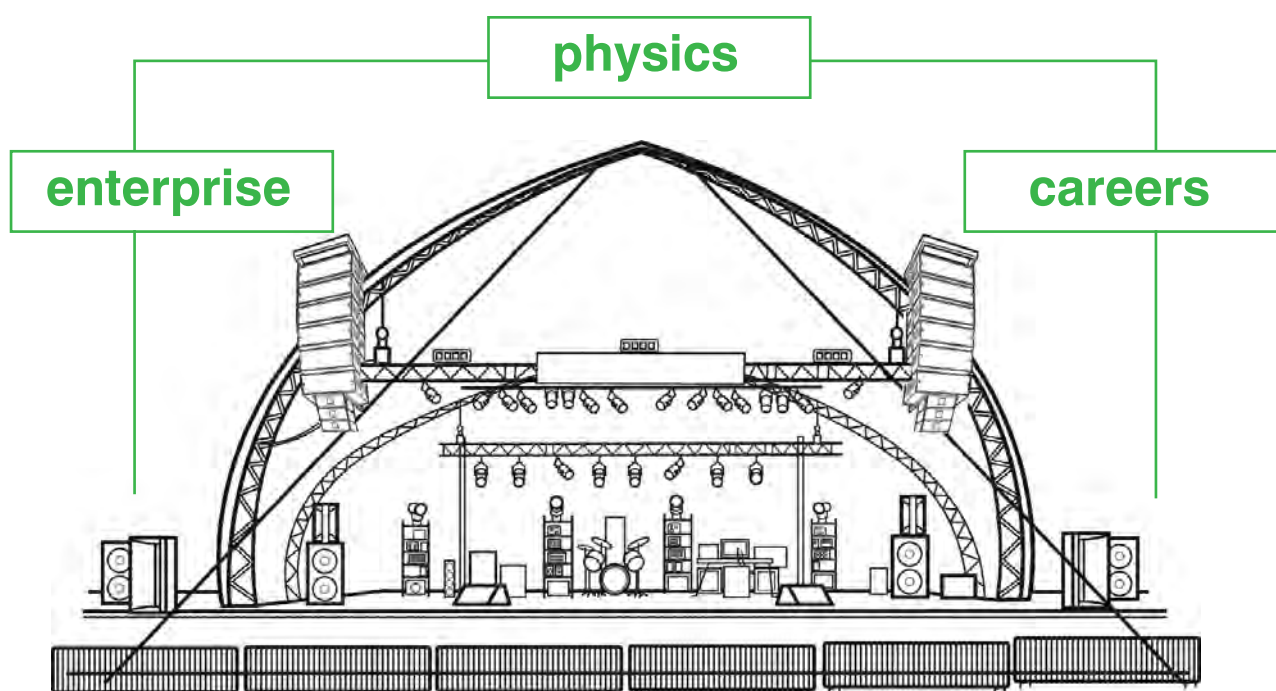




# Ashfield Music Festival

A physics and enterprise activity



**Guidance for organising and running the event**

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# 1 Introduction

Developed by the Institute of Physics (IOP) and the Career Development Organisation (CRAC), Ashfield Music Festival is an activity designed to develop skills in work-related learning<sup>1</sup> and inspire more students to study physics post-16. The activity is a simulation, based on the scenario that a council (Ashfield) wants to create a new music festival.

Students develop skills in enterprise and learn how physics applies in this context by watching “training” videos and taking on one of six roles: project manager, health and safety advisor, construction manager, electrical engineer, sound engineer and lighting engineer. The students work in teams that compete against each other. They are supported by real-life scientists – referred to as “experts” – and must use a mixture of physics-based knowledge, creativity, skills associated with enterprise (decision making, leadership, risk management and presentation) and financial capability (forecasting profits and working to budget) in order to win the contract to build the main stage.

With a theme chosen to engage students and illustrate the broad relevance and potential application of physics, Ashfield Music Festival is a one-day, off-timetable activity that has been fully trialled in schools. This booklet provides guidance for the person organising and running the activity. The complete resource pack also contains copies of student and expert documents, and a CD with videos and a presentation. For a detailed overview, the activity leader should review these before running the event.

