



# STEM Fair Guide

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จัดเต็ม  
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ภาคกลาง  
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ศูนย์ส่งเสริมศึกษากาชาด  
โรงเรียนพระปฐมวิทยาลัย  
วันที่ 3 - 5 สิงหาคม 2558

ภาคเหนือ  
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## Introduction

School STEM Fairs and Regional STEM Conferences bring together young people, teachers, the school and education community and professional scientists, mathematicians, engineers and technologists to celebrate the STEM achievements of the students, schools and the world of STEM. They create a buzz and excitement for STEM and inspire and motivate the community. In particular they stimulate young people to participate enthusiastically in their STEM studies.

School STEM Fairs will feed student projects into Regional STEM Conferences. STEM community workshops, exhibitions and activities from different School STEM Fairs can also feed into Regional STEM Conferences.

A School STEM Fair can be anything from an open evening to a week long carnival of workshops, talks and plays. They will all however have one common strand, the presentation of students' STEM projects by exhibition, poster displays and/or oral presentations. Built around this common component will be a whole range of fun activities designed to inspire, enthuse and stimulate interest and awareness in STEM. These activities could include any of the following: practical, hands-on exhibits from STEM organisations, institutions and companies that could be run by STEM Ambassadors; problem solving challenges; talks and lecture demonstrations; STEM treasure hunts, quizzes, drama or street theatre; workshops, mobileplanetaria, debates, and more.

Events large and small can be organised by teams of teachers, students and members of the STEM community working together. Running a School STEM Fair or Regional STEM Conference has many benefits:

- For students, the enthusiasm generated by STEM beyond the curriculum is often remarkable
- Young people explaining their own work improve visibly in self-confidence and develop communication, visual presentation and problem-solving skills
- Teachers who organise school STEM fairs report that one of the biggest benefits of getting involved is their own personal satisfaction
- Getting positive feedback from people outside the school improves staff morale
- Many school principals recognise the staff development, marketing and public relations value of staging these events
- A STEM fair can contribute not only to raising the understanding and awareness of STEM of the students but also of those other members of the community who get involved
- Finally the enthusiasm and awareness created may also encourage more students to become interested in STEM and also members of the community to want to be involved in future events and activities. It may also help in the recruitment of STEM Ambassadors





## Tips for Planning and Organisation

### *Getting started*

As initiator you will first need to bring together a group of about 6-8 people who will work together to plan and direct the event – **the School STEM Fair Team or Regional STEM Conference Fair**. This team could be made up of other teachers, and members of the local STEM community. Choose the team members carefully to ensure that they are ‘workers’ and can be relied upon to act upon decisions taken at team meetings. Other people could be involved later with special expertise for certain tasks. A Regional STEM conference will be organised by a team representing key leading schools.

**Please note** it is advised that a 3 – 6 month planning phase is desirable, although many events have been put together to a much tighter schedule. This will enable the team to explore possible sources of funding, prepare and distribute advertising materials, and book ‘star attractions’ (exhibitions, personalities, or shows) well in advance.

### *The First Planning Meeting*

After you have introduced the team to the idea of the School STEM Fair or Regional STEM Conference and gained their commitment there are a number of key questions you will need to address:

- Are you going to organise an afternoon, evening, day, or week event?
- Will the event be confined to the school hall, the school buildings, the grounds or use additional venues in the locality?
- Is there a point in the school or regional education calendar when the Fair or conference will be easier to organise, for example, in the second semester or during National Science and Technology Week in August?
- How will students’ work be presented, for example, project posters, or project exhibitions, or student oral presentations, or all of the methods?

- What other STEM hands-on activities, exhibitions, talks, competitions etc. will be built around the central activity
- Are you going to have a theme to the School STEM Fair, for example, 'Journey into Space', 'Food and Fitness'? This can be limiting, but it can help to direct what other items might be included in the programme.

