



Science communication **TOOLBOX**

A collaboration between the **Swedish Research Council** and **VA (Public & Science)**

SCIENCE COMMUNICATION TOOLBOX



Vetenskap & Allmänhet



Vetenskapsrådet

General Information

TOOLBOX PRODUCTION

This is a simplified, printable version of the web-based toolbox for research communication available online at: www.scicommtoolbox.se

This toolbox aims to provide inspiration and ideas for a variety of activities to communicate research.

The starting point of the toolbox is activities organised during the annual Researchers' Night event (ForskarFredag), between 2005 and 2011. (More details can be found at www.forskarfredag.se).

Researchers' Night has been coordinated nationally by VA (Public & Science) since 2006 as part of the European wide

initiative Researchers' Night organised by the European Commission.

VA is a non-profit association that aims to promote dialogue and openness between researchers and the public – particularly young people. One of its aims is to promote new forms of dialogue around research that engages people. VA's philosophy is that dialogue should always start with people's questions, interests and concerns rather than the information the researchers themselves want to communicate.

This toolbox was developed by VA (Public & Science) with funding from the Swedish Research Council and the European Commission. Read more at our website: www.v-a.se

RISK FACTORS

A significant risk factor for all activities and events is bad weather. It is essential to have a contingency plan, particularly for outdoor activities so that they can be moved indoors or into a tent or marquee.

There is always a risk that participating researchers will be unable to attend due to ill health or other reasons. Alternative researchers or other participants should be asked and prepared in advance to step in if this is the case.

There is a risk of a poor response from target groups and poor attendance. A high level of marketing activity will of course increase the number of visitors attracted to the event.

A large number of people at an event will attract the attention of passers-by, who may decide to spontaneously join in from off the street. Another strategy to minimise the risk is to ask people to pre-register for the event. This will allow the level of interest to be assessed in advance.

The risk of low visitor numbers is greatest when trialling new events or activities. It takes time to work out which approach or format works.

In summary: organisers should prepare a contingency plan early on in the planning process to manage various types of risk.

MARKETING ESSENTIALS

Marketing is crucial for the success of a science communication activity.

The most common methods are:

- Posters
- Flyers
- Media coverage (press releases, press invitations, joint events etc.)
- Advertising
- Listings in event calendars
- Social media (e.g. Facebook and Twitter)
- Newsletters – your own and from other organisations, websites and publications

Planning and marketing a number of science communication activities simultaneously may be an effective approach. Invite people to provide their e-mail address so they can receive information about upcoming activities.

Plan your marketing activities well in advance. Finalise the

programme early on and check that no other events are competing for the same target groups at the same time.

Remember to market the activities at the venue using large posters, balloons, coloured streamers etc. to show that something is going to happen "RIGHT HERE." Letting people know about an event ahead of time, will make your marketing a lot more successful.

Pick up on current news and buzzwords to link to your event's theme so you can market the event more effectively.

Monitor the media to see which media and target groups are picking up on the various marketing activities. This will allow you improve your marketing next time.

Good luck!

Information & Visits

Exhibitions, visits and different types
of information materials

TOURS AND OPEN HOUSE EVENTS

TOURS OF FACILITIES WHERE RESEARCH IS CONDUCTED

Open house events or tours of research facilities are an easy way to give the public an insight into the world of science. Alongside the tours and open house events, science communication activities can be organised. Tours provide a good opportunity for interaction between researchers and the public, while open house events can be made more interactive if additional activities are organised for the public during their visit.

Merely, opening your doors may not always draw visitors. It is important to advertise tours and open house events, as well as ensure it is clear whether visitors have to book in advance and how. Decide in advance what is the maximum number of visitors and maximum group size you can accommodate.

BUS TOURS WITH RESEARCHERS

In order to showcase interesting initiatives in the local area, you can organise a bus tour that is accompanied by researchers. The idea is to visit a number of initiatives and hear directly from people engaged in them. For example, the Swedish organisation Ideell Arena arranged a bus trip to a number of urban gardening sites in order to show how similar types of community projects can be organised in completely different ways, ranging from an uncoordinated guerrilla gardening movement to a community running a 100-year-old allotment. The guide was a researcher who talked about the history of the movement in Sweden and how urban gardening has evolved over the years. At the various sites, the researcher interviewed someone representing the initiative.

On another tour, participants were shown various types of religious initiatives. They visited two places, one where Catholics, Muslims and Protestants carry out social work together and one where spiritual seekers can meet to discover their religion. Many other themes can of course also work, for example, local history etc. Bus tours were also run during Researcher's Night in Stockholm 2013.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Contact one or more researchers who work in your chosen area. Identify interesting initiatives and places to visit in the local area, preferably in collaboration with the researcher(s). Contact representatives from these and be clear why you are contacting them and what you want to know about their initiative. Be sensitive about what they want to say. It is important that the representative sticks closely to the theme of the bus tour, as there is often limited time at each place, perhaps only twenty minutes. Following the visit, the representative may get onto the bus to answer questions, partly to save time, and also because it is place where passengers can easily interact. Book a bus and check that it has a good sound system with a wireless microphone. This is important so that everyone can hear any questions asked by other passengers and also allows the guide to maintain eye contact with the passengers during

the tour. The researcher may be willing to act as the tour guide, otherwise you will need someone to lead the tour as well as the discussion. This needs to be someone who is engaging and able to encourage the passengers to ask questions. It works particularly well if the guide is able to relate things you see outside the window along the way to the theme of the bus trip. It is also a good idea to start the tour with a slightly longer journey to allow the researcher to give a short lecture before the first stop. This will provide everyone on the bus with an introduction to the subject and ensure they all have some basic knowledge of the topic. The journey between different stops is a good time for questions.

CHALLENGES: These types of tours usually take at least half a day. Don't forget snacks and/or lunch. Timing is crucial and it is important to plan all the timings in detail. Allow an extra ten minutes for getting on and off the bus and time for the group to walk up to the site. Then send the schedule to the bus company and double check with them that it is realistic. Make sure that someone keeps an eye on the time during the tour and agree a sign to give the representatives and researchers when their time is up. Don't take it for granted that there will be parking spaces available and double check this with the bus company and the representatives. Preferably use a local bus company that knows the area.

BENEFITS: Bus tours allow research to be explained in a very concrete way by showing the connection between different sites and concepts. It is most effective when participants explore the sites together with a researcher and can lead to common insights. For many, a bus tour is an environment where they feel comfortable participating in a discussion and voicing their opinions. Travelling together promotes a convivial group atmosphere that supports conversation and networking.

LABORATORIES

Laboratories often offer good opportunities for presenting current research and experiments. However, it is usually necessary for someone to explain the research to the visitors, and to demonstrate and manage any experiments. Inside the laboratory visitors can meet the scientists in their work environment and ask questions.

Most visitors will never have been inside a lab before, which increases interest in the activity.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Prepare information about the lab and any experiments to be demonstrated, and make sure that there are scientists present at all times. Distribute information about the activity and how to get to the lab.

CHALLENGES: Preparing and adapting information about advanced research to the target audience. Making the environment safe and comfortable for large groups of visitors and attracting visitors to visit to the laboratory.

BENEFITS: A good opportunity to show scientists in their workplace and show an interesting environment that few people normally visit. Provides an opportunity to demonstrate experiments and current research.

SCIENCE CENTRES

One of the purposes of science centres is to present science and research to visitors. This makes them a very good venue for both tours and open house events. But you should remember that many people may have already visited the science centre and it may be in an out-of-the-way location.

TARGET GROUP: Broad with particular emphasis on younger visitors.

PREPARATIONS: Make sure staff members are available; come up with a special theme to focus on; inform people that they will have access to a different part or aspect of the science centre when they attend an open house or tour, and market the activity.

CHALLENGES: Getting the information out.

BENEFITS: These facilities are created for the purpose of communicating science in an attractive and interesting way.

UNIVERSITY TOURS

University tours can be arranged in many different ways. They can be in the form of a general tour of the actual university or a more specific tour within a certain discipline or department. Tours can also be arranged in combination with lectures, film screenings, meetings with scientists/researchers or experiment demonstrations. Tours can be particularly useful for recruitment purposes.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Prepare presentations and venues, organise activities at the venues. Make sure there are researchers present. Inform people that they will have access to a different part or aspect of the university when they attend an open house or a tour.

CHALLENGES: Getting people to attend; many people may have

visited the university in the past. Some campuses are located out of town. Organising interesting activities when the visitors are there.

BENEFITS: Interesting for anyone considering studying at the university; a lot of research takes place at universities and this makes them good venues in which to present current research.

MUSEUMS

Tours of museums can be arranged as pre-booked or open house events. Tours can be general or can be specific tours of certain exhibits. Museums are also suitable venues for open house events.

Tours or open house events can be offered in combination with lectures, film screenings, meetings with researchers or experiment demonstrations. To make them more attractive, tours and open house events could also include “behind the scenes” tours, and tours of the museum’s research department.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Choose exhibits, prepare information and possible activities. Inform people that they will have a different kind of access to the museum during an open house or tour. Market the activity.

CHALLENGES: Getting people to attend; many people may have visited the museum before; sometimes museums are located outside of town centres.

BENEFITS: Museums are designed to present and inform people about different subjects. There is often plenty of interesting material already available.

RESEARCH FACILITIES

A research facility can hold an open house for a day or an evening, with or without a tour, and present its work to the general public. Research facilities are often able to present current research and experiments. It is usually necessary for someone to explain the research to the visitors and to demonstrate or conduct the experiments.

At research facilities there are also opportunities for visitors to meet scientists in their own environment and ask questions.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Prepare information about the facility and any experiments to be demonstrated. Make sure that researchers are available the entire time the facility is open to the public. Spread information about the activity and how visitors can get there.

CHALLENGES: Preparing and adapting information about advanced research for the target groups; making the environment safe and comfortable for large groups of visitors; making sure that people come to the facility.

BENEFITS: Good opportunity to show researchers in their own milieu. An interesting environment that few people get to see, and an opportunity to present experiments and current research.

ZOOS

Tours of zoos and animal parks can be offered as pre-booked or open events. Tours can be general or specific themed tours of certain animals or areas. Zoos are also suitable venues for open houses. Meetings with experts can offer more interaction and allow the public to get closer to various animals and study them in more detail.

TARGET GROUP: Broad, flexible. Child and family-friendly environment.

PREPARATIONS: Prepare information about the animals, special tours and themes. Make sure that there are experts available throughout the opening hours. Inform people that they will have a different kind of access to the zoo when they attend an open house or tour. Market the activity.

CHALLENGES: Conveying information about research and science while visitors look at the animals. Getting people to come; many people may have already been to the zoo. Zoos are sometimes located some distance from towns.

BENEFITS: Visitor-friendly environment where much is already prepared.

PLANETARIUM

Open house events or tours for the general public can be arranged at planetariums, either as general tours or specific themed tours. Tours and open house events can include lectures, film screenings, meetings with scientists/researchers or presentations of the constellations etc.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Prepare information about the planetarium and experiments. Make sure that scientists/researchers are present throughout the event. Market the activity.

CHALLENGES: Preparing and adapting information about advanced research for the target group; making the environment safe and comfortable for a potentially large number of visitors. Inform people that they will have a different kind of experience of the planetarium when they attend an open house or tour. Market the event.

BENEFITS: Good opportunity to present scientists in an exciting environment. Visitor-friendly environment where much is already prepared.