<sup>1</sup> The Work-Related Learning Guide (Second Edition) - Department for Children, Schools and Families 2008

## 2 Preparation

### Who should be involved?

Teacher involvement, either as the activity leader or as some of the experts, is essential in order to link the learning from the activity with the curriculum. It is also important that the schools enterprise co-ordinator is involved. If an outside agency (such as your local EBP, see [www.nebpn.org](http://www.nebpn.org)) runs the activity, they will be able to organise additional adults from outside the school to take on the roles of experts. Such an agency is likely to charge a fee. However, this activity can be part of the school's planning for enterprise, and so money may be available from the enterprise budget.

### Location

You will need a hall with a data projector and enough space to allow the students to work in teams, with a maximum of 10 teams. Each team will need a table, as will each expert. Each expert station will also need access to a power point to allow laptops (or equivalent) to be plugged in.

### Student materials

Before the day one copy of each of the printed materials for each of the student teams should be printed from the CD or photocopied from the resource pack. The student documents required are listed below. Each team requires six Student Briefs (SB-1 to 6), six Student forms (SF-1 to 6) and five additional information sheets (SA-1 to 5).

All sheets should be printed (or photocopied) double-sided. It is also advisable to have a few extra copies of the Student Forms (SF-1 to 6). The sheets should be placed on the relevant expert station before the start of the activity.

Student role	Student brief	Student form	Student additional information sheet
Project manager	SB-1	SF-1	SA-1
Electrical engineer	SB-2	SF-2	SA-2
Sound engineer	SB-3	SF-3	SA-3
Lighting engineer	SB-4	SF-4	SA-4
Construction manager	SB-5	SF-5	SA-5
Health and safety advisor	SB-6	SF-6	-

Each team will also require:

- > a set of craft materials to prepare a poster (e.g. coloured paper, marker pens)
- > a flipchart for recording information and ideas, if available
- > stickers to act as name/role badges.

For the winning team of students you will also need:

- > six prizes (e.g. music vouchers).

## Experts: recruitment and materials

The process of recruiting experts should be started as early as possible in the planning process. An ideal candidate for an expert role would be a professional in the field that is closely related to the student role that they'll be supporting (e.g. a civil engineer to support the construction manager). However, all experts are provided with a briefing sheet that will give them enough technical information to take on any of the roles so, for example, a representative from the local pharmaceutical company could easily take on the role of lighting engineer expert. The most important thing is that students are exposed to as many working scientists as possible. Sourcing women to take on some of the engineering roles is also desirable, in order to provide positive role models for girls. The organisations listed below may be able to find volunteers. If recruiting experts proves difficult, you may be able to get teachers or sixth-form students to take on some of the expert roles.

### Contacts for recruiting experts

#### **STEMNET ([www.stemnet.org.uk](http://www.stemnet.org.uk))**

STEMNET has a network of STEM ambassadors who offer time, enthusiasm and expertise to help school students.

#### **Researchers in Residence ([www.researchersinresidence.ac.uk](http://www.researchersinresidence.ac.uk))**

Researchers in Residence places researchers (PhD and postdoctoral) in schools.

#### **Local Education Business Partnership – EBP ([www.nebpn.org/](http://www.nebpn.org/))**

EBPs have excellent links with business and are active in promoting the enterprise agenda within schools.

#### **Your local college or university**

Your local college or university may have A-level, undergraduate and PhD students willing to help out.

Six experts, one for each of the roles, will ensure that each of the students gets full access to advice and guidance. If the number of experts is fewer than six, some of the expert roles could be combined (e.g. one expert could cover both the lighting engineer and sound engineer roles). The minimum number of experts is three, with each expert taking on two roles. Running the activity with fewer than six experts is discussed on page 4.

Once you have recruited an expert, the relevant expert brief, associated student documents and details of the venue should be sent at least a week in advance of the event (these are packaged together on the included CD ready for emailing).