If you plan to have exhibitions staffed by STEM professionals, such as STEM Ambassadors or by students, the most important thing to remember is to ensure plenty of visitors. Think about where it is sited and ensure clear signposting. As with other contributors to the School STEM Fair or Regional STEM conference, it is important that exhibitors are well briefed about the objectives of the fair or conference and the nature and size of the expected audience to ensure a hands-on accessible presentation. Exhibitors providing of hands-on activities and practical workshops, will be quite specific about their needs and the number of visitors they can accommodate for each session. Some of these attractions, for example rocket building and launching, can be extremely popular and you may want to consider setting up a ticketing system to avoid long queues and disappointment.



### Costs and Funding

Having decided the broad outlines of the event, it is important to estimate, at an early stage, the likely costs of the event you are planning. These will vary widely according to the scale and scope of the event. The checklist of budget headings below will provide guidance in drawing up your own budget.

### Income

- Admission fees
- Programme sales
- Programme advertising
- Exhibitor's fees
- Refreshment sales
- Sale of momentos and other items
- Donations

### Possible Expenditure

**(Please Note:** We would expect that you will aim to avoid some of these, keep them to a minimum or be they would be absorbed by funding from current initiatives or events)

- Venue (hire charges, electricity, cleaning, caretaking and other services)
- Hire of exhibition boards, etc.
- Direction signs and site plans
- Printing of tickets, advertising posters, programmes
- Newspaper advertising
- Stationery
- Postage and telephone/fax costs
- Travelling expenses and fees (if necessary) for speakers/visiting personalities/hands-on exhibitors/drama presenters etc. (We would suggest that you firstly work with organisations, institutes and companies that do not charge fees and cover their own costs)
- Lunches for speakers/exhibitors/special guests
- Prizes for competitions
- Photographer's costs (This could be done by teachers or media students)
- Insurance

At this stage you may feel that you need to modify your plan or find external funding from national organisations, sponsorship from local companies, or donations in kind. When making approaches for funding, take time to prepare a carefully targeted letter and information pack, outlining the benefits to the community and potential sponsor.

### *Advertising, marketing, press and media coverage*

Before preparing any advertising posters or advertisements to place in local papers you need to think carefully about the aims of the event and the target “audiences” to whom the advertising is addressed. Your main target audience for a School STEM Fair will be the school community. The audience for a Regional STEM Conference will be broader and will involve participating schools and the regional STEM community. The design of the poster/logo for the event could be the focus of a competition in school. Graphics and colour printing add to the attractiveness and appeal of the literature, but also the cost. Although this could be done within the school.

Identify one person to in your team to take on the role of Press and Publicity Officer. Contact with the local newspapers should take place initially about a month in advance. You will need to write to the editors of local newspapers, news editors of local radio, and programme producers for specific TV current affairs programmes. If you have media personalities or well-known scientists or engineers or celebrities living locally invite them, as this will add to the media attractiveness of the event. Many local papers and radio stations operate a “What’s On...” desk and are pleased to receive information from local groups.

## The Event

### Presenting Students' success

Central to School STEM Fairs and Regional STEM Conferences should be the celebration of student achievement through the presentation of their STEM projects by exhibition, poster display, or oral presentations, as well as classroom displays. The involvement of students in such an activity during the event can contribute to:

- Greater motivation of students in STEM
- The raising of achievement of students in STEM
- Greater awareness and interest in STEM
- Students experiencing success and a sense of achievement in STEM
- Enriching the STEM curriculum
- Greater student ownership of their STEM work
- Giving students experience in sharing their work with the STEM and wider community, thus raising the importance of STEM work in school.



### Exhibition display

This method of presentation is very common and has proved to be very successful. It involves the use of a tabletop display composed of three boards approximately A1 or A2 size set up as shown. There are numerous cheap methods for constructing the boards. Appropriate materials include thick card, hardwood, plywood, corrugated card and future board. The three-panel board can be hinged or reinforced with tape, and covered with sugar paper.





