Science and Engineering Connections:

The Stowaway Adventure

Henry Harms
Manager of Engineering & Technology Programs
Center for Innovation in Engineering and Science Education
- **CIESE** established in 1988
- Pioneer in Internet Education (1993)
- Curriculum and professional development expertise
- Research new ways to strengthen STEM education
- Over 20,000 educators trained worldwide
Unique & Compelling Internet Applications

**Is it Unique?**
Cannot be done without Internet technology

**Is it Compelling?**
Provides students with real world learning experiences

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Use the Internet to…
Access Real Time Data
to problem-solve and think critically:

- Weather Satellite Images
- Remote Sensing Data
- Scientific Databases
- Example: Current Air Quality
Position, Time & Speed

- Authentic Problem-Solving
- Compare two different approaches: Traditional vs. Unique & Compelling
- Similar objectives
Traditional Problem

A ship travels from point A to point B in 24 hours as shown on the map. Determine:

1. Where you are going;
2. When you will arrive.
Imagine you are a stowaway on a cargo boat. Cautiously looking over the edge of the vessel, you see nothing but ocean on all sides, and you decide that you want to get back home without alerting the ship's crew to your presence.

You know only the ship's identification code, lucky for you; you remembered to pack your laptop, wireless card and cell phone.
Unique & Compelling Internet Projects Engage Students in….

- Problem-based Learning
- Cooperative Learning
- Authentic Learning Experiences
- Constructivist Approaches
- Scientific Inquiry
K-12 Engineering Projects Engage Students in….

- Problem-based Learning
- Cooperative Learning
- Authentic Learning Experiences
- Constructivist Approaches
- Engineering Design Process
Why Include K-12 Engineering?

- Team work
- Multidisciplinary
- Fosters innovative problem-solving
- Encourages creativity and risk-taking
- Increases knowledge of scientific/technical careers
- Technologically literate citizens
Engineering Design Challenge

- As you read the Project Story, can you think of what kind of travel bag you would need to hold and protect your laptop computer, cellular phone, and other essential items for your travel and still be light enough to carry?
Questions?
Thank You!

Henry Harms
CIESE
Stevens Institute of Technology
Henry.Harms@stevens.edu