On the day each expert will also require:

- > a copy of the judging sheet per team (see Appendix C);
- > a copy of the timetable for the day (see Appendix B);
- > a copy of relevant Expert Brief;
- > a sticker to act as role/name badge;
- > a calculator.

### ICT requirements

You will need:

- > a data projector, a laptop, a screen and audio equipment.
- > six further laptops for groups to watch the training videos. If six are not available then it is possible to share and have three laptops.

The relevant training videos should be loaded onto laptops before the event.

## 3 Running the activity

A checklist for the activity leader is given in Appendix A on page 11. Before the activity, arrange the students into groups of six. If necessary you can have some groups of seven, with some students sharing the role of project manager. The timetable shown in Appendix B, on page 12, is intended as a guide for activities and should be adapted to the school's timetable and/or number of teams. The suggested time for presentations (30 minutes) assumes six teams of students and allows five minutes per team – a three-minute presentation and two minutes of questions per team. If there are fewer than six teams the total presentation time can be reduced to give students longer to prepare posters. For larger numbers of teams the students can start work on their presentations and posters in the morning to free up more time in the afternoon.

On the day, check that the video link on slide 4 works. If the festival introduction video does not play, try running the PowerPoint slides directly from the CD or downloading the video from the Activity Leader folder on the CD onto the computer desktop. The judging panel at the end of the day should be made up of all of the experts. Suggested judging criteria are in Appendix C on page 13. Both the judging criteria and the timetable are available as Microsoft Word documents (on the CD) to allow editing.

### Engaging girls

Research<sup>2</sup> shows that girls can benefit greatly from activities that highlight careers and the real-world application of physics. However, there is also strong evidence that these benefits can be lost in mixed-gender groups because girls become less confident in taking on technical roles and the boys tend to talk over the girls. An evaluation of the activity by the UKRC (UK Resource Centre for Women in Science, Engineering and Technology) recommended role selection by skills rather than job title. This has been incorporated into the activity in order to avoid adherence to gender stereotypes. The recommendation for the activity leader is to take a proactive approach to managing activities to ensure that girls have equal opportunities to participate. For example, you can:

- > brief experts so that they rotate answering questions between boys and girls and challenge any disruptive behaviour, such as talking over each other or adhering to gender stereotypes;
- > prearrange students into single-sex teams, or mixed teams with at least three girls in each, and instruct students that the girls in mixed-gender teams should take on at least one of the engineering roles;
- > recruit women as experts for the engineering roles.

### Running the activity with fewer than six experts

If fewer than six experts are available, some or all of the experts will need to cover two roles (e.g. one expert could cover both sound engineer and lighting engineer roles). The minimum number of experts is three, in which case each expert needs to cover two roles. At a station for an expert who is covering two roles, the expert will need to alternate between student groups. For example, the first meeting at a combined sound and lighting expert station could be split into two: the sound engineers can start by watching their training video while the lighting engineers discuss their role with the expert; then the students swap halfway through the meeting so that the lighting engineers can watch their video while the sound engineers discuss their role with the expert.

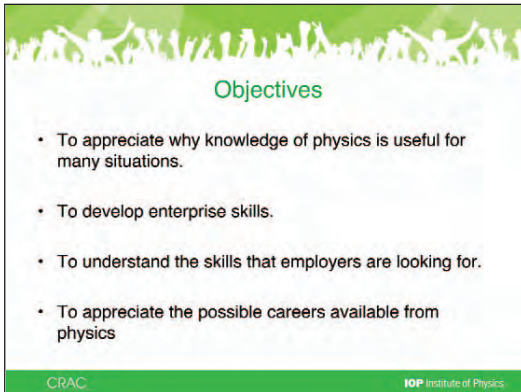
<sup>2</sup> Girls in the physics classroom: a teacher's guide for action - Institute of Physics 2006

## Morning: slides and notes



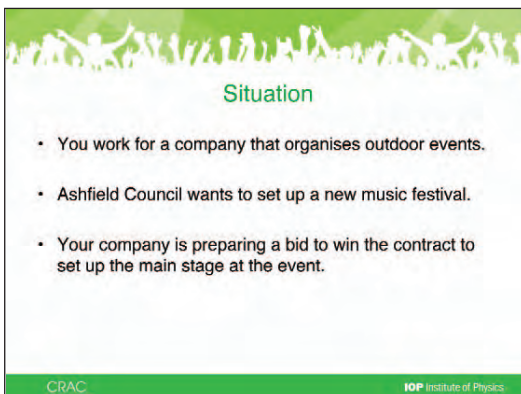
### Slide 1: Setting the scene

Play some music as the students arrive. Once they are seated, explain that they will be planning a music festival.