WALKS – WALKING TOURS LINKED TO DIFFERENT KINDS OF RESEARCH

EXCURSIONS

Inviting people along for an excursion is a simple way of presenting scientific work in the field. The excursion destination and information to be provided need to be carefully prepared. Group size and how many participants register for an excursion are other important variables.

Geographic excursions and excursions to a mill are examples of activities offered during Researchers' Night events.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Choose an appropriate excursion destination and format. Decide on a suitable size for the groups and if and how people should register for the event. Inform people about how to register. If necessary, remember to give people clear information about any necessary equipment or appropriate clothing for the excursion. Market the activity.

CHALLENGES: Adapting the content of the excursion to the age and interests of participants. Finding a suitable format.

BENEFITS: An exciting and new activity for most participants. A good opportunity for participants to meet researchers and try research work in the field.

CITY WALKING TOURS

Inviting a researcher to talk about science or research in relation to sights seen on a walking tour is a good way of showing how research and society are linked. The choice of theme, route and information provided should be carefully planned.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Plan the route for the city walking tour and the information to be provided. Decide on the appropriate size for a group and if and how people should register in advance. Spread information about how to register. Market the activity.

CHALLENGES: Determining the appropriate length and type of walking tour. Deciding on and preparing information that will keep the participants interested.

BENEFITS: Good activity to show the connections between research/science and society.

FILM SCREENINGS

Well-made films often depict events and research in a captivating way. Always have a scientist/researcher present to answer questions afterwards.

Film screenings can be combined with debates, Q&A sessions, discussions and lectures.

Examples of film screenings held during Researchers' Night: *Livsiktigt* by Folke Rydén, the robot film *Wall-E*, feature film *Simple Simon*, horror film *The Texas Chainsaw Massacre* and documentary *Underkastelsen* by Stefan Jarl.

TARGET GROUP: Depends on the type of film.

PREPARATIONS: Find a suitable film and venue for the screening. Make sure all of the technology works and inform people about

the screening. Decide if people should pre-register for the event and determine how many people can watch the film at one time at the venue. Market the activity.

CHALLENGES: Judging the size of a suitable venue and finding good technology for the screening. Finding a high-quality film for the right target group.

BENEFITS: Film is an accessible medium for most people. With a well-made film it is possible to communicate a lot of information in a way that sparks people's interest. Young people in particular are attracted to this medium.

INFORMATION MATERIALS

DIFFERENT TYPES OF INFORMATION MATERIALS

POSTCARDS

A postcard with a clear message and interesting graphics can be an attractive way of communicating information about research and science.

TARGET GROUP: Flexible.

PREPARATIONS: Design the postcard and decide on the appropriate amount to be printed. Market the activity.

CHALLENGES: Finding a message that can be communicated in an attractive and interesting way using the limited space on a postcard.

BENEFITS: A good way of communicating a concise message in an attractive way. Visitors can take information home with them. The postcard will remind them about the event and they can send the postcard on to others. Postcards can also be distributed by email and can then provide links to more detailed information.

LEAFLETS

A leaflet can vary in length, complexity and focus. Images and graphics usually make leaflets more interesting to read. It is also important to tailor the content to the target group.

TARGET GROUP: Flexible.

PREPARATIONS: Formulate the content, design the leaflet and decide on the appropriate amount to be printed. Market the activity.

CHALLENGES: Designing an attractive leaflet is often very time-consuming.

BENEFITS: Can provide a deeper understanding of a topic. Visitors can take the information with them and read it at their leisure.

RESEARCHERS' NIGHT CAKE

A cake with a logo, in this case the Researchers' Night logo, is a good way of marketing an event and getting passers-by to stop and look.

Cakes decorated with flags of EU countries were used during Researchers' Night events. Visitors were asked to match the cakes with the names of the countries – a fun and somewhat unexpected competition, which facilitated an EU-related conversation.

TARGET GROUP: Flexible, particularly suitable for younger visitors.

PREPARATIONS: Design the cakes and order or bake an appropriate amount. Market the activity.

CHALLENGES: Determining the appropriate number of cakes.

BENEFITS: Cakes appeal to a lot of people and give a welcoming and pleasant impression. They can tempt people to approach an information tent or table by acting as an ice breaker and a conversation starter.

INFORMATION TABLE

A simple and uncomplicated way of making information materials available is to set up a table and place the materials on it. Visitors can browse through the information. Materials are usually available for visitors to take with them as well.

The choice of location for the table will be largely determined by the number of visitors. Naturally, it is a good idea to place the table where plenty of people pass by. A person should sit at the table to allow for dialogue and two-way communication.

TARGET GROUP: Depends on the type of information.

PREPARATIONS: Deciding where to place the table and which materials to make available. Create or order the materials. Market the activity.

CHALLENGES: Making the table interesting so that people will stop and take in the information. Deciding on the quantity of materials you need for people to take with them.

BENEFITS: Simple and allows visitors to choose materials that interest them to take with them and read later. The table can be placed where a lot of people pass by.

INFORMATION TENT

A simple and uncomplicated way of making information materials available is to set up a tent with information inside, possibly alongside other organised activities. Passers-by can enter the tent and pick up information to take with them if they want to learn more. The choice of location will largely determine the number of visitors. It is of course a good idea to place the tent where a lot of people pass by.

TARGET GROUP: Depends on the type of information.

PREPARATIONS: Decide on a location for the tent and which materials will be made available. Obtain a permit to set up the tent if necessary. Construct or order the tent and prepare information materials. Market the activity.

CHALLENGES: Making the tent interesting so that people will stop and get information. Deciding on the quantity of information materials you need for people to take with them.

BENEFITS: Possibility of reaching many people for a small cost and giving visitors the opportunity to choose materials they find interesting to take with them and read later. The tent can be placed where many people pass by.

FIELD TRIPS

Field trips can usually be made to the same facilities described under “Tours & Open House Events.” They are arranged in advance and there is usually a researcher to lead the group of visitors and talk about the research being conducted.

Field trips may also be combined with a lecture, film screening or experiment demonstration etc. Field trips are different to open house events and tours in that they usually involve small groups with one person accompanying the group throughout the trip. The focus is on the researcher’s day-to-day work.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Prepare presentations and the venue for the field trip. Organise any activities to take place at the venue and make sure that there are researchers available to participate. Decide how people will register for the event and distribute information about registration. Decide on an appropriate size for a group of visitors. Market the activity.

CHALLENGES: Determining the size of the group and the length of the visit, and tailoring the information to the target group.

BENEFITS: Good activity for initiating a dialogue between researchers and the public. The target group often feels that they have been specially selected.

EXHIBITIONS

DIFFERENT TYPES OF EXHIBITIONS

Exhibitions of various kinds can be an easy way to convey information about research to the public. The exhibition's scope, target groups, complexity and shape can vary a lot. Existing exhibitions can sometimes be used in their original format but be careful to adapt the material to the target audience.

A research poster designed for a conference of scientists working in the same scientific field cannot be used for the public. In such cases, the information and exhibition must be redesigned.

Often there will be more interaction and dialogue around an exhibition, when it is combined with other activities, such as questions and answers with scientists, presentations, demonstrations, experiments, hands-on activities, competitions or lectures.

TRAVELLING EXHIBITION

Using an exhibition that travels from place to place has two major benefits – few people at each location will have experienced it before, and that the display is already available.

One example of a travelling exhibition used within the framework of Researchers' Night is an exhibition by Riksställningar (Swedish Travelling Exhibitions) and the Swedish Research Council entitled "See the Brain".

TARGET GROUP: Depending on the type of exhibition.

PREPARATIONS: Order the exhibition well in advance of the event (sometimes you need to wait years for your turn). Make sure that the exhibition is at the venue, adapt its presentation and find researchers/scientists to present it. Inform people when the exhibition will be open. Market the activity.

CHALLENGES: Presenting an exhibition in a good way and recruiting researchers to help present it and answer questions.

BENEFITS: No need to create a new exhibition. It is not a permanent exhibition that many people in the area may have already seen. Travelling exhibitions are often popular, well-made and already tested on a broad audience.

MUSEUM EXHIBITION

Presenting a museum exhibition in connection with an open house or tour of the museum is a simple way of communicating information about a specific research field. You can offer a tour as an individual activity or combine it with other activities at the museum.

TARGET GROUP: Depends on the type of museum and exhibition.

PREPARATIONS: Prepare any other activities to be combined with the exhibition, make sure that there are staff members on hand. Inform people about when the exhibition will be open. Market the activity.

CHALLENGES: Getting visitors to come to the event; many peo-

ple may have already seen the exhibition. One way to attract people is to offer them something new, such as being able to meet researchers who work in that field of research.

BENEFITS: The exhibition already exists and is usually well done. Museums are there to communicate knowledge and science, and the presence of a scientist/researcher adds another dimension.

POSTER DISPLAY

A poster display is a simple display that uses boards and posters to present different areas of science. The best way to use them is for the scientist responsible for the posters to be present. One way of creating a poster display is to allow people other than the scientists themselves to create the posters.

TARGET GROUP: Depends on the type of display.

PREPARATIONS: Create or obtain posters and make sure that there is someone present to talk about them. Decide where they will be placed and inform people about the display's existence and location. Market the activity.

CHALLENGES: Making sure that the posters are adapted to the target group; that they are clear and are at the right level for the visitors.

BENEFITS: No expensive display materials are needed and it is easy to set up. Once they are made, the posters can be reused.

OUTDOOR EXHIBITION

An outdoor exhibition will be seen by more people than those that might choose to go and see a museum exhibition. Remember that setting up outdoors usually requires more work and the weather can pose a problem. The choice of location is important as well because this will largely determine the number of people who will see it.

An outdoor exhibition can include various types of materials.

Read more under the headings that set out other types of exhibits for more ideas for different exhibition materials.

TARGET GROUP: Depends on the type of exhibition.

PREPARATIONS: Make sure that the exhibition's materials and themes are suitable for placing outdoors. Choose a location where many people pass by. Make sure that the display can handle different weather conditions. Market the activity.

CHALLENGES: Finding the right location and weather-proofing the exhibit. Making an exhibition that gets passers-by to stop and learn more about the subject. Adapting the materials to the right target group.

BENEFITS: Visitors do not need to be persuaded to enter a building. With the right type of exhibition, many people who would not normally be particularly interested in science or visit a museum may decide to stop and have a look. The exhibition can be positioned where many people pass by.

PHOTOGRAPHY EXHIBITION

It is possible to create an exhibition about a field of science or about the work of scientists/researchers where the message is primarily communicated through photographs. It is important to find photos that effectively present relevant scientific information, but that also capture the interest of the visitors. The choice of location is also significant because it will normally largely determine the number of visitors.

One example of a photography exhibition that took place during Researchers' Night was an exhibition by Joachim Grusell of photographic portraits of researchers at the University of Kalmar (now Linnaeus University) in different environments associated with their research. The exhibition was presented at the Linné Research Station on the island of Öland.

TARGET GROUP: Depends on the type of exhibition.

PREPARATIONS: Decide on a theme and suitable photos. Book a venue for the display and find researchers/scientists who can participate. Develop and print photographs if necessary. Find the best place to set up the display. Market the activity.

CHALLENGES: It may be difficult to find the right photographs/themes and a suitable location for the exhibition.

BENEFITS: Photography exhibitions are often accessible and relatively inexpensive to create. They usually appeal to a wide target audience.

ART EXHIBITION

This type of exhibition communicates science or research in a particular field primarily through the medium of art. Alternatively it can be an exhibition about art history.

If the exhibition is to communicate research through art, it is important for it to be accessible and capture the interest of the visitors. If the exhibition is about art history, it is important for the research to be explained effectively, preferably by an expert in the field. The choice of location largely determines the number of visitors.

