

Physicists in Primary Schools Project

ICWIP 2008

Workshop - Attracting Girls to Physics

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PIPS

- An **EPSRC** PPE funded project
- The team is from
The University of Sheffield
 - *Leader - Professor Gillian Gehring*
- The website is hosted and maintained by
The Institute of Physics
- Website URL: **www.iop.org/pips**
 - or www.iop.org and select the link at foot of home-page



Aims:

- **To excite the interest of young children (6 -11 years) in physics.**
- **To enable physicists to visit primary schools**
- **To support the teachers.**
 - In the UK, few primary school teachers have a knowledge of physics.
 - so teachers do welcome the help.
- **To get across basic physics clearly!**
 - and support the curriculum.

Problem:

There are many thousands of primary schools

Development

- Pilot events were held.
- Experienced team assembled.
- All the material was trialled in schools with teacher consultation.
- Safety notes were written and checked by CLEAPPS (experts).
- On a website with open access
- **All material free to download**
- Activities use article found around the home so kit is low cost.

Don't start talking – do something!

- On arrival – grab their attention!
- Involve the children:
 - with fun experiments
 - games
 - demonstrations
- Keep up a stream of questions and answers,
- Have fun:
 - **play for the 'Wow' factor,**
 - **NOT a magic show – keep explaining!**

Plan

- Starting from basics, sessions go beyond the curriculum to link science with their everyday lives.
- Physicists can insert information about their own interest area.
- Children can replicate many of the activities at home.



The Website:

READ FIRST:

- Terms of use
- Guidelines - *essential reading!*
 - Getting started
 - Preparation
 - Classroom techniques
 - Legal Points
- **Safety**
 - Safety notes checked by ex Deputy Director of CLEAPSS
- Feedback
 - Evaluation forms are provided

Physicists in Primary Schools

This site is for physicists - to interest children in physics. The material covers topics suitable for use when visiting primary schools.



A joint venture triggered by the Institute of Physics Women in Physics Group. Material is provided by a team from the University of Sheffield with EPSRC funding.



Aims

- to enthuse young children with the enjoyment and excitement of physics.
- to support the primary school teachers with the extensive Key Stage 1 and 2 science curricula involving numerous abstract concepts.

Before choosing a topic please read the following pages

- [Terms of Use](#)
- [Guidelines](#)
- [Safety](#)
- [Feedback/Support Network](#)

For each topic the following downloadable material is provided:

- Overview
- PowerPoint presentation
- Detailed plan
- Apparatus list
- Safety notes

Topics

- [Electricity](#)
- [Forces and Gravity](#)
- [Forces and Magnets](#)
- [Sound](#)
- [Solids](#)
- [Light](#)
- [Solids, Liquids and Gases](#)
- [Sunlight and Space Travel](#)
- [Forces and Springs](#)
- [Earth and Solar System](#)

Downloadable material for each topic

(all free!)

a) Detailed plan of activities

- Overview

- Full instruction for each step

Activity – Discussion - Aims / facts covered

b) Apparatus list

c) Safety notes

d) PowerPoint presentation

e) Easy to print file of a), b) and c)

f) Video – of one the team with a class

10 Topics

1. Electricity
2. Forces and Gravity
3. Forces and Magnets
4. Sound
5. Solids
6. Light
7. Solids, Liquids and Gases
(*Liquid Nitrogen*)
8. Sunlight and Space Travel
9. Forces and Springs
10. Earth and Solar System



Messages

- **'PHYSICS IS EVERYWHERE'**
- Doing physics/science is exciting
- There are lots of questions that have not been answered
 - 'perhaps one day you will answer one of them'.



Enthuses girls

Girls are particularly interested and enthusiastic.

Even one visit has effect:

Questionnaire responses:

Interesting/exciting?