### Slide 2: Objectives

When explaining the purpose of the day, highlight the importance of engineers and explain that the students will be using skills that are valued in the workplace.



### Slide 3: Scenario

Talk about Ashfield Council wanting to start a new festival. Explain that the students will be employees of a company that wants to win the contract for the main stage at the event.



### Slide 4: Introduction video

Explain that a lot of work goes into planning a music festival.

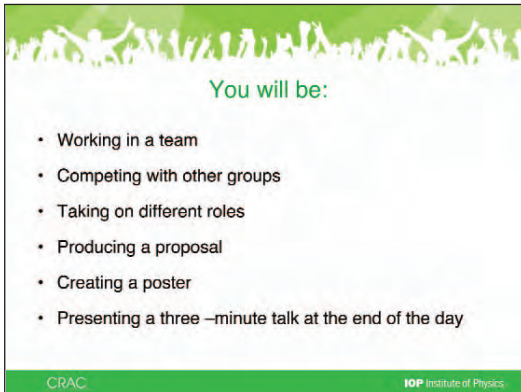
“Let’s watch a short video from another festival to see what is involved.”

**Click on slide to play video.**

Review the roles highlighted in video.



## 3 Running the activity



**You will be:**


- Working in a team
- Competing with other groups
- Taking on different roles
- Producing a proposal
- Creating a poster
- Presenting a three –minute talk at the end of the day

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### Slide 5: Overview of day

“This is what you will be doing for the rest of the day.”

Emphasise that they will not need to worry about the poster and presentation until the afternoon.



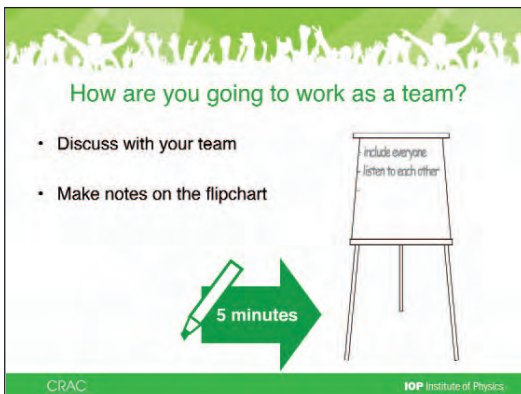
**Skills you will use today:**

- Budgeting
- Analytical thinking
- Communication
- Creativity
- Decision making
- Negotiation and influencing
- Teamwork

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### Slide 6: Skills

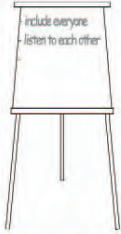
“The skills that you will use today include...”



**How are you going to work as a team?**

- Discuss with your team
- Make notes on the flipchart

5 minutes

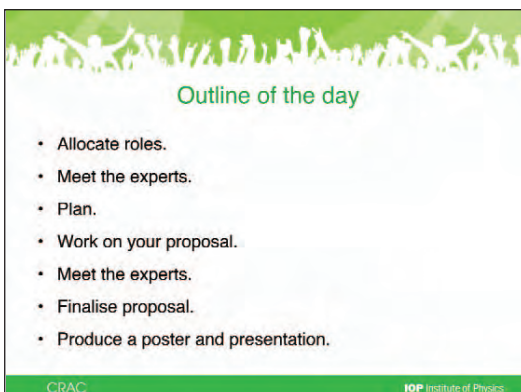


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### Slide 7: Teamwork

Ask students to think about what is important for effective teamwork. Two examples are given on the slide. After five minutes review and discuss team flipcharts.

