How to put on effective K-12 outreach programs

ITE Midwest Student Leadership Summit
18 September 2016

Jennifer Lillo
Why is K-12 Outreach important?
2007
Lollipop Moments – “A moment where someone did or said something that changed you for the better.”
The experiences inside and outside the classroom at the K-12 level offer an opportunity to inspire and train a new generation of leaders that will solve the challenges of our future.

Leaders like yourselves.

Why is K-12 Outreach important?
It’s more than a school subject, or the periodic table, or the properties of waves. It is an approach to the world, a critical way to understand and explore and engage with the world, and then have the capacity to change that world, and to share this accumulated knowledge. It’s a mindset that we can use reason and logic and honest inquiry to reach new conclusions and solve big problems.

President Obama, March 2015
5th Annual White House Science Fair
Hoop Gliders
Global Resource Systems
and Environmental Studies
Your Turn!
Queuing Activity
Cycle – Completion of both a red and a green phase
**Constant arrival rate** – the rate of arrival that is expected if all vehicles traveled at the same speed and with the same distance between them.
Saturation flow rate – the highest rate the system can provide.
• **Timer:** Person who has a stopwatch on their phone

• **Traffic signal:** Person who will stop the flow of traffic to create a queue

• **Recorder:** Person who will record the data
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<th>Actual Time to dissipate (seconds)</th>
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 elapsed time (seconds)

cumulative vehicles

queue formation

queue dispersal

0    0.5    1.0    1.5    2.0    2.5    3.0    3.5    4.0

0    1    2    3    4    5
Getting Started: Finding Funding, Groups, and Resources
Finding Groups to Work With

Start with what’s around you!

- After-school programs
- Museums
- Science Centers
- Libraries
- On campus programs?
- Science Fair
- Existing programs
- Local school districts
- STEM/Science Coordinator
Finding Funding

• Department of Transportations
• Proposals - Broader Impacts
• Industry
• Existing program structures

• You never know if you don’t ask!
Finding Materials

• teachengineering.org
• Videos
  • Crash Course: What is an Engineer? – YouTube
• AASHTO TRAC and RIDES kits
• Other Transportation Centers
  • Online games
    • Gridlock Buster Traffic Control Game – University of Minnesota, Center for Transportation Studies
• Curriculum and Activities
  • Queuing Activity – University of Minnesota, Center for Transportation Studies
Can’t find exactly what you need?

• Create your own!
• Add value to an activity that already exists?
Final Thoughts
Thank you.

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