



Oil Spill Activity

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Unit Overview

Topic: Chemical/ environmental engineering
Standards:

- Environmental Science:
 - Syllabus & Model Curriculum: Design and conduct scientific investigations.
 - Earth Resources: Water & Water Pollution: Point & non-point source contaminate
- Global Environmental Problems & Issues:
 - Human pollution

Activity Structure

Title: Oil Spill

Guiding Questions:

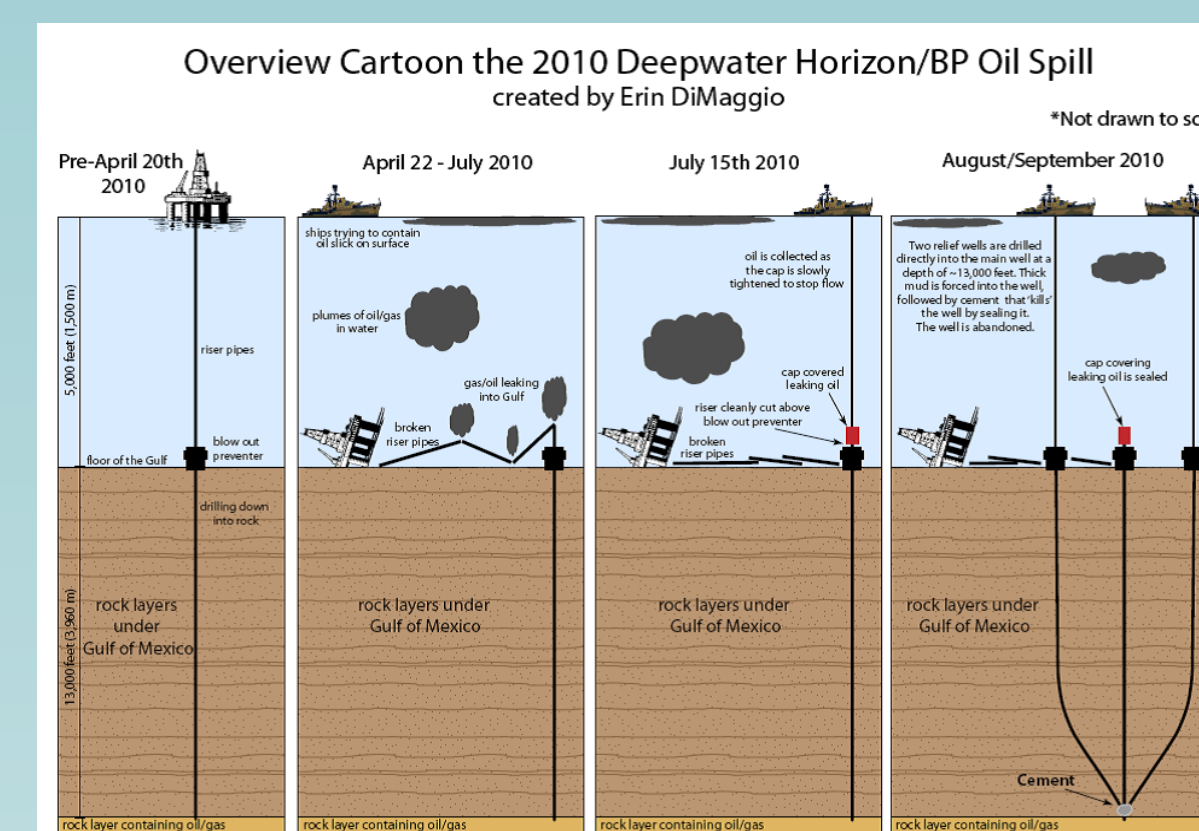
- How can an oil spill be removed from water?
- How long does it take to completely clean an oil spill?
- How could oil be contained without spreading in the water?
- What property determines if a fluid float on water?

Objectives:

- Critically evaluate the environmental impact on the ecosystem
- Simulate an environmental disaster (oil spill) in a classroom setting
- Identify physical characteristics oil and water
- Identify possible ways to solve an oil spill problem
- Identify what responsibility humans have toward an ecosystem

Activity Implementation

- Pre-Quiz
- Presentation
- Groups Worksheets
- Experiment/Lab Room
- Discussion & Post-Quiz



- Groups of 3-4 students
- In the lab room, there is a working station for every group
- On every table, there are: a pan full of clean water, an empty pan (disposal), a cup of "crude" oil.
- Students were asked to pour the oil on the water & use available material to clean the oil.



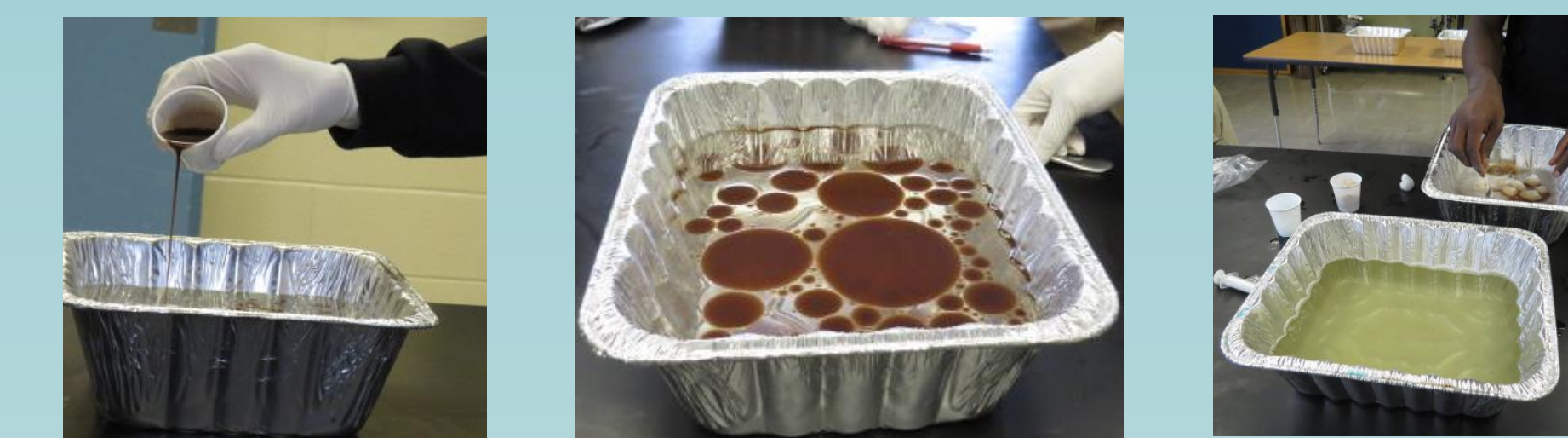
Engineering Design Process

Elaborate on ACS:

- Real world application: 2010 BP Deepwater Horizon
- Career awareness: environmental impact on the ecosystem
- Societal impact: responsibility toward an ecosystem



Student Work



Student engagement:

- Teamwork
- Discussion
- Brainstorming

OIL SPILL ACTIVITY - STUDENT WORKSHEET

GROUP MEMBERS (1) _____
(2) _____
(3) _____
(4) _____

BRAINSTORMING PLANNING