**Give students five minutes.**



**Outline of the day**

- Allocate roles.
- Meet the experts.
- Plan.
- Work on your proposal.
- Meet the experts.
- Finalise proposal.
- Produce a poster and presentation.

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### Slide 8: Outline of the day

Introduce the experts and explain that they are here to help the students complete their tasks.



**Company name**

- Before we allocate roles, each team should decide on a company name ....



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### Slide 9: Company name

“You have two minutes to decide a name your company.”

**Give students two minutes**

**Select your role by looking at the key skills:**

<b>1</b> Organisation Leadership Planning	<b>2</b> Analytical Using diagrams Numerical	<b>3</b> Spatially aware Analytical Numerical
<b>4</b> Creative Analytical Visual	<b>5</b> Creative Spatially aware Using diagrams	<b>6</b> Attention to detail Advising others Assessing risk



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### Slide 10: Skill-based role selection

“Time to choose a job. Choose a number that reflects the skills that you want to practice today. Try something different, based on skills that you may not usually use.”

**Give students two minutes**

**Your role:**

<b>1</b> Project manager	<b>2</b> Electrical engineer	<b>3</b> Sound engineer
<b>4</b> Lighting engineer	<b>5</b> Construction manager	<b>6</b> Health and safety advisor

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### Slide 11: Role allocation

Once the roles are revealed, ask students to write down their name, company name and role on the name badge.

**Time for some training**

- Meet your expert.
- Watch the videos.
- Get the information sheets

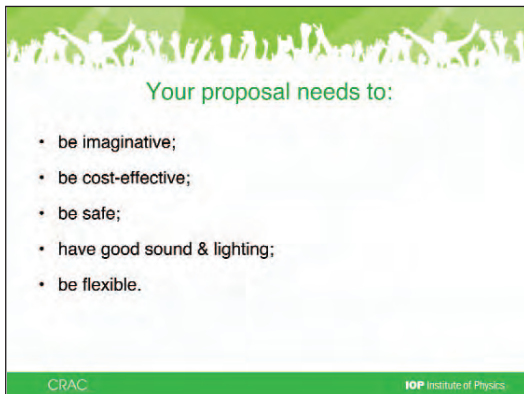


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### Slide 12: Expert meeting 1

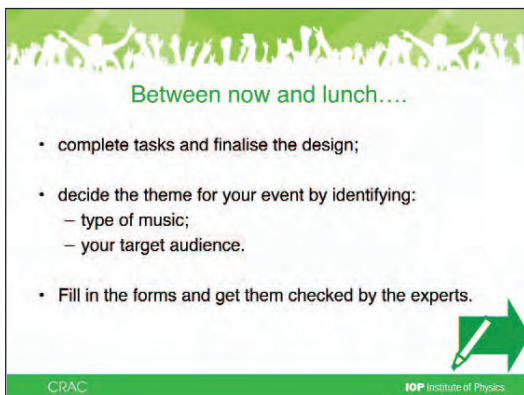
“Time for some training, you are to watch some videos about your role, meet your experts and collect some documents.”

**Students go to expert meeting (15 minutes).**



### Slide 13: Preparing the proposal

After students return to their team desk, check that they have the relevant documents and then explain that in order to be successful they will need to strike the right balance between cost and creativity.



### Slide 14: Student tasks

Outline the remainder of the morning session.

**Students start work on tasks.**

### Additional notes

The students work for the remainder of the morning on completing the tasks outlined on their Student Briefs. Experts can then either remain at their station or circulate amongst the groups to answer questions.

After completing their tasks the students should fill out their forms and get these checked and signed by their respective experts before the break for lunch.

## Afternoon: slides and notes



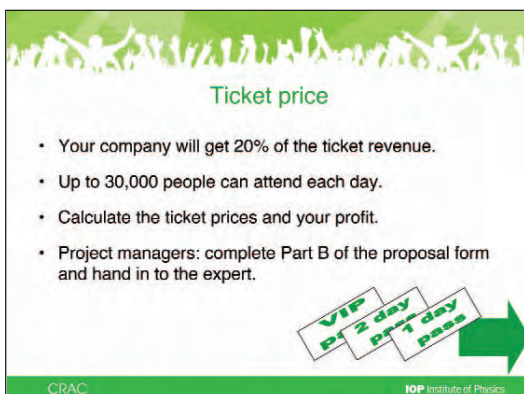
Between now and the end of the day...

