raft resource area for teaching www.raft.net

Tip Sheet

Connect Learning to the Real World with Hands-on Activities

SUMMARY

Connecting lessons to the real world drives student interest, engagement and retention. This is especially true for students who feel school is unimportant or irrelevant. Linking an activity to a global issue, technology, current event, or an everyday experience gets students engaged.

AUDIENCE: Educators in grades K-12.

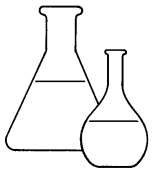
CONNECTIONS ARE EVERYWHERE!

GLOBAL ISSUES

- Climate change
- Population growth
- Communication
- Environment
- Energy

(*Drawn from "The Millennium Project", United Nations)*

NEW TECHNOLOGY



- Solar Energy
- Health
- Clean Drinking Water
- Clean and Safe Cities
- New Tools for Scientists

(Selected from "The Grand Challenges for Engineering" , National Academy of Engineering)

CURRENT EVENTS

- Science: Mars Landing
- Arts: Michael Jackson
- Culture: Balloon Boy
- Sports: Olympics
- Nature: Earthquake in China
- Politics: Ethics

("Top 10 of Everything", Time Magazine)

EVERYDAY EXPERIENCES

- Riding a Bike
- Reading a Menu
- Playing a Game
- Going to the Store
- Cleaning the House
- Talking to Friends

EXAMPLE #1: QUICK HIT

Link an Earth Science lesson to a current event. Try combining the RAFT hands-on activity ***Shake Table*** with a discussion of an earthquake in the headlines. It's easy to make the connection: "How powerful was this earthquake? What types of buildings are common in this area? Let's make some models and test them on our shake tables!"

EXAMPLE #2: DEEP DIVE

Here is a way to link a global issue (climate change) with an opportunity for independent research: students can use the RAFT kit ***3D Topo Views*** to investigate how global warming will affect sea level. Invite each student or team to pick a major coastal city. Build a three-dimensional topographical map of the city and nearby coast. Place in the model in water, and change the water level to model sea level - showing how the coastline may change over time

EXAMPLE #3: MULTI-DISCIPLINARY PROJECT

To create a multi-disciplinary project with a connection to new technology, try this: Define a challenge, such as "providing safe drinking water." Ask students to write about why access to safe water is a global issue. Invite them to use math to analyze important trends and statistics. Challenge them to use engineering practices (and the RAFT kit ***Still Water***) to build and test a simple filter. End by having the students present their findings to the class.

EXAMPLE #4: DESIGN CHALLENGE

"Design-Build-Test" is a technique engineers use to create practical solutions to real-world challenges. To do a design challenge focused on bridges, start with the RAFT idea sheet ***Bridging the Gap***. After the students build one bridge, have them switch team members and build others. Relate their designs to real bridges in your area.

MORE EXAMPLES

Here are other RAFT activities that have great real-world connections:

- ***Sticky Situation*** (clean up an oil spill)
- ***Journaling Your Trash*** (keep track of your own environmental impact)
- ***Your Room in an Earthquake*** and ***Shake Table***
- ***Absorbing the Rays*** (UV protection)
- ***Simple Stethoscope*** (health)
- ***Marble Rollercoaster*** and ***Roller Coaster Math*** (use a familiar experience to learn about physics and math)
- ***Forest Ranger Measuring Tape*** (measure real-world objects to determine Pi)

WEB RESOURCES

- ***"Teaching with the News" www.yesmagazine.org***
- ***"Coverdell Worldwise Schools" wws.peacecorps.gov/wws/***
- ***"Design Challenge Curriculum," www.thetech.org***
- ***"You're Not in Math Class Anymore: Integrating Math Across the Curriculum," www.educationworld.com/a_curr/curr146.shtml***
- ***"Get Real: Math in Everyday Life," www.educationworld.com/a_curr/curr148.shtml***
- ***"Getting Real: Using Real Life Materials," www.thirteen.org/edonline/adulted/lessons/lesson14.html***