TARGET GROUP: Depends on the type of exhibition.

PREPARATIONS: Decide on a theme and appropriate art work. Decide on the venue for the exhibition and perhaps find a researcher to be present. Organise the exhibition. Market the activity.

CHALLENGES: It may be difficult to find suitable art and a venue for the exhibition.

BENEFITS: Art exhibitions can spark people's interest, even those who are not normally interested in science.

Virtual Activities

Different types of virtual activities

RADIO

By partnering with a local radio station, it is possible to reach a large audience. A variety of activities can be run on the radio that communicate science to the public. The activities are usually free and relatively simple to organise. It is of course crucial to find a radio station that is interested and scientists who are good at explaining their research in a clear and simple way. It is easier to get the radio station and scientists on board if you start planning well in advance. It is usually possible to upload the radio broadcast to the Internet, either directly or afterwards.

Scientists often need some coaching and media training before appearing on the radio.

RADIO PANEL

A panel of one or more experts discussing research and science on the radio is often more dynamic and enjoyable to listen to than a normal interview. If you have a good panel, their discussion can increase people's understanding of the subject and also capture the interest of the listeners.

Various things need to be considered in order to assemble a good panel. You need to have the right combination of people in order to provide balance and different perspectives on the subject. The equality aspect is also important.

TARGET GROUP: Broad, flexible. Not usually for the youngest audience.

PREPARATIONS: Find a balanced and knowledgeable panel and contact a radio station. Prepare the discussion. Prepare the participating researchers through media training. Market the activity.

CHALLENGES: Assembling a balanced panel. Finding a radio station that is interested.

BENEFITS: Local radio stations often broadcast to a wide area. A good panel can provide the listeners with a deeper understanding than they would get in a simple interview.

RADIO INTERVIEW

Allowing a researcher to be interviewed on a radio station is a simple and effective way for people to hear about a field of research or the researcher's work and daily life. The choice of researcher is important because this person must be able to express him/herself in a way that educates and captivates.

TARGET GROUP: Broad, flexible. Not usually for the youngest audience.

PREPARATIONS: Contact the radio station, suggest possible appropriate questions. Prepare the researcher through media training. Market the activity.

CHALLENGES: Getting the radio station to conduct the interview and finding an appropriate researcher.

BENEFITS: Radio often has a broad reach. With an enthusiastic and instructive researcher, many people will choose to listen.

RADIO Q&A

Allowing a scientist to answer listeners' questions on the radio is a simple and effective way for people to learn about a field of research or a researcher's work and daily life. The choice of researcher is important because this person must be able to express him/herself in a way that educates and captivates.

TARGET GROUP: Broad, flexible. Not usually for the youngest audience.

PREPARATIONS: Contact a radio station and propose the format for the Q&A. Provide the station with some suggested appropriate questions. Prepare the researcher through media training. Market the activity.

CHALLENGES: Getting the radio station to do the interview and finding researchers suitable for the activity.

BENEFITS: Radio often has a broad reach. An enthusiastic and instructive researcher can attract a lot of listeners. Allowing the listeners to ask the questions creates two-way communication.

ONLINE AND WEB ACTIVITIES

Activities on the internet can be an easy way to reach a wide audience. They can also act as marketing prior to an event such as Researchers' Night. It is important to promote the activity. Popular local websites and social media can be effective channels to reach lots of people at no cost. In addition, flyers and printed materials can be used. By having computers available for visitors to use during a major event, such as Researchers' Night, people can also access the activity at the event.

CLIMATE CLICK

Climate Click was an interactive online activity developed jointly by the Swedish Research Council, Formas, Forskning.se, the Swedish Research Council and VA (Public & Science). Visitors were able to make a pledge on the website about how they would change their way of life to reduce their carbon footprint. The website was marketed in conjunction with Researchers' Night.

Through interactive websites visitors can learn about new research discoveries and at the same time interact with and search for information on the website. This provides a good opportunity for learning.

TARGET GROUP: Broad.

PREPARATIONS: Develop and design the website and market it, e.g. through social media and flyers.

CHALLENGES: Getting visitors to find and visit the website.

BENEFITS: You can reach a broad audience. Interactivity promotes learning.

LIVE CHAT

Chatting live with researchers on a website enables a dialogue to be initiated between researchers and the public. It is important to be clear about the times the researchers or experts will be available to chat.

Many organisers of this type of activity work with a local newspaper to spread information and market the activity.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a researcher and create a chat forum. Decide when the chat forum will be open. Market it, e.g. via social media and flyers. Prepare the researcher by providing instructions and information on the purpose of the activity.

CHALLENGES: Finding the right researcher and getting people to visit the chat forum. Marketing is important.

BENEFITS: You can reach a broad audience and initiate a dialogue between researchers and the public.

LIVE VIDEO STREAMING

By streaming live video, it is possible to reach a wide audience, just as by radio. It may be possible to interest a local TV station or an organisation's communications department. It is also easy to broadcast live online using modern free services such as Bambuser.

LIVE INTERVIEWS

Interviewing a researcher or scientist on video (on local TV or a webcast) is a simple and effective way to inform people about a field of research or a researcher's work and daily life. The choice of researcher or scientist is important because this person needs to be able to express him/herself in a way that educates and captivates.

TARGET GROUP: Broad, flexible. Not usually for the youngest viewers.

PREPARATIONS: Contact local TV channels or choose a webcast method and obtain a video camera. Suggest possible appropriate questions. Prepare the researcher/scientist for the interview and provide media training. Market the activity.

CHALLENGES: Getting the TV station to conduct the interview and finding a suitable scientist/researcher. If doing a webcast, it needs to be marketed well. It can be costly.

BENEFITS: TV often reaches a broad audience.

LIVE BROADCAST – Q&A

Having a scientist or researcher answer viewers' questions on TV or answer questions submitted in a webcast is a simple and effective way of informing people about a field of research or a researcher's work. The choice of researcher is important because this person needs to be able to express him/herself in a way that educates and captivates.

TARGET GROUP: Broad, adaptable. Not usually for the youngest viewers.

PREPARATIONS: Contact a TV channel and propose the format for the Q&A or find a webcast method and obtain a video camera. Prepare the session with the researcher/scientist, preferably including media training. Prepare a few suitable questions. Market the activity.

CHALLENGES: Getting the TV channel to conduct the Q&A session and finding a researcher who is suitable for the activity. If doing a webcast, it is important to market it well.

BENEFITS: TV often reaches a large and broad audience.

LIVE STREAMING OF LECTURES

Streaming a lecture online makes it possible for many people to see it live or after the event if a good webcast tool is used. With many tools (e.g. the free service Bambuser), it is also possible to ask the lecturer questions live.

TARGET GROUP: Broad, flexible. Not usually for the youngest viewers.

PREPARATIONS: Find a suitable lecturer and an appropriate theme, prepare the lecture and arrange the technology needed to record and webcast it. Market the activity.

CHALLENGES: Organising the technology and finding a suitable lecturer.

BENEFITS: You can reach people who would not normally go to lectures. It is also normally possible to view the lecture at a later time.

Lectures & Debates

Different types of lectures
and debates

LECTURES

Popular science lectures for the general public are common. For them to work, the level and content must be tailored to the target audience. Moreover, the questions and answers should be designed to support two-way communication. Choice of venue and time are other important parameters, as well as advertising the lecture well in advance.

Topics should be related to people's everyday lives, or engage a broad audience in another way. The lectures should be related to people's everyday lives, or otherwise feel engaging to a wide audience. Avoid general themes, and instead formulate questions such as:

- What factors determine our choice of partner?
- Why does wealth generally not lead to happiness?
- Can nanoparticles in skin creams and paint be dangerous?

DISPUTATION

Postgraduate research students go through a disputation where they present and defend their thesis. Disputations have been part of the programme of events during Researchers' Night. Unfortunately they usually are at a level that may be hard to follow if the audience is not familiar with the subject matter. It may, however be interesting for the public to witness the disputation process.

TARGET GROUP: Narrow, knowledge of the area of research is often needed.

PREPARATIONS: Find a suitable disputation and invite visitors. Ask about the format and consider giving the visitors extra explanatory information. Market the activity.

CHALLENGES: Difficult to find a disputation at a level that is not too advanced or inaccessible for the visitors.

BENEFITS: Provides an insight into current research.

LUNCH LECTURE

Holding a lecture at lunchtime and providing food can be an effective way of attracting visitors. The lecture format can vary but it should not last longer than a normal lunch break. Make sure there is time for questions and discussion at the end.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a lecturer and a venue. Order lunch and inform people about the activity. Market the activity.

CHALLENGES: Finding a suitable theme for the lecture. Finding funding for the lunch.

BENEFITS: Combining a lecture with lunch attracts people who don't have much time and who don't normally go to long lectures. A free lunch is always appealing.

LECTURE WITH AUDIENCE RESPONSE SYSTEM

Using an audience response system during a lecture increases the interactivity of the event and allows the audience to have an impact. With audience response the participants can express their opinions, which makes the lecture more interesting for the audience members who feel they are taking a bigger part in the event.

An audience response system can be purchased or rented from numerous suppliers.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a lecturer, an audience response system and a venue. Inform people about the activity. Prepare suitable audience response questions in cooperation with the lecturer. Market the activity.

CHALLENGES: Finding an audience response system for a reasonable price and selecting a suitable theme.

BENEFITS: Audience response systems increase interaction and can attract more participants.

LECTURE WITH TEXT MESSAGE QUESTIONS

Using a text message service to send questions during a lecture gives the audience the opportunity to ask questions directly and to have an impact on the lecture.

Displaying text messages on a screen (after they have been reviewed and approved) allows the participants to express their opinions, ask questions and comment, which makes the lecture more interesting for the audience who feel they more involved.

Text message services can be purchased from numerous suppliers.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a lecturer, text message service and venue. Inform people about the activity. Prepare suitable questions in consultation with the lecturer to launch a dialogue. Market the activity.

CHALLENGES: Finding a text messaging service for a reasonable price.

BENEFITS: A text message service increases interaction and can attract more participants.

PANEL DEBATE

Organising a debate with one or more researchers/scientists can make for an interesting and dynamic conversation if the panel has the right composition.

It is important to engage an experienced moderator and researchers who can provide different perspectives on a subject at a level that is appropriate for the audience. Consider the gender balance in the panel. Questions from the public should be encouraged to launch a dialogue. Choosing a venue, time and duration for the debate are other important considerations, as is marketing.

TARGET GROUP: Broad, flexible. Not usually suitable for the youngest audience.

PREPARATIONS: Find panel participants and a moderator for the debate. Book a suitable venue. Inform people about the activity and prepare the debate with the moderator. Prepare the researchers, both in terms of content and microphone technique. Market the activity.

CHALLENGES: Assembling a balanced panel and finding a good moderator.

BENEFITS: A good panel can make the debate interesting, entertaining and educational.

SHORT COURSES

A short course gives participants the opportunity to gain deeper knowledge about a topic than they would in a lecture. Sometimes they can include practical and laboratory sessions. The course might last, for example, a whole day or an evening, but the scope and structure can vary greatly, depending on the target audience.

THE HUMAN BODY

A good theme for a short course is the human body, which has been used successfully during Researchers' Night. It is a topic that relates to people's everyday lives; one that few people know a lot about but that many are interested in.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a suitable educator for the course, prepare a course plan, find a suitable venue and inform people about the activity. Decide on a maximum number of participants per course. Market the activity.

CHALLENGES: Creating a good format. Usually attracts a lot of participants but only a limited number can attend.