- decide ticket prices;
- create a poster to advertise the event;
- organise a 3-minute presentation for Ashfield Council.

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### Slide 15: afternoon overview

After they return from lunch, review the work from the morning session before outlining what the students will be doing in the afternoon.



Ticket price

- Your company will get 20% of the ticket revenue.
- Up to 30,000 people can attend each day.
- Calculate the ticket prices and your profit.
- Project managers: complete Part B of the proposal form and hand in to the expert.

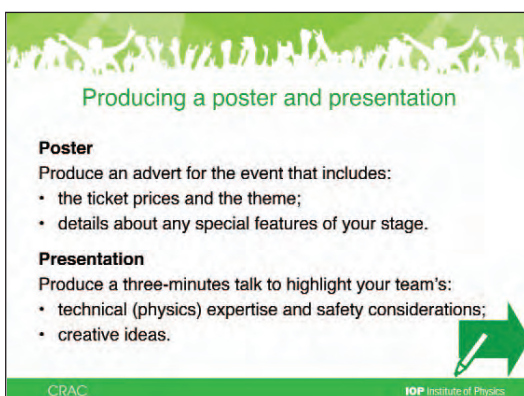
VIP  
Pr 2 day  
Pr 1 day  
Pass

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### Slide 16: Ticket price

“You will get 20% of profit, e.g. £8 from the sale of a £40 ticket. Remember: you need to cover cost of equipment and make a profit.”

**Students complete part B of proposal form and hand in.**



Producing a poster and presentation

**Poster**  
Produce an advert for the event that includes:

- the ticket prices and the theme;
- details about any special features of your stage.

**Presentation**  
Produce a three-minutes talk to highlight your team's:

- technical (physics) expertise and safety considerations;
- creative ideas.

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### Slide 17: Judging criteria

Remind the students of the judging criteria.

“Ashfield Council wants you to give a three-minute pitch and produce an advert for the event.”

Students work on poster and presentation.

## Additional notes:

The students then work on a three-minute presentation (pitch) and their poster (advert) for approximately an hour before judging commences. The experts should help with these tasks, but should also set some time aside to run through the proposal forms and score them. The judging sheet with (suggested) weightings for each of the criteria is on page 13. Towards the end of the day each team standing at the front of the hall with their poster and gives a three-minute sales pitch. Time is short, so don't allow them to overrun. Allow two minutes for experts to ask questions.

### 3 Running the activity



Skills that employers are looking for

- Budgeting
- Analytical thinking
- Communication
- Creativity
- Decision making
- Negotiation and influencing
- Teamwork

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#### Slide 18: Review of skills

When reviewing them, explain that studying science at A-level develops many of these skills.



How well did you to work as a team?

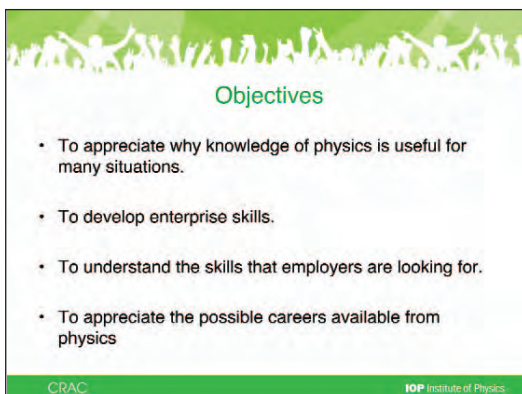
- Discuss with your team.
- Refer to your flipchart.

Include everyone  
Listen to each other

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#### Slide 19: Review of teamwork

Ask students to refer to the notes they made on the flipcharts about teamwork. Ask them to assess themselves against their own teamwork criteria.



