

# GEMS Workshops

## Sessions Overview

GEMS stands for Girls into Engineering, Maths and Science and through a series of entertaining and educational workshops, based on practical hands-on experiences, this course is designed to give an appreciation of how Science contributes to everyday applications, through the medium of Photography/Imaging and for girls to gain an insight into a range of related careers.

Breakdown of Sessions for the STEM Workshops:

### Session 1: What 's an Engineer?

Learning opportunities include:

What is Engineering?  
History of women in Engineering  
Case Study: Emily Cummins (Gems Research)  
Photographing products of engineering

### Session 2: Working Together

Learning opportunities include:

Different roles in teamwork  
Personal strengths and weaknesses.  
Create 'model' team  
Working together as a team to complete a photo-shoot  
Case study: Medical Healthcare as an area where teamwork is important

### Session 3: Structures

Learning opportunities include:

What is Triangulation?  
What is a structure?  
Capturing images of triangulation  
Structures where triangulation isn't obvious – cabinet backs/chairs etc

## Session 4: Structures Challenge 1

Team Challenge: building the tallest freestanding paper tower with limited time/materials

Documentary photography: recording the process

Review: success of team-working

## Session 5: Structures Challenge 2

Learning opportunities include:

That engineers aim to build using the least amount of materials and therefore at lowest cost. Review triangulation

Team challenge: design and make a bridge, using the least amount of given materials to span a given distance to support a given weight

Designs on paper

Measuring/cutting

materials Documenting the

process

## Session 6: Girls in Flight

Learning opportunities include:

Case studies: Amy Johnson/Amelia Earhart

Aerodynamics

'Wind tunnel' testing of wing profiles using smoke

Recording results in camera