BENEFITS: Enables a deeper understanding of a subject and interaction with the participants.

CSI COURSE

A good theme for mini courses that has been used during Researchers' Night is methods used in criminology. These methods and tools have gained a lot of attention in recent years through the American CSI TV series.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a suitable educator for the course, prepare a course plan, find a suitable venue and inform people about the activity. Decide on a maximum number of participants per course. Market the activity.

CHALLENGES: Creating a good format. Usually attracts a lot of participants but only a limited number can attend.

BENEFITS: Enables a deeper understanding of a subject and allows interaction with the participants.

SPECIAL SEMINARS

A seminar can often offer more in-depth knowledge about a subject and more interactivity than a normal lecture.

TARGET GROUP: Journalists, educators or other professional groups within the general public target group.

PREPARATIONS: Find a suitable person to lead the seminar, prepare the format, book a suitable venue and inform people about the activity.

CHALLENGES: Creating a good format. Usually attracts a lot of participants but only a limited number can attend.

BENEFITS: Allows a certain group within the general public to get more in-depth knowledge on a subject.

Encounters with researchers

Different types of encounters between researchers and the public

RESEARCHER DISCUSSIONS

Researcher conversations or discussions are activities based on creating opportunities for dialogue between researchers and an audience. It is therefore important to start by explaining the format of the event. The researchers start by talking for a few minutes and ideally also ask the audience some questions, provide some concrete examples or make provocative statements. The participants are then invited to take an active part in the discussion.

Topics for discussion should be related to people's everyday lives or engage a broad audience in another way. Avoid general themes such as the risks associated with nanotechnology, and instead formulate questions such as: "Can nanoparticles in skin creams and paint be dangerous?"

The researcher must listen to and be interested in the participants' questions and ideas. The researcher needs to talk in a way that is easy to understand and that sparks people's interest – this is equally important as knowledge in the field.

The event can involve several researchers located around the

venue with the visitors moving freely around or changing places, as in speed dating.

A discussion with a researcher in front of a larger audience can also be arranged. To facilitate the dialogue, a moderator may be needed to structure the conversation, encourage input, ask questions if necessary, clarify points and round off the discussion.

A researcher discussion should not go so long that it feels as if the subject has been exhausted. Ideally it should end shortly after the discussion reaches a climax.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find researchers, engage moderators if necessary and locate a venue. Prepare the discussion and market the event.

CHALLENGES: Finding good themes and researchers. Getting the word out about the event.

BENEFITS: It is an easy way to initiate dialogue between researchers and those present.

SCIENCE CAFÉS

Science cafés are an international concept that involves one or more researchers having a discussion with participants in a café or in another informal setting, with the possibility of refreshments. In Sweden, the most common format is a brief introduction given by one or more researchers, followed by more lengthy discussions between all the participants, facilitated by a moderator. The aim is to create dialogue and interaction so that both researchers and participants gain new perspectives.

Organising a science café is not difficult. All that is needed is an interesting topic, an enthusiastic scientist, a good venue, a moderator, refreshments and marketing so that people hear about the event.

The moderator briefly introduces the topic, the participating researchers, explains the format and gives any practical information. Each researcher then gives a short introduction to the subject, if possible using concrete examples. Then the floor is open to the audience to ask questions. Someone in the audience might be primed to ask the first question to get the discussion going.

The role of the moderator is to ensure that everyone has an opportunity to participate, rephrase any complicated questions and to keep an eye on the time. If discussion is waning, then bring the café to a close slightly earlier rather than let the event drag on. Encourage participants to stay and continue the discussion at their tables. It is important that everyone can see and hear the researchers well. The use of a microphone is recommended, even one/several that the audience can use as well.

It is vital that both the participating researchers and the moderator understand the science café concept, particularly that it involves two-way communication between the audience and the researchers, and is not a

traditional lecture or panel discussion. Helpful guidelines for researchers and moderators as well as tips for organisers can be found at www.sciencecafe.se

It can be interesting to invite a panel of experts from different disciplines. The risk, however, is that the scientists talk too much to each other and that the audience become more observers than participants. Therefore, a maximum of three experts is recommended.

It is uncommon to pay a fee to the participating researchers but usually complimentary refreshments and a small gift is sufficient to thank them for their participation. Marketing is vital to the success of a science café. This activity could also be run for children as a party with refreshments.

SCIENCE CAFÉ

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a venue that has technical equipment, a moderator and scientists, prepare the discussion and market the event.

CHALLENGES: Finding a suitable topic and scientists, marketing the event.

BENEFITS: A good opportunity for dialogue between scientists and visitors. Relatively easy and inexpensive to arrange. Does not require a lot of preparation time for the participating scientists.

QUESTION TIME

This is a variation on the Science Café theme without the opening presentation from the scientists or researchers. Instead the event only consists of a question time where the public can ask the scientists questions in a café, pub or bar.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a venue that has technical equipment, find a moderator and scientists, prepare in advance and market the event.

CHALLENGES: Finding suitable topics and scientists. Marketing the event. With no opening presentation, it is imperative that members of the public ask questions.

BENEFITS: Creates a good opportunity for dialogue between scientists and visitors, and is relatively easy and inexpensive to arrange. Restricting the event to only a question time gives the public more of an opportunity to ask questions and requires a minimum of preparation for the scientists.

ROUND TABLE DISCUSSIONS

Round table discussions usually offer a good opportunity for dialogue with researchers. Researchers and other participants sit together in groups around small tables and discuss one or more topics.

Discussion in small groups is good for open and informal conversations with researchers. The visitors' thoughts and ideas can also be heard and the researchers may gain new knowledge and perspectives by participating.

The tables do not actually need to be round. However, it is important that they are not too large so that there are too many people in each group. Everyone at the table must be able to talk and hear the others without a problem. The discussions can start with various questions and a moderator can steer the conversation in a new direction at regular intervals. At the end of the session the moderator can go around the tables and ask one of the participants to summarise what was discussed at their table. If more documentation is desired, someone at each table can also take notes.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a suitable venue and tables of the right size. Find researchers, decide on a theme and inform people about the event. Market the activity.

CHALLENGES: Finding a good venue and suitable tables.

BENEFITS: Gives all the participants a chance to talk with scientists/researchers in an informal way and to put forward their thoughts and ideas. Allows the organisers and researchers to hear those ideas.

BORROW A SCIENTIST

The concept is based on scientists or researchers visiting schools or workplaces at the request of the participants. Those who would like to borrow a scientist can send a request for a scientist specialising in a certain subject, or there is an option to select from a “menu” of available scientists from different disciplines.

The focus of the visits varies from target group to target group. Visits to schools usually focus more on the scientist as a person, while at workplace visits the conversation usually focuses more on the actual research. The scientist should be prepared for this.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find and prepare scientists who are willing to take part; inform people and organisations about the chance to borrow a scientist and how to go about booking one. Market the activity.

CHALLENGES: Finding scientists who are good at communicating with different target groups.

BENEFITS: A way of reaching people who perhaps wouldn't otherwise participate in science communication activities. For schools and workplaces that are located far away from research institutes and universities, this activity gives them an insight into a researcher's everyday life.

GATHERINGS AND PARTIES

Organising social and festive events where people can meet scientists can be a great way to create dialogue between them. Some people are more comfortable asking questions and talking to scientists in a relaxed and informal atmosphere than at more formal events such as lectures.

AFTER WORK

Organising an After Work event late in the afternoon after normal working hours allows people leaving work the opportunity to end their day meeting scientists in an informal and pleasant setting. An After Work event is usually an informal conversation around a table at a pub or restaurant.

TARGET GROUP: Broad, flexible; suitable for people who want to do something interesting after work.

PREPARATIONS: Find a suitable venue and scientists, market the event.

CHALLENGES: Getting people to come. Avoiding loud music or patrons who have had too much to drink.

BENEFITS: Familiar concept; pleasant and informal conversation format.

PARTY

A “Science Party” is an activity that can both attract visitors and be enjoyable for scientists. A party can vary greatly in size and format, but usually takes place in the evening and requires a little work to create the right atmosphere (venue, music, refreshments etc.). Consider also how to organise the party to facilitate conversations with scientists.

Marketing is crucial to attract people to the party.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a venue and make sure that it is prepared (decorations, music system, refreshments, etc.). Decide on the time of the party and check if a permit is required. Find scien-

tists who want to come. Market the party. Try to determine how many guests to expect.

CHALLENGES: A party is a bigger event requiring some preparation if it is to be a success. Make sure that it doesn't turn into an “office party” for the scientists; the purpose is dialogue with the public.

BENEFITS: Has the potential to attract many visitors and also to be a pleasant activity for the scientists.

THANK GOODNESS IT'S FRIDAY EVENT

On a Friday, e.g. during Researchers' Night, organising a TGIF (“Thank Goodness It's Friday”) event can be a simple way of promoting informal conversation with scientists. A TGIF event is usually not a big party, but a more relaxed and informal gathering, e.g. in an office coffee break room. TGIF events have, for example, been arranged with PhD students at a university department. Provide soft drinks and snacks etc.

TARGET GROUP: Broad, flexible. More appropriate for a younger target group than After Work events.

PREPARATIONS: Find an appropriate venue and suitable scientists. Make sure that someone buys refreshments. Market the event.

CHALLENGES: Getting people to come to the TGIF event.

BENEFITS: Not as much to organise as with a bigger party; usually good for informal conversation.

GATHERING / BUFFET

Various kinds of gatherings, e.g. during a lunch break or in the afternoon or evening, provide an opportunity for informal conversation combined with a bite to eat. Food usually attracts visitors and is a good way of creating an informal atmosphere.

TARGET GROUP: Broad, flexible, especially good for a slightly older target group.

PREPARATIONS: Find a suitable venue and scientists/researchers. Make sure that the food is ordered and inform people about the event. Market the activity.
CHALLENGES: Ordering the right amount of food and finding fund-

ing for the food. Initiating conversations between the researchers and the public.
BENEFITS: Food usually attracts visitors and is a good way of creating an informal mood for conversation.

SHOP WITH RESEARCHERS

In this activity, researchers are available in shops to talk and answer questions about research and science linked to the items being sold. A researcher could, for example, stand in a pharmacy and talk about different medicines and the research associated with them.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Match scientists with shops, prepare the scientists for the activity. Market the activity.

CHALLENGES: Finding shops that want to have a visiting scientist, and scientists who want to stand in a shop and answer questions in a relaxed manner.

BENEFITS: Reaches a broad audience, including people who don't usually go to science communication activities.

SCIENCE SQUARE

Organising an open square event where scientists/researchers are available to answer questions and converse with visitors is an easy way to create opportunities for dialogue. The main challenge is getting the visitors to come to and remain in the square. It is therefore a good idea to include various hands-on activities.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a suitable venue and scientists. Market the activity. Arrange possible additional activities.

CHALLENGES: Getting visitors to come to the square and stay there for a while. Clear and effective marketing is needed.

BENEFITS: Relatively easy to arrange.

Demonstrations and shows

Different types of demonstrations
and shows

SHOWS

Shows can be an engaging and exciting way to showcase scientific concepts and phenomena. Shows can be designed in many ways, with different scope and subjects. It is important to advertise the shows and to hold them in places with high footfall or in an easily accessible venue.

Many shows are especially designed to captivate and appeal to a younger audience, but the audience can also be very broad.

DANCE SHOWS

Dance shows can be a good way to draw audiences as well as portray everything from physical phenomena to arts and cultural research. With thoughtful choreography, the show can be an attractive alternative way of capturing public interest and conveying research in an unusual way.