Objectives

- To appreciate why knowledge of physics is useful for many situations.
- To develop enterprise skills.
- To understand the skills that employers are looking for.
- To appreciate the possible careers available from physics

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#### Slide 20: Review of objectives

While the judges are adding up the totals, and selecting a winner run through the objectives of the day and ask the students if they feel they have achieved them.



The winners

- Ashfield council would like to award the contract to....

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#### Slide 21: The winner

End the day by announcing the winning teams. Highlight the strengths of their proposal, presentation and/or poster. Present prizes and thank everyone involved.

# Appendix A

## Activity leader checklist

The activity leader should run through this checklist before starting the activity.

### Preparation

(✓)

Have you:

- > recruited the experts?
- > e-mailed the relevant documents to the experts?
- > arranged students into appropriate teams?
- > booked a location?
- > arranged prizes?
- > booked laptops?

### On the day

**Check the computer connected to the data projector:**

- > is PowerPoint loaded?
- > is there a working link to the introduction video on PowerPoint slide 4?
- > is there sound when the video plays?

**Check that each expert station has:**

- > one copy of the relevant Expert Brief (EB);
- > one copy of the timetable for the day;
- > multiple copies (one per team) of the judging sheet;
- > multiple copies (one per team) of the relevant Students Briefs (SBs);
- > multiple copies (one per team) of the relevant Student Forms (SFs);
- > multiple copies (one per team) of the relevant student additional information sheets (SAs) (not required for the health and safety station);
- > the relevant training video loaded on the laptop;
- > stickers for name badges;
- > a calculator.

**Check that each student station has:**

- > craft materials for a poster;
- > a flipchart and pens;
- > stickers for name badges.

# Appendix B

## Timetable

Activity	Outline	Time
Introduction	<ul style="list-style-type: none"> <li>&gt; Students watch presentation and introduction video.</li> <li>&gt; Students agree company name.</li> <li>&gt; Roles are allocated within the team</li> </ul>	08.55
Training	<ul style="list-style-type: none"> <li>&gt; Students meet with their respective experts at the expert stations.</li> <li>&gt; Students watch the training videos, discuss their roles and collect student briefs and associated documents.</li> </ul>	9.25
Tasks	<ul style="list-style-type: none"> <li>&gt; Students return and discuss the activity with the other team members.</li> <li>&gt; Students seek further advice from their experts and start work on completing the individual tasks.</li> </ul>	9.40
Break		10.45
Tasks	<ul style="list-style-type: none"> <li>&gt; Experts circulate among the teams.</li> <li>&gt; Students complete the individual tasks and complete the forms.</li> </ul>	11.05
Form check	<ul style="list-style-type: none"> <li>&gt; Students return to the relevant expert station to get their forms checked and signed.</li> </ul>	11.45
Lunch		12.00
Preparing bid	<ul style="list-style-type: none"> <li>&gt; Teams discuss the ticket prices.</li> <li>&gt; Project managers complete the proposal form (part B) and submit it.</li> <li>&gt; Teams prepare a poster and a three-minute presentation.</li> </ul>	13.00
Presentations and judging	<ul style="list-style-type: none"> <li>&gt; Each team gives a three-minute presentation on their pitch, which includes their poster.</li> <li>&gt; Judges ask questions.</li> </ul>	14.25
Debrief and prizes	<ul style="list-style-type: none"> <li>&gt; Students watch the PowerPoint presentation and discuss what they have learned.</li> <li>&gt; The winning team is awarded the prizes.</li> </ul>	14.55
End		15.10



# Appendix C

## Judging sheet

**Expert role:**

**Team name:**

Category	Score
Accuracy of figures	/7
Demonstration of physics knowledge	/7
Ticket price/profit	/7
Creativity	/7
Presentation	/7
Poster	/7
Organisation	/4
Teamwork	/4

<b>Final score</b>	<b>/50</b>
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**Ashfield Music Festival is a one-day off timetable activity developed by the Institute of Physics (IOP) and The Careers Development Organisation (CRAC) in order to:**

- > **Develop skills associated with enterprise and financial capability**
- > **Inspire more students to study physics post-16**
- > **Increase student awareness of careers**

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