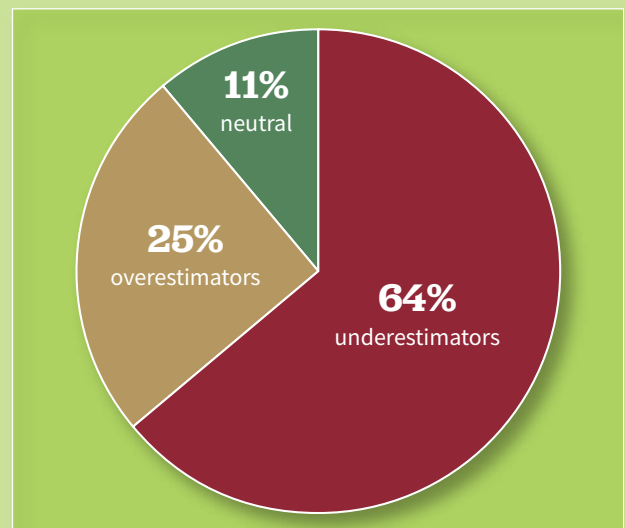
**9:20 – 9:40:** Speaker: Anne Ronse (BGM scientist) on 'Bees, threads and protection'.

**9:40:** Question round + discussion of the quiz  
Thanks to the quiz, it was possible to gather information about our question: How profound is the public's knowledge of the relationship between pollinating insects and the food we eat?

Some conclusions:

Most participants underestimated the role of pollinators for the production of food crops.

- Link between fruits and pollination was clear for the public:
  - 93% of the participants knew about the link between apple juice and pollinators, 86% about the link between strawberry jam and pollinators.
- However, the link was not obvious for other crops (e.g. coffee, chocolate, and margarine containing soy oil).
- There were interesting discussions with participants who took a more holistic approach, arguing that the disappearance of pollinators would affect the whole ecosystem and therefore all crops.
- Several beekeepers were present. They had a rather narrow view on the question, focusing on honeybees only and discussing the question based on what they observed with their own bees.
- It isn't always possible to find a consensus on the importance of insect pollination for a specific crop (National Botanic Garden of Belgium, Meise).



### Ice breaker

An open-air rally campaign was one of the unique methodologies used by Tooro Botanical Gardens in Uganda to engage the public with Responsible Research and Innovation on food security. People of all classes and origin including young adults gathered together for a science café titled 'Family labour and inclusiveness of every family member to increase food production'. Experienced speakers presented their work and then there was an opportunity for discussion and questions. The rally started at 2:00pm with

participants being entertained by Emango cultural dancers who educated participants through songs. For example, one of the songs stated that food is life, "no food, no peace," it showed that in the land of Tooro, children, youth, and elderly do not have balanced diets and children are dying of malnutrition. It called upon mothers to prepare balanced meals for their families and stated that the cultivation of more food secure crops like cassava and yams can help to provide food for their families.

## 2.6. DO'S and DON'Ts

Here are some top tips that science café practitioners have collected to save yourself from making the same mistakes again.

### Do ...

- Make sure you have enough time (talks, activities, and discussion)
- Include interesting topics
- Prioritise quality over quantity
- Include interactive methods/practical activities
- Involve the audience
- Include a tour of the botanic garden
- Use other media to stimulate discussion
- Offer food and drinks
- Record the discussion to help with your evaluation
- Ask questions about participants' previous knowledge on the topic
- Embrace modern technology (e.g. beamer and sound)
- Test the acoustics in your room
- Be flexible
- Ensure you are handling any data collected ethically

### Don't ...

- Make presentations too long
- Stick to just one way of collecting answers/data
- Just consider professional scientists
- Try and pack too much in
- Have seat rows - it makes the atmosphere too formal
- Forget to advertise your event



©Bergamo Botanical Garden photo archive



## 3. References

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Pattison, S., Cohn, S., & Kollmann, L., 2014. *Team-based inquiry: A practical guide for using evaluation to improve informal education experiences*. Second edition. Retrieved from: NISE Net



*Ice breaker activity with medicinal aromatic plants*  
©Balkan Botanic Garden of Kroussia



©Bergamo Botanical Garden photo Archive



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