ROBOTS

Robots that dance are usually popular because many people are fascinated by robots. The performance combines knowledge of technology, mechanics and physics with artistic elements.

TARGET GROUP: Broad, flexible. Appeals to a younger target audience.

PREPARATIONS: Find robots, choreograph the dance and work with developers/scientists who can program the robots. Organise a stage in a suitable location and market the activity.

CHALLENGES: Finding robots and developers/scientists who can program them.

BENEFITS: Draws an audience of all ages, especially young people.

PEOPLE

A dance performed by people, if done right, can demonstrate many physical phenomena associated with movement, gravity and mechanics. A dance performance can show various areas of humanities and social sciences research in a creative and challenging way. It is a good idea to organise this activity in cooperation with dance schools.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find dancers and a stage in a suitable location. Discuss the format with the dance group and market the activity.

CHALLENGES: Finding dancers and a suitable format for the performance.

BENEFITS: Dancing is an accessible medium for most people. A well-choreographed, well-performed dance can convey a scientific message in a beautiful and interesting way.

PHYSICS SHOWS

Physics shows are a common feature of, for example, Researchers' Night. Often it is possible to make the shows spectacular and interesting, while clearly related to research in physics. Usually held on a stage, in a place with high footfall or in an easily accessible venue. By holding the show outside, it can be a good way to attract an audience and entice visitors indoors to participate in other activities.

To organise a good show it is best to work with a scientist who has experience of presenting shows or a business or organisation that does physics shows.

STEAM SHOWS

Steam shows are a type of physics show that use steam to demonstrate different physical phenomena. They can present such things as temperature, the different states of matter and the properties of water. It is possible to demonstrate that water takes up a lot of space when it becomes steam and that steam pressure is powerful and can set things in motion.

TARGET GROUP: Broad, flexible. Appeals to a younger target audience.

PREPARATIONS: Find someone to organise the show, decide on a venue and time, market the show.

CHALLENGES: Finding someone to organise the show, and marketing it.

BENEFITS: This type of show often attracts a large audience.

LASER SHOWS

A variation of a physics show that uses laser beams. They are usually spectacular shows that demonstrate different optical properties. Laser beams are now part of our everyday lives, but once belonged mainly to science fiction, which is why many people are interested.

TARGET GROUP: Broad, flexible. Appeals to young people.

PREPARATIONS: Find someone to organise the show, decide on a place and time, market the show. Best if presented after nightfall.

CHALLENGES: Finding someone to organise the show, and marketing it.

BENEFITS: Often a spectacular and interesting show that is appreciated by the audience.

ELECTRICITY SHOWS

A variant of a physics show that uses electricity to demonstrate physical phenomena and electricity. One common feature is to let visitors experience what it feels like to have 10,000 volts go through their body.

TARGET GROUP: Broad, flexible. Appeals to a younger audience.

PREPARATIONS: Find someone to organise the show, decide on a venue and time, market the show.

CHALLENGES: Finding someone who can organise the show, and marketing it.

BENEFITS: Can be made into a small or large-scale activity.

HOLLYWOOD PHYSICS

Hollywood physics is a variation of a physics show that is based on identifying and explaining mistakes in Hollywood films in physics terms. Clips from different feature films are shown and the public has to guess what episodes in the film do not make sense in reality.

TARGET GROUP: Broad, flexible. Appeals to a younger audience.

PREPARATIONS: Find someone who can organise the show, decide on a place and time, advertise the show.

CHALLENGES: Finding someone who can organise the show, and marketing it.

BENEFITS: The theme is interesting to a broad target group.

FAKIR AND CIRCUS SHOWS

Fakir and circus shows are a type of physics show that use circus and fakir tricks to visualise different physical phenomena. For example, a bed of nails and acrobatics demonstrations are presented and explained based on the laws of physics.

TARGET GROUP: Broad, flexible. Appeals to a younger audience.

PREPARATIONS: Find someone who can organise the show, decide on a venue and time, market the show.

CHALLENGES: Finding someone who can organise the show, and marketing it.

BENEFITS: The theme is spectacular and of interest to a broad target group.

BUBBLE SHOWS

Bubble shows are a type of physics show where soap bubbles are used to show different physical phenomenon, such as surface tension.

TARGET GROUP: Broad, flexible. Appeals to a young audience.

PREPARATIONS: Find someone who can organise the show, decide on a venue and time, market the show.

CHALLENGES: Finding someone who can organise the show, and marketing it.

BENEFITS: The theme is usually attractive to a younger audience.

EXPERIMENT SHOWS

An experiment show is a type of show, in which spectacular and interesting experiments are demonstrated with a clear link to science.

The show is usually presented on a stage, in a place with high footfall, or in an easily accessible venue.

To organise a great show it is best to work with a scientist who has experience of participating in public events or a business or organisation that does experiment shows.

MINI VOLCANO

Showing how a volcano works and erupts is an experiment demonstration that attracts a younger audience in particular.

TARGET GROUP: Broad, flexible. Appeals to the young.

PREPARATIONS: Find someone who can arrange the show, obtain a “volcano” and necessary chemicals, decide on a venue and time, market the show. Permits may be required from the police and fire department.

CHALLENGES: Finding a good place outdoors and someone who can conduct the experiment.

BENEFITS: Appeals to a younger audience.

ICE CREAM MAKING

Showing how ice cream can be made using liquid nitrogen is an experiment that attracts a younger audience in particular. It is also an opportunity to inform people about and discuss chemistry and physics.

TARGET GROUP: Broad, flexible. Appeals to a younger audience.

PREPARATIONS: Find someone who can organise the demonstration, obtain materials, decide on a venue and time, market the show.

CHALLENGES: Finding a good location and someone who can conduct the experiment.

BENEFITS: Appeals to a younger audience, relatively easy.

FIRE SHOWS

Fire shows are spectacular shows that can also be used to explain physics, e.g. how it is possible to spray flames and extinguish them.

TARGET GROUP: Broad, flexible. Appeals to a younger audience.

PREPARATIONS: Find someone to organise the show, decide on a venue and time, market the show. Permits from the police and fire department may be needed. It is best to hold the show after dark. Market the activity.

CHALLENGES: Finding someone who can organise the show, and marketing it.

BENEFITS: Appeals to a younger audience. Relatively easy.

CHEMISTRY SHOWS

Chemistry shows can be presented in many ways and are a common element in events such as Researchers’ Night. It is often possible to make the shows spectacular and interesting while maintaining a clear link to research in the field of chemistry. They can be presented on a large scale on a stage, or on a smaller scale at a table etc.

To organise good chemistry shows you will normally need a scientist who can organise the show or a company or association that works with chemistry shows. Young Scientists is a non-profit association that is particularly good at organising chemistry shows.

TARGET GROUP: Broad, flexible. Appeals to a younger audience.

PREPARATIONS: Find someone who can organise the chemistry show. Decide on a venue and time. Obtain materials for the experiment. Market the activity.

CHALLENGES: Finding people who can organise the activity and creating a good format for the show.

BENEFITS: Very suitable for a small-scale event, usually appreciated by visitors.

MUSIC BAND

Having scientists perform in bands is a good way of showing that scientists are normal people with interests outside the realm of science and research. The best thing would be, of course, to book a band that already exists, but you can also assemble a group of musical scientists and students for a joint performance. Find a suitable venue and stage.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find scientists that play musical instruments and preferably are already in a band. Find a suitable stage, organise sound and lighting and market the event.

CHALLENGES: Finding scientists who play music.

BENEFITS: Easy to organise if you find a willing band. Usually appreciated as a complement to more traditional experiments and dialogue activities.

DEMONSTRATIONS

Demonstrations are similar to shows, but are on a smaller scale and involve researchers demonstrating science and research or how something works. Find a suitable venue and stage.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find suitable researchers, decide on the format, venue and time. Market the activity.

CHALLENGES: Planning the format and how you will attract visitors to watch the demonstration.

BENEFITS: Relatively easy to arrange on a small scale.

STAND-UP

Stand-up comedy with a connection to research and science is an unconventional and attractive format for science communication. It takes quite a lot of time to write a script and practice the performance, or if possible you can book a scientist who is used to doing stand-up. You could also book an established stand-up comedian, but in that case some instructions must be provided so the performance is actually linked to science. Think about a suitable venue and stage.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Write and practice the material or book a scientist used to doing stand-up or a comedian. Find a suitable venue and market the event.

CHALLENGES: Producing good material for the stand-up session. Finding a good stand-up comedian for a good price.

BENEFITS: Could be an enjoyable and unusual event.

SCIENCE THEATRE

Offering a theatre performance with content related to science and research is a great way to combine culture and research. In addition, an exciting story can make it easier for the audience to remember the facts that are incorporated into the show.

Many different science theatres have been set up in Sweden. The easiest way is, of course, to hire a theatre group that can deliver an existing play as creating your own play involves a significant amount of work. Improvisational theatre is a variant that requires much less preparation.

Think carefully about whether pre-registration and tickets are required, the number of performances and make sure it is advertised well in advance!

ALBERT EINSTEIN SHOW

Science theatre on the theme of Albert Einstein, ethics and physics. This play has been performed by Teater Spira, who describe it as follows:

“The Albert Einstein Show is a comical and poetic performance about the beautiful and fantastic aspects of physics and the universe. It is about how important moral responsibility is when scientific development is so rapid that it gets ahead of both public discourse and government control.”

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find a group that can put on the show or produce your own show on the Einstein theme. Market the activity.

CHALLENGES: Finding a suitable theatre company or producing your own play. Finding a suitable theatre and marketing the play.

BENEFITS: The Einstein theme has worked well in past performances and has been enjoyed and appreciated by the audience.

IMPROVISATION

This type of theatre requires relatively little preparation and relies instead on improvisation. The art of performing without a script is found all around the world. Often the public is invited to choose a theme for the improvisation, e.g. by indicating where the scene should be set, what professions and characteristics the participants should have etc.

Stockholm's Improvisation Theatre developed a performance in cooperation with VA (Public & Science) for Researchers' Night on asthma and allergies. The actors improvised scenes on what it is like to suffer from asthma and allergies, interspersed with explanatory elements from a researcher in the field.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Plan a theme and format and book a venue. Market the event.

CHALLENGES: The result is very much dependent on the standard of improvisation.

BENEFITS: Requires relatively little preparation. Very popular among young people.

DARWIN SHOW

Several science theatre performances on the scientist Charles Darwin have been set up over the years, e.g. “Darwin's dilemma” by the theatre group, Allikateatern. The play was an art theatre performance for adults about the development of the modern theory of evolution.

The theme was described as follows:

“To go against the entire story of creation in the bible was not an easy decision to make in England in the 1850s. After years of brooding, the dilemma over Charles Darwin's theory is being brought to a head. If he does not publish his theory now, others will beat him to it.”

TARGET GROUP: For adults, but flexible.

PREPARATIONS: Find a troupe that can put on the play, or produce your own play on a Darwin theme. Find a suitable theatre and market the play.

CHALLENGES: Finding a theatre troupe or putting on your own play.

BENEFITS: The theme has worked well in past performances and been enjoyed and appreciated by the audiences.