## Poster Displays

Poster displays, accompanied by written reports, provide a low-cost alternative to the exhibition board. Posters that are displayed in classrooms or along corridors maximise opportunities for students and parents to view student work. Students could stand with their posters, as with the exhibition boards, during part of the fair and discuss their projects with visitors, as well as judges!

## Oral Presentations

Students will be more comfortable with the prospect of public speaking if they know and practice what is expected. You may want to organise rehearsals. To assist students you could provide them with a copy of the booklet which we have produced that can be obtained from the Inspiring Science website.



## The Fringe

While the displays of your students' STEM projects will form the core of the School STEM Fair, we would also recommend enriching this with a range of other hands-on exhibitions and activities to stimulate, engage and involve visitors to the fair. The range is immense, but the following may provide some useful ideas:

- **Family or team problem solving.** Originally known as “egg races” in the 1980s in the UK
- **STEM trails and treasure hunts.** The grounds of your school or a circuit of the neighbourhood may lend itself to laying out a trail with STEM-based clues. The exact details will obviously depend upon your environment
- **Quizzes.** Team science quizzes make enjoyable participative activities or spectator events
- **Classroom-based STEM activities.** Members of the school and STEM community could run activities in classrooms, or classrooms could be set up for visitors to carry out simple investigations
- **Science drama productions.** Drama provides a route to understanding scientific ideas which is accessible to many who are turned off by more traditional approaches. Your students could perform plays which they have rehearsed (the Inspiring Science team have some plays they could supply you with, or your students could write their own)
- **Hands-on Workshops.** There are a range of groups who will run fun hands-on workshops at fairs, including NSM, Regional Science Centres, environmental groups, university science, robotics and engineering departments, or rocketry groups
- **Talks and Demonstrations.** Many national organisations, research institutions, universities and media organisations have speakers who are prepared to visit schools to give stimulating and exciting talks and fun demonstrations. These could be given by STEM Ambassadors

- **Mobile Planetaria.** These inflatable planetaria hold between 30 and 50 visitors. Visitors are introduced to the wonders of the night sky
- **Company exhibitors and STEM Book displays.**

The above list is by no means an exhaustive list. National and regional groups will provide further ideas and activities.



### Stewards

To ensure smooth running of the event you will need a strong team of stewards with clearly assigned tasks, which may include:

- Staffing entry gates
- Selling/distributing programmes
- Staffing information points
- Staffing main office
- Staffing stalls and own-brand activities
- Public address system
- Helping visiting lecturers/exhibitors to set up
- Staffing refreshment points and taking refreshments to those unable to take a break
- Introducing speakers
- Controlling entry to popular activities
- Collecting takings from gates/stalls and putting in the safe
- Litter patrol
- First aid/emergencies/lost children

A rota should be drawn up for these jobs, and one person in a central location should coordinate throughout the event. Having delegated the main tasks in running the day, you will be able to deal with VIPs and the press officer will deal with press, media, and your photographer.



### *Catering*

Refreshments can not only contribute significantly to the funding of the event but can also create a welcoming atmosphere and encourage people to stay longer. Refreshment should also be made provided for special guests, speakers, exhibitors, and stewards.

### *Ceremonies*

You may wish to have an opening ceremony or an award ceremony during the event to which local dignitaries are invited. Ensure that these happen when there is likely to be a large audience, keep the number and length of speeches to a minimum, and try and restrict the length of time to 15-20 minutes. Alternatively, awards made at stands or exhibitions can provide good photographic opportunities and are easier to organise.

### *Following the event*

Letters of thanks to people who helped, supported and contributed to the event should be sent as soon as possible. There should be a debriefing session with the team, and a report produced including evaluation information, photographs and press cuttings.

**Remember, although we have tried to cover all the planning and organizational matters for a large event, you may wish to start with a smaller, less ambitious one!**



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