= Larger increase for girls
than boys after visit

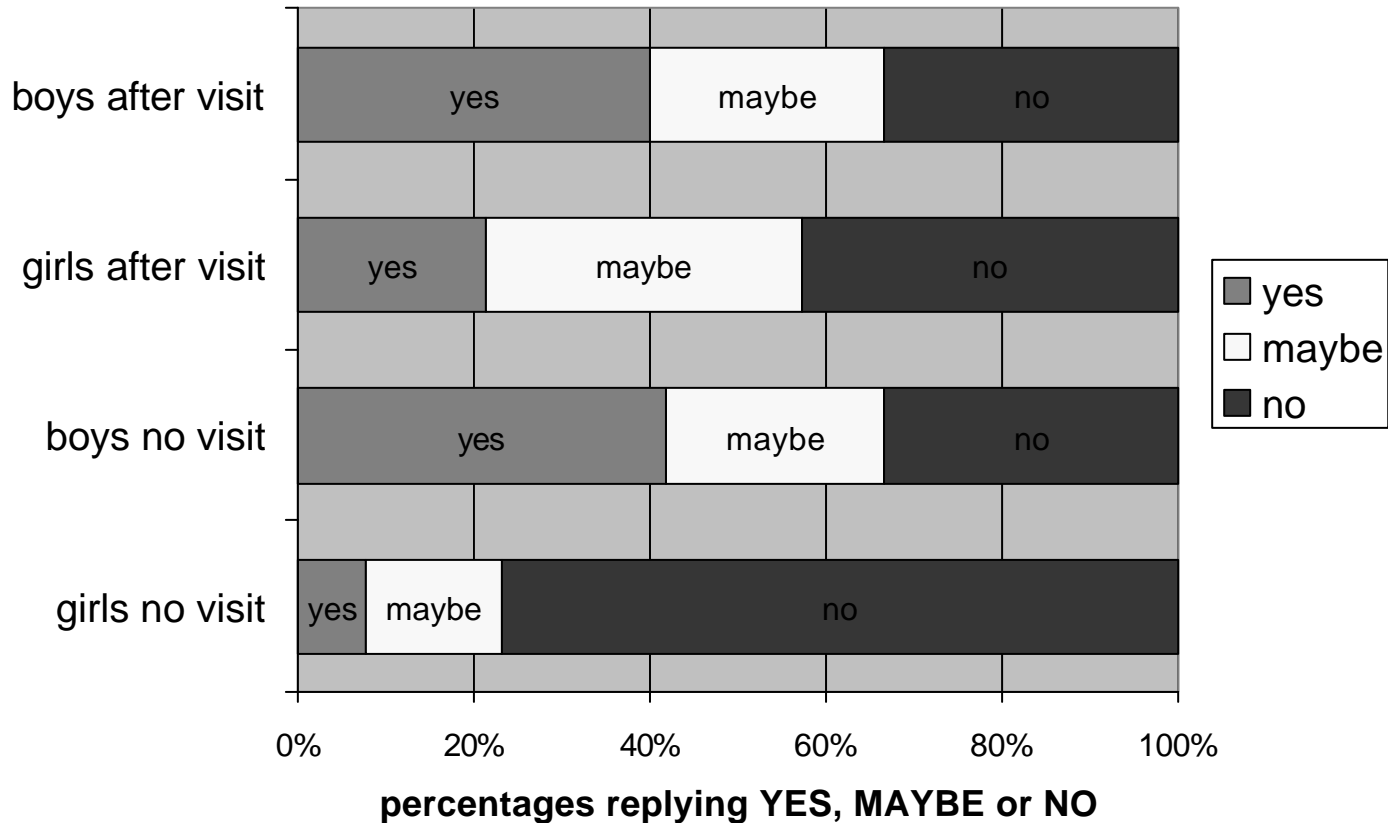
Boring/difficult?

= No girls gave these replies
after a visit



Comparison - with or without visit:

Responses to the question " Would you like to be a scientist?"



10 year old Girl: "Now I know what I want to do when I grow up!"

Getting started

You can make modifications

- To include your experience and stories
- To use articles or kit you have at hand

Slides are simple to translate into other languages

- Use where laboratory apparatus is unavailable
- Use for older children. (UK schools are starting to do this.)
- Already interest in Europe, Africa, India

Wales

- Sound – became “Physics of the Harp”
- All the slides are being translated into Welsh now

The team has run workshops across the UK to help physicists get started.

Lessons learnt

- ***“In my view the really important message is how much the schools appreciate this!” – Prof Gillian Gehring – Project PI***

- **Scientists become real people to the children.**

- *Children ask very good questions
Physicists answer them!*

- *Children talk about the sessions for days and remember them!*

- **Those going into schools have as much fun as the children!**

- Average of 4000 website ‘views’ per month



EPSRC

Engineering and Physical Sciences
Research Council

IOP Institute of Physics



The
University
Of
Sheffield.

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Website: www.iop.org/pips

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