FORUM THEATRE

Forum theatre is an interactive form of theatre in which the audience gets the opportunity to change and influence the performance. One or several scenes are acted out for the audience. The scenes always contain a conflict and end when the conflict is at its worst. When the same scene is acted out again, the audience is invited to stop the play. The person who calls a stop to the play is invited to take over one of the roles and try to continue the play in a way that reduces or breaks up the conflict. After trying out their suggestion, the person who did the swap goes back to their place in the audience. The original scene is acted out again and other members of the audience can stop the action and take over a role to test out alternative ways to change the course of events. The format can be adjusted to be shorter, where scenes are only played out once and the audience is able to comment and guide the actors instead of participating themselves.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Contact a theatre group that preferably has experience of forum theatre and one or more researchers. The researcher and theatre need to meet a few times to work out the play. The screenwriter needs to understand the research and get help from the researcher to develop concrete dilemmas and situations, preferably based on reality, to build the play around. Then the script is written and the play is rehearsed. Allow about 4-5 months preparation time. Once developed, a play can be used multiple times and may go on tour.

CHALLENGES: Forum theatre is based on a clear conflict, which may be difficult to identify in the research. This may lead to differences of opinion between production and research. To solve this, you should view forum theatre as an approach that asks a question, brings everything to a head, and then the audience is responsible for the discussion and questioning. Another way is to make several scenes that contradict each other, where the audience gets to empathise with different sides of the conflict.

It is an advantage if the researcher can be on hand to comment and ask questions during the performance and in the end summarise what happened during the performance and how it relates to their research. A forum theatre requires commitment from lots of people. This means that you need adequate resources and a relatively long preparation time. Sign a contract with the theatre so everything is in writing. It also requires the project manager to take an on-going active role to ensure that the theatre company and the researcher meet and that there is enough material for the writer to work with. When the play is ready, it can, in principle, be shown as many times as you wish. From the beginning, plan a number of performances to help you recuperate as much of your investment in the project as possible.

BENEFITS: A good way to create engagement with the audience and initiate a discussion around an issue or an ethical dilemma.

Hands-on activities / competitions and games

Different types of hands-on activities
that are linked to research

WORKSHOPS

It is possible to organise many different types of workshops to share knowledge about science and research. A workshop usually focuses on problem solving combined with practical exercises and is generally led by one or more people. The size of the group should be limited for practical reasons. The scientific level and type of material used can be adapted to the target groups.

Workshops may be suitable for younger audiences because they include practical sessions. Teacher-training programmes also often work well in this format.

STORYTELLING

Storytelling is about developing and visualising a company's or an organisation's own narrative about themselves and their business. It involves putting the emotional elements of their work and personal experiences into words. The stories need to be dramatized to ensure they come to life and are not too long. You can engage a person with storytelling skills to guide participants on how to do this or alternatively use examples of short stories in books, online, etc. Storytelling is at its best when it involves oral stories based on reality.

TARGET GROUP: Broad, flexible

PREPARATIONS: Contact a person skilled in storytelling and who is also interested in research. Invite researchers to a workshop to produce stories to illustrate their research. It might be about a personal experience that explains why they are undertaking research into a particular topic, something that was shared during a research interview or an experience in the field.

The stories can then be used in a broader workshop where researchers share their stories with invited participants, who may also gain inspiration from the storytelling method. The participants' own stories can be worked on in groups. The stories must be true and based on associations that arise from listening to the scientists' stories. The researcher(s) could sit with the groups or walk around answering questions. Then all participants are brought together to share their stories with each other. You could write the titles up on flipcharts and then record the stories being told with a video camera or mobile phone.

CHALLENGES: Listening to the stories about research might limit the participants' creativity and lead them to focus on coming up with a certain type of story. Emphasize that it is all about personal associations, what comes to mind for them personally when they hear the stories. There are no wrong stories because it is about personal experience. Those who work with certain storytelling methods may strictly follow a certain format. This might cause friction when using this more flexible approach of storytelling. Ensure that the expert is open to trying new approaches and adapting the concept to accommodate stories about research. Give the researcher and storyteller an opportunity to talk together properly and agree that it is not just about the method but also about arousing people's interest in research.

BENEFITS: A good way to contextualise research results and create a dramatic narrative around them. Participants are able to relate to the research and consider how it affects their lives.

CSI

In this workshop the participants can test simple methods used in forensic science and learn how they work. The workshop can include themes with a CSI connection, such as DNA.

TARGET GROUP: Flexible. Suitable for teachers and a younger target group.

PREPARATIONS: Find workshop leaders. Decide upon a venue and time. Organise the necessary materials. Market the activity.

CHALLENGES: Finding scientists who are expert in the field.

BENEFITS: Usually attracts many young participants.

CLOTHING SWAP

In this workshop the participants bring articles of clothing to swap them with others while research on climate change and sustainable development is discussed. Sometimes there are sewing machines and fabrics available so that garments can be altered and redesigned by the participants.

This concept has been used successfully in connection with Researchers' Night.

TARGET GROUP: Suitable for a broad target group.

PREPARATIONS: Find leaders for the workshop, decide on a venue and time. Organise the necessary materials and equipment. Market the activity.

CHALLENGES: Marketing the activity and getting visitors to bring clothes with them to swap.

BENEFITS: May be of practical use for the visitors.

ROBOT PROGRAMMING

In this workshop the visitors can try simple robot programming. Usually a scientist or other person with knowledge of programming is present at the workshop. A simple version of robot programming uses LEGO robots.

TARGET GROUP: Suitable for a younger target group.

PREPARATIONS: Find leaders for the workshop, decide on a venue and time. Organise the necessary materials. Market the activity.

CHALLENGES: Finding scientists and robots.

BENEFITS: Usually attracts young visitors.

ENCRYPTION

At this workshop the participants get to try encrypting and decrypting messages and learn more about various encryption methods. Mathematics researchers are often best suited to lead this type of workshop.

TARGET GROUP: Works for a broad target group.

PREPARATIONS: Find leaders for the workshop, decide on a venue and time. Organise the necessary materials. Market the activity.

CHALLENGES: Coming up with tasks to keep the participants interested.

BENEFITS: No expensive materials are needed, fairly easy to arrange.

RESEARCH

This is a workshop where the participants can conduct a certain element of a specific research task. The format of course depends on which researchers are participating and which elements of the research they want people to help with.

TARGET GROUP: Suitable for a broad target group.

PREPARATIONS: Find leaders for the workshop, decide on a venue and time. Organise the necessary materials. Market the activity. It might be a good idea to require participants to register in advance.

CHALLENGES: Identifying suitable research elements.

BENEFITS: Gives the participants the opportunity to test “real” research.

ART ANALYSIS

This type of workshop is based on art history and allows the participants to analyse different works of art using art history methods.

TARGET GROUP: Broad, suitable for a slightly older target group.

PREPARATIONS: Find a leader for the workshop, decide on a venue and time. Organise the necessary materials. Market the activity.

CHALLENGES: Finding suitable works of art and researchers.

BENEFITS: An activity that is not based on natural sciences as many of the other activities are.

COMPETITIONS AND GAMES

Competitions and games can be an effective way of capturing the visitors’ interest and at the same time conveying knowledge about science and research.

Researchers can participate in various competitions that take place in front of a public audience, which helps them to learn how to communicate their research in an engaging and inspiring way to the public. By allowing visitors to compete using methods linked to research, it is possible to mix business with pleasure. When planning, it is important to work out how many people can play or compete at a time.

Consider awarding prizes to any winners or arrange a lottery with prizes for contestants, to attract participation. Also, advertise the activity well in advance. Many of these activities are particularly suitable for younger audiences.

GAMES

MINDBALL

Mindball is a game controlled by brainwaves and has been used successfully during Researchers’ Night and other events. The two competitors try to move a ball over a table towards their opponent’s side by being as relaxed and focused as possible. The game can be linked to many scientific disciplines.

These games are available for purchase or rental from the company Interactive Productline.

TARGET GROUP: Suitable for all, but usually attracts young people in particular.

PREPARATIONS: Decide on a venue and time. Organise the actual game and equipment. Market the activity.

CHALLENGES: Renting, purchasing or borrowing a Mindball game.

BENEFITS: The game is usually very popular and not many people have tried it before.

ENERGY GAME

The point of this game is to teach the participants more about energy and its different sources in an enjoyable way. It has been used at Researchers' Night events many times. One example is the computer game PowerHouse where people learn about easy ways to save energy and money.

You can, of course, create other types of game with an energy theme, such as quizzes about energy, the environment or the climate. Another example is "A lot of energy for nothing" – demonstrating how much energy electrical appliances use when they are on standby and how far one kWh actually goes.

TARGET GROUP: Suitable for young people, but can be adapted.

PREPARATIONS: Find someone to run the game, decide on a venue and time. Organise the necessary materials. Create a game if necessary. Market the activity.

CHALLENGES: Getting people to stop and play.

BENEFITS: A simple way to provide information about a very topical and socially relevant issue.

MOBILE PHONE GAME

Having a go at playing or discussing the development of mobile phone games can be a way for participants to see the connection between everyday life and science. This activity is a good way of illustrating the research and development of computer games, mobile games and other mobile apps.

TARGET GROUP: Suitable for young people, but can be adapted for all ages.

PREPARATIONS: Find developers/producers for the game or app and decide on a venue and time. Organise the necessary materials. Market the activity.

CHALLENGES: Creating a suitable format and suitable games. Many people might not think that mobile games are all that exciting now that they have become so common.

BENEFITS: Connects the everyday lives of young people with science. Most young people have their own mobile phones that they can use.

CLIMATE GAME

This game aims to teach participants more about the climate and climate issues. Visitors can, for example, find out how "climate smart" they are. Chalmers University of Technology has developed a hands-on climate game where visitors assemble squares that symbolise carbon emissions in a shopping basket based on how they answer questions about their habits. The game has been used during Researchers' Night events. Other similar games with a climate theme can of course be developed.

TARGET GROUP: Suitable for most people.

PREPARATIONS: Find people to run the game and decide on a venue and time. Organise the necessary materials. Market the activity.

CHALLENGES: Getting people to stop and play.

BENEFITS: A simple and attractive way to provide information about a highly topical and socially relevant topic.

VIRTUAL REALITY GAMES

This type of game allows the participants to try playing in some kind of a virtual reality environment. One variation is to use advanced VR equipment where the participants, wearing for example helmets, have the experience that they are physically within a virtual environment. A simpler variation is to test a virtual environment with a computer, e.g. Second Life.

TARGET GROUP: Suitable for a younger target group, but can be adapted for different age groups.

PREPARATIONS: Find people to supervise the game and decide on a venue and time. Organise the necessary materials. Market the activity.

CHALLENGES: Finding tools to create a virtual environment.

BENEFITS: Usually very popular.

MEET ROBOTS / COMPUTERS

Challenging a robot or a computer to a game is usually a popular activity. The type of game offered depends largely on which robot or game is used. Decide in advance how many visitors will be able to play simultaneously based on the number of robots/computers. Often this activity is a good way of illustrating game research, artificial intelligence or computer science.

TARGET GROUP: Suitable for a younger target group but can be adapted for adults as well.

PREPARATIONS: Find people to supervise the game and decide on a venue and time. Obtain robots, games and other necessary materials. Market the activity.

CHALLENGES: Obtaining robots/computers and games.

BENEFITS: Usually attracts a lot of visitors.

WASTE SORTING GAME

This game tests the participants' knowledge of how to sort waste. The idea of the game is to win points by answering questions correctly on how different items of waste should be sorted. Often waste sorting is not as easy as it seems. The game can be connected to research on sustainable development and the environment.

TARGET GROUP: Broad.

PREPARATIONS: Find people to supervise the game and decide on a venue and time. Organise the necessary materials. Market the activity.

CHALLENGES: Getting people to stop and play.

BENEFITS: Gives the participants practical and useful knowledge.

