Teaching Resources for the London Transport Museum

Sponsor: David Houston
Team: London Transport Museum
Members: Lauren Baker, Casey Broslawski, Cameron Crook and Shannon Healey
Activity: Mystery Objects

Item 1
Item 2
Item 3
Item 4
Decline of Engineering in the UK

The Growth of London's Population and Public Transportation Usage

Youth Views of Engineering

Excerpt of 2014 Public Attitudes to Science Survey

<table>
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<tr>
<th>315 Participants</th>
<th>510 Participants</th>
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<tbody>
<tr>
<td>• 59% felt engineering is interesting</td>
<td>• 52% felt well informed about scientific research and developments</td>
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<tr>
<td>• 18% felt they were not smart enough to understand engineering</td>
<td>• 51% felt their science education has been useful in everyday life</td>
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<td>• 24% felt their experience in school made science unappealing</td>
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Full Speed Ahead Program: To develop an engineering project-based curriculum to inspire year 10 and 11 students to pursue a career in STEM.

Inspire Engineering Mentoring Program: To streamline the program’s materials based on the feedback of the program’s participants.
Deliverables

Full Speed Ahead Program

- 10 Sessions
- Flexible design
- GCSE Project-based curriculum
- Teacher & Resources Handbooks

Inspire Engineering Mentoring Program

- Reviewed content in existing handbooks
- Streamlined program
- Added optional activities
- Made program more flexible
Insights: Full Speed Ahead Program

• Learning Outcomes
  • Inspire students to pursue a career in engineering
  • Enable students to see breadth and depth of engineering
  • Guide student to see benefits of “soft skills”
  • Empower student’s confidence in their engineering ability

• Connect Program to Multiple GCSE Subjects

• Students felt accomplished after completing difficult activities

• Each activity needed to cater to all levels of students’ abilities
Insights: Inspire Engineering Mentoring Program

- Mentee Handbook Too Long
- Curriculum Should Be Flexible with Minimal Information
- Mentors Failed to Relate with Mentees’ Learning Paths
- Younger Mentors Better Relate to Students
Full Speed Ahead Program: Recommendations

- Run full pilot at state school
- Make material interactive
- LTM provide teacher orientation
- Certify as GCSE curriculum
- Revise photos and handling objects
Acknowledgements

- David Houston, London Transport Museum Young People’s Skills Programme Learning Officer
- Constance Clark, Project Advisor, Worcester Polytechnic Institute
- Corey Dehner, Project Advisor, Worcester Polytechnic Institute
- Rachel Craddock, London Transport Museum Young People’s Officer
- Gloria Gaspard, London Transport Museum Young People’s Skills Programme Coordinator
- Sophie Jordan, London Transport Museum Learning Administrator
- Laura Service, London Transport Museum Programme Manager-Skills, Schools, and Young People
- Tim Shields, London Transport Museum Curator
- Maria Peters, Training and Creative Consultant
- Mike Floate, Royal Greenwich University Technical College Engineering Teacher
- Jane Gordon, Royal Greenwich University Technical College Deputy Principal
- David Sandell, Royal Greenwich University Technical College Science Teacher
- James Lloyd, Resourcing Manager, Transport for London
- Bal Harrington, Strategic Recruitment Transport for London
- Aoife Considine, Engineering Ambassador, Transport for London
- James Dawson, Engineering Ambassador, Transport for London
- Rachel Jackson, Engineering Ambassador, Transport for London
- Rachel Harvey, Science Museum Explainer
- Eric Wright, Engineering Ambassador and Transport for London
- Martin Webber, OCR STEM Sector Specialist
- Lauran Hillier, Programme Coordinator Young Crossrails
References

- TfL Mentors. (2015, February 1). UTCNEWS.
Questions?
Obstacles & Limitations

**Full Speed Ahead Program**
- Did not audit GCSE classes
- Only piloted four of ten sessions
- Few pilot participants

**Inspire Engineering Mentoring Program**
- Could not attend IEMP student meeting
- Could not meet with all Engineering Ambassador mentors
Mixed Signals

Light

Dimmer

Dimmer Changes Red & Green LEDs

Signal

Toggles Red & Green LEDs

Switch
Rail Lines & Line Graphs

Victoria Line Train Graphs

- Time, s
- Distance, m
- Speed, kph
- Front of Second Train
- Speed Limit
Station Fixation
Scheduling Conundrum