COMPETITIONS

RESEARCHERS' GRAND PRIX

The Researchers' Grand Prix is a Swedish competition in which researchers compete to give the best presentation about their research within a set amount of time. Between 5-8 researchers have just four minutes each on stage to present their research in front of a public audience. A jury of three people, representing academia, the media and the performing arts, judges the presentations on the basis of performance, structure and content. After a quick reminder from each of the competitors, the public is invited to vote using an audience response system, SMS or some other method. The jury then awards its points. The points are added up to determine the winner, who goes forward to a national final held in Stockholm in the late autumn.

The concept originates from the University of Southern Denmark. The competition took place for the first time in Sweden in Autumn 2012. It is organised by VA (Public & Science) and the research councils Formas, Forte, VINNOVA and the Swedish Research Council. Regional heats are run by local organisers as part of the annual science festival Researchers' Night. The aim is to raise the profile and status of researchers as well as showcase the breadth of Swedish research.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find researchers who wish to compete. Anyone who works with research in the private or public sector in Sweden is welcome to participate.

The competition is not, however, open to those who work professionally in science communication. The presentation should be given in Swedish. All participants receive inspirational coaching in presentation techniques and storytelling. Invite three people to sit on the judging panel. A person skilled in journalism, a prominent scientist and a person with experience of the performing arts. Each member of the jury should evaluate the participants' presentations based on their own area of expertise.

CHALLENGES: Ideally you want participants to come from a range of different institutions, companies and workplaces. Participants should also represent a diverse range of disciplines. Often, it can be difficult to recruit participants from the humanities and social sciences. Remember to try to get a good gender balance among the competitors and the jury. There will be better interaction between the jury members if you are able to brief them and get them together before the competition. They should fully understand the concept. Their feedback to the contestants should be positive and constructive. The organisers must ensure that the researchers receive training / coaching in presentation techniques prior to the regional heats. For example, beforehand you could run a joint session where participants can get to know each other and receive coaching from a local communicator/actor or researcher who is an experienced communicator. Each contestant should also receive some short individual coaching and help to fine tune their presentation.

BENEFITS: The competition is a way to disseminate information about research and researchers in an accessible but serious way. The format may attract new audiences who do not normally come into contact with science. The researchers receive training in how to present their research in a short and comprehensible

way, which often leads to them being asked to present in other contexts, for example in the media.

RESOURCES: Read more about the concept at: www.forskargrandprix.se

SCIENCE SLAM

A Science Slam is a way to share research with the public in an entertaining way. Six researchers give presentations to an audience on completely different topics of current, socially beneficial research. The audience is the jury and votes for the person that can inform, entertain and engage the audience the best with their presentations. The researchers present their research in a given time frame, maximum eight minutes. They may use props to support their presentation and engage the audience with props, such images, videos and objects. Inspired by the concept of Poetry Slam, where poets recite original work in front of an audience that votes the winner. The first Science Slam was held in Braunschweig in Germany in 2008.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find researchers who are willing to participate and prepare them beforehand. Engage a suitable compere to host the event. Advertise the activity.

CHALLENGES: Finding researchers who are good at communicating with different audiences. Ensure the researchers receive adequate coaching prior to their performances. Make sure that the audience can vote in a simple way.

BENEFITS: A good way to reach members of public who may not otherwise participate in science communication activities.

DRAWING COMPETITIONS

Drawing competitions often make a good type of competition. Drawings can be done in a relatively short period of time, are easy to exhibit and require no complicated materials. It may be difficult to get an audience to attend the prize giving. Remember to advertise the competition in advance, for example, through mailings to schools, press releases and newspaper advertisements.

DRAW A SCIENTIST

Drawing a scientist is a simple and interesting competitive task for a younger target group. Also, these kinds of competitions usually reveal what a stereotypical scientist looks like and the results can therefore be interesting to study. Researchers' Night held a competition called "Draw yourself as a scientist!" in 2007 and 3,000 children and young people sent in drawings of themselves as adult scientists. The competition was set up in such a way as to avoid getting drawings that were too stereotypical.

A report entitled "Myself as a Researcher – an Analysis of Children's Images of Scientists" analyses the drawings from the 2007 Researchers' Night competition. (VA) Public & Science

compiled a report that same year about the image young people have of scientists from the media.

TARGET GROUP: Suitable for a young target group.

PREPARATIONS: Appoint a person to be in charge of the competition and who can provide instructions and assistance, decide on the rules for the entry format and how drawings should be submitted and judged. Organise the necessary materials. Decide on suitable prizes and how the prize giving will take place. Market the activity.

CHALLENGES: Creating the judging criteria and adhering to them. Creating a good format for a possible prize giving ceremony and getting people to attend it.

BENEFITS: Provides interesting materials to study. A good theme for a drawing competition. No expensive materials are needed.

POSTER COMPETITION

A competition to create posters can be arranged in a variety of ways. The entries can be drawn, created on a computer or in the form of a collage etc. Posters are easy to display and the theme of the competition can be easily varied.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Appoint a person to be in charge of the competition and who can provide instructions and assistance. Decide on the format of the entries and how they will be submitted and judged. Organise the necessary materials. Decide on appropriate prizes and on a format for the prize giving. Market the activity.

CHALLENGES: Creating judging criteria and adhering to them. Creating a good format for a prize giving ceremony and getting people to attend it.

BENEFITS: Being able to display the competition entries. No expensive materials are needed. The winning poster can be used to market future events.

PHOTOGRAPHY COMPETITION

As more and more people have digital cameras or camera phones it is relatively easy to get a lot of people to take part in a photography competition. The challenge can be deciding on a good theme with a research/science connection and an efficient way of gathering and displaying the photos. Another aspect that can be hard to organise is a prize giving ceremony. Remember to market the competition in advance.

If images are to be submitted as developed or printed photos, you need to have a final registration deadline. The images can be presented on digital or physical displays, projected or uploaded on a website, in which case, entries could be submitted and winners selected on the same day. Digital cameras in mobile devices as well as social media make it possible to spread the competition images and quickly gather photo entries.

Researchers' Night organised a photography competition in 2008 called "Researchers in Focus!"

TARGET GROUP: Suitable for a broad target group.

PREPARATIONS: Appoint a person to be in charge of the competition and who can provide instructions and assistance. Decide on a format for the entries and how they will be submitted and judged. Organise the necessary materials. Decide on a format

for the prize giving ceremony and how to display the images. Choose an appropriate prize. Market the activity.

CHALLENGES: Finding appropriate judging criteria and adhering to them. Finding an effective way of displaying the entries. Deciding on the format for a possible prize giving and getting people to attend it.

BENEFITS: May result in popular photo exhibits that can also be presented digitally.

IDEA COMPETITION

A classic competition is one where participants compete with ideas. The concept is simple: the person with the best idea in a certain area wins. The competition requires no materials, is easy to implement and can be linked to many different fields of research.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Decide on a format for the entries and how they will be submitted and judged. Decide on a suitable prize and on a format for the prize giving. Market the activity.

CHALLENGES: Deciding on judging criteria and adhering to them. Finding a good format for a prize giving ceremony and getting people to attend it. Marketing the competition so that enough entries are submitted.

BENEFITS: Easy to organise. Promotes cooperation with other partners, such as local and regional authorities or cultural administrations.

NAME COMPETITION

Organising a competition to name something, e.g. a building, a project, a piece of machinery, a robot or a room, can be useful when something needs to be given a name. With a bit of luck the suggestions will be good enough for the winning name to actually be used.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Decide on a format for the entries and how they should be submitted and judged. Decide on a suitable prize and on a format for the prize giving. Market the activity.

CHALLENGES: Marketing the competition so that enough entries are submitted. Finding a good format for a possible prize giving ceremony and getting people to attend it.

BENEFITS: Easy to organise and often yields names that can be used. The media find it interesting.

SHORT STORY COMPETITION

Arranging a short story competition on a certain theme can yield many interesting and well-written entries. It is important to announce the competition well in advance so that the participants have time to write their short stories. Often the number of people who send in entries to this type of competition is quite small because it takes a while to write a short story. The competition can be linked to many different research areas.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Decide on a format for the entries and how they

should be submitted and judged. Decide on a suitable prize and on a format for the prize giving. Market the activity.

CHALLENGES: Marketing the competition so that enough entries are submitted. Finding a good format for a possible prize giving ceremony and getting people to attend it.

BENEFITS: Easy to organise and often yields names that can be used. The media find it interesting.

CONSTRUCTION COMPETITION

Competitions where people construct models of well-known buildings or building the tallest tower out of spaghetti are popular and stimulate dialogue, cooperation and new ideas.

SOLVE PROBLEMS

DETECTIVE MYSTERY

This competition is based on solving research-related mysteries. The answers to clues will enable the competitors to solve the overall detective mystery as well. This format is usually particularly well-suited to young people. The detective theme has been tested with great success during Researchers' Night events.

TARGET GROUP: Suitable for young people.

PREPARATIONS: Appoint a question master who can develop the different elements in consultation with researchers as well as instructions for the competitors. Decide on a venue for the competition – the various elements can take place at different locations. Organise the necessary materials. Decide on a possible prize. Market the activity.

CHALLENGES: Creating a good format with clues with the right level of difficulty for the target group.

BENEFITS: Usually appreciated by a younger target audience.

QUIZ

Quizzes of various kinds are usually very popular. The participants can mark 1, X or 2 on their answer sheets to answer different questions posed by a quiz master or scientist participating in the event. A quiz where the participants are required to talk to the researchers to get the answers is an effective way of initiating dialogue. The quiz is even more appreciated if it takes place at a pleasant venue where the participants can talk to each other and perhaps have a drink or bite to eat together as well. Another alternative is to set out the questions at different stations manned by researchers in different disciplines.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Appoint a quiz master who can produce questions and instructions. Decide on a venue for the quiz. Produce the questions in consultation with scientists as well as the necessary materials. Decide on a possible prize. Market the activity.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Obtain materials and formats suitable for the target group. Decide on a suitable prize and how the prize giving will take place. Staff and market the activity.

CHALLENGES: Having sufficient materials available for all participants. Ensuring there are people on hand to help and supervise – the competition needs to be manned basically all the time. Finding a good format for a possible prize giving and getting people to attend it.

BENEFITS: Sparks interest and curiosity. A good opportunity for generating dialogue with the experts present.

CHALLENGES: Finding a good venue and good questions for the quiz. Requires quite a lot of preparation.

BENEFITS: Usually an enjoyable and much appreciated activity.

QUIZ WALK

A quiz walk is a classic, tried and tested activity that can be adapted to many different target groups and linked to different areas of research.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Appoint a quiz master who can produce questions and instructions. Decide where the quiz walk will take place. Organise the necessary materials and set out the questions. Decide on a format for the prize giving. Market the activity.

CHALLENGES: Some people might experience it as boring and hackneyed.

BENEFITS: Familiar and relatively uncomplicated format.

TAKING TESTS

This activity involves participants being invited to test themselves or others. It can be varied in many different ways. It is also possible to make it competitive, seeing who is most successful in the different tests. The tests are connected to science and research, e.g. hand strength, stress sensitivity, reaction times and sense of smell. Medical tests are usually much appreciated as well, e.g. measuring lung function, blood pressure etc.

TARGET GROUP: Broad, depending on the type of test.

PREPARATIONS: Appoint a person to run the tests and who can provide instructions and assistance. Decide on a venue and organise the necessary materials. Decide on a format for a possible prize giving. Market the activity.

CHALLENGES: Identifying good test activities.

BENEFITS: Can be varied in many ways. A good way to open up a dialogue and communicate information about different types of research. It also explains the relationship between research and people's everyday lives.

GUESS THE SPECIMEN

Organising a competition where people study things under a microscope is a popular and good way of sparking the visitor's curiosity.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Obtain microscopes and specimens suitable for the target group. Remember that the microscopes need to be manned at all times. Decide on a suitable prize and a format for the prize giving. Market the activity.

CHALLENGES: Getting enough microscopes, specimens and staff. Finding a good format for a prize giving and getting people to attend it.

BENEFITS: Sparks people's interest and curiosity. Can give visitors an insight into a researcher's daily work.

YOUTH PARLIAMENT

A youth parliament is a forum where young people can discuss issues and have an impact. The participants discuss and analyse current issues following an initial presentation of the theme. They produce proposals for solutions and create motions. Often, final proposals are debated in the presence of decision makers. Youth parliaments can be organised to address current issues involving research and science. Youth parliaments engage young people and give them an opportunity to learn more about research and its connection to political decisions.

One example is the Swedish branch of the European Youth Parliament (EYP). VA (Public & Science) collaborated with the Swedish EYP during Researchers' Night 2010 as part of the EU project "2WAYS."

TARGET GROUP: Young people.

PREPARATIONS: Find a suitable theme and venue. Market the activ-

ity well in advance and gather applications. Organise refreshments and materials. Create a schedule and send out information to the participants.

CHALLENGES: Finding a suitable theme and getting decision makers to participate.

BENEFITS: Can generate a lot of interest in the issues among the participants.

HANDS-ON ACTIVITIES

TELESCOPE

Participants are invited to look at the stars through a telescope while a researcher explains how the telescope works and what they are seeing in the sky. This activity needs to take place where the sky is not too illuminated by city lights. Naturally, it must also take place after dark and when there are no clouds in the sky.

TARGET GROUP: Can be adapted to different target groups.

PREPARATIONS: Appoint someone who can run the activity. Decide on a location and format. Consider the size and how many groups you can accept. Having people register for the event in advance may be a good idea. Organise a telescope. Market the activity.

CHALLENGES: Finding a telescope and instructors as well as a suit-

able location. The activity may have to be cancelled in the event of inclement weather.

BENEFITS: Usually attracts a lot of visitors of all ages.

YOUR HEALTH

Participants are invited to check their own health using different methods and with assistance and explanations from one or more experts. People can measure things like their blood pressure, pulse, lung function and stress level.

TARGET GROUP: Suitable for a broad target group.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Organise the necessary materials and experts.

CHALLENGES: Having the right number of stations for the number of visitors who want to test their health.

BENEFITS: Attracts a broad target group and relates to people's everyday lives.

SIMULATOR

There are many different types of simulators that can be interesting to use in research communication contexts. Many visitors will not have tried a simulator before. The challenge may, however, be finding equipment to borrow and transporting it to an appropriate location. Examples include navigation and flight simulators.

TARGET GROUP: Suitable for young people, but adults usually appreciate simulators as well.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Organise one or more suitable simulators. Market the activity. Transport the simulator to an appropriate location.

CHALLENGES: Finding a simulator and transporting it to an appropriate location.

BENEFITS: Usually attracts many visitors. Easy to start a conversation on research related to the activity being simulated and about simulator development.

THERMAL CAMERA

Visitors can try using a thermal camera, i.e. a camera that registers heat instead of light. Using a thermal camera can be linked to several types of research.

TARGET GROUP: Suitable for a broad target group.

PREPARATIONS: Appoint someone who can run the activity. Decide on a location and format. Organise the necessary materials. Market the activity.

CHALLENGES: Borrowing a thermal camera.

BENEFITS: This visual and concrete concept usually attracts visitors.

YOUR SENSES

Visitors can test how their senses react to different experiences. This could, for example, involve optical illusions, different tastes and taking part in sensory experiences while blindfolded. There should be experts on hand to explain what is happening in the body.

TARGET GROUP: Particularly suitable for a young target group, although adults usually want to take part as well.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Organise the necessary materials and experts. Market the activity.

CHALLENGES: Getting people to stop and participate.

BENEFITS: Interesting activity related to everyday life and one that initiates a dialogue.

CHARACTER WRITING

Visitors can try writing characters used in different alphabets. Meanwhile linguistics researchers can talk about the characters, alphabet and language.

TARGET GROUP: Suitable for a younger as well as an older target group.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Organise the necessary materials and researchers. Market the activity.

CHALLENGES: Getting people to stop and take part.

BENEFITS: Easy to arrange. A good activity involving the humanities, with a connection to languages and different cultures.

SUDOKU

Visitors can solve Sudoku puzzles or create their own Sudoku puzzles while talking to researchers about mathematics. Participants could also compete to see, for example, who can solve a Sudoku puzzle the fastest or create the best Sudoku.

TARGET GROUP: Suitable for slightly older target groups, as well as some young people

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Organise the necessary materials and researchers. Market the activity.

CHALLENGES: Getting people to stop and participate.

BENEFITS: Easy to arrange. Usually appreciated by a relatively small but highly engaged group of participants.

PARTICIPATE IN RESEARCH

MASS EXPERIMENTS

Visitors are invited to participate in mass experiments/studies. By having a large number of people participating in numerous experiments, researchers gain access to a large amount of data that they can then analyse. The conclusions are subsequently presented in a scientific report.

Mass experiments have been organised for schoolchildren in conjunction with Researchers' Night. They have included studying carbon dioxide levels and the acoustics in Swedish classrooms, as well as the temperature in the refrigerator at home. In Norway a mass experiment where schoolchildren dug for worms led to the discovery of earthworms in areas where worms were previously unknown.

TARGET GROUP: Flexible, often schoolchildren.

PREPARATIONS: Find a suitable mass experiment that can be implemented on a large scale. Market the activity.

CHALLENGES: Finding a suitable theme and researchers who want to use the data gathered. Efficiently gathering and compiling data.

BENEFITS: May provide relevant research results. With the right theme you can attract a lot of people through a single activity. Gives the public an insight into how research works. Informs

the participants about scientific methods and allows them to feel that they are participating in research. Often picked up by the media.

QUESTIONNAIRES / INTERVIEWS

Visitors can participate in research by filling out a questionnaire or participating in an interview. The responses can be used as statistical data for research.

TARGET GROUP: Broad, flexible.

PREPARATIONS: Find researchers who need data. Prepare questionnaires or interview materials. Decide how to provide feedback to the participants who are interested. Check ethical aspects and requirements with respect to obtaining permission from guardians if the study involves underage participants. Market the activity.

CHALLENGES: Finding a suitable field of research and compiling the materials gathered. Providing the participants with feedback.

BENEFITS: Relatively easy to implement. Makes a concrete contribution to real research

INVESTIGATE

Participants are invited to investigate different phenomena and things linked to research and science.

ELECTRICITY CONSUMPTION

Participants can use various tools to study and measure how much electricity different household appliances consume. You could also add more practical activities such as generating sufficient electricity by peddling on a stationary bike to illuminate light bulbs. The activities should be run by researchers.

TARGET GROUP: Suitable for a broad target group.

PREPARATIONS: Appoint someone who can run the activity and decide on a venue and format. Organise the materials and researchers. Market the activity.

CHALLENGES: Obtaining the necessary materials and finding a good venue for the activity.

BENEFITS: Makes a concrete connection between people's everyday lives and research.

ANIMALS AND PLANTS

Visitors come into close contact with different animals or plants and learn more about them while one or more experts talk about them. This is a good activity to hold at a zoo or botanical garden.

TARGET GROUP: Suitable for all.

PREPARATIONS: Appoint someone to run the activity. Decide on a venue and format. Make sure that animals and plants are available.

CHALLENGES: Finding a good venue for the activity.

BENEFITS: Usually especially well appreciated by young people. Living things always attract people.

DNA SAMPLES

Visitors can try producing DNA samples. The current methods for extracting DNA are simple and standardised. It is fairly easy to carry out this activity under the guidance of one or more researchers.

TARGET GROUP: Suitable for a broad target group.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Organise the necessary materials and researchers. Market the activity.

CHALLENGES: Ordering sufficient materials and finding people to run the activity.

BENEFITS: Experienced by many as an opportunity to try their hand at advanced research.

MATHEMATICS SAFARI

With the help of a researcher, visitors can look at how different areas of mathematics work. The format is a voyage of discovery through the world of mathematics where different maths phenomena are studied.

This activity was carried out by Navet Science Centre's Mat-tepalats (Maths Palace) during Researchers' Night in Borås.

TARGET GROUP: Suitable for a younger target group.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Organise materials and participating researchers. Market the activity.

CHALLENGES: Making the activity interesting and creating a cohesive "safari."

BENEFITS: A way of making mathematics fun and interesting for a younger target group.

MAKING THINGS

PAPER

Visitors can make their own paper. This could be a practical way of starting a conversation about different scientific processes and various areas of research.

TARGET GROUP: Broad but suitable for a younger target group in particular.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Organise the necessary materials. Market the activity.

CHALLENGES: Judging the quantity of the materials you will need. Making sure that queues do not get too long during the more time-consuming parts of the activity.

BENEFITS: Gives the visitors something useful to take home with them.

COSMETICS

Visitors can make different types of cosmetic products, such as face cream, perfume or soap, using a chemical process. This could be a practical way of starting a conversation about different scientific processes and various areas of research.

TARGET GROUP: Broad but suitable for a younger target group in particular.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Organise the necessary materials. Market the activity.

CHALLENGES: Judging the quantity of materials you will need.

BENEFITS: Gives visitors something useful to take home with them.

TEXTILES

Visitors can make textile products of some kind and the activity can be linked to textile science. "Seamhack" events are popular and were organised during Researchers' Night in Gothenburg. During a "Seamhack", participants are invited to create new, imaginative and unique designs from old clothes, remnants, buttons and other materials. They also receive more detailed information through presentations by experts, e.g. on fashion science, smart textiles and screen printing.

TARGET GROUP: Suitable for young people.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and a format. Organise the necessary materials. Market the activity.

CHALLENGES: Judging the quantity of materials you will need.

BENEFITS: Gives the visitors something useful to take home with them. Practical work is combined with learning. Humanities and social sciences research can be presented.

SLIME

The visitors can make slime through a chemical process. A practical task to produce a product that fascinates people, combined with information about what happens during the process.

TARGET GROUP: Suitable for a younger target group.

PREPARATIONS: Appoint someone to run the activity. Decide on a venue and format. Obtain the necessary materials. Market the activity.

CHALLENGES: Finding a natural way to make the connection to research and science.

BENEFITS: Usually appreciated by children.

PLASTIC

The visitors can shape and create things out of plastic through a chemical process. Easy-to-melt polymorphic plastic, which can be reshaped multiple times, is the best kind to use.

TARGET GROUP: Suitable for a younger target group.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Obtain the necessary materials. Market the activity.

CHALLENGES: Judging the quantity of materials that you will need.

BENEFITS: Gives an insight into how one of our most common everyday materials is made.

ROCKETS

The visitors can make their own rockets, which links to physics, engineering and aerodynamics.

TARGET GROUP: Suitable for a younger target group.

PREPARATIONS: Appoint someone who can run the activity. Decide on a venue and format. Obtain the necessary materials. Market the activity. Having people register in advance may be a good idea.

CHALLENGES: Judging the quantity of materials that will be used. May be hazardous for the participants depending on the method used to make the rockets.

BENEFITS: Usually appreciated by young people.

This is a collated printable version of the online science communication toolbox that is available at: www.scicommtoolbox.se

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Vetenskap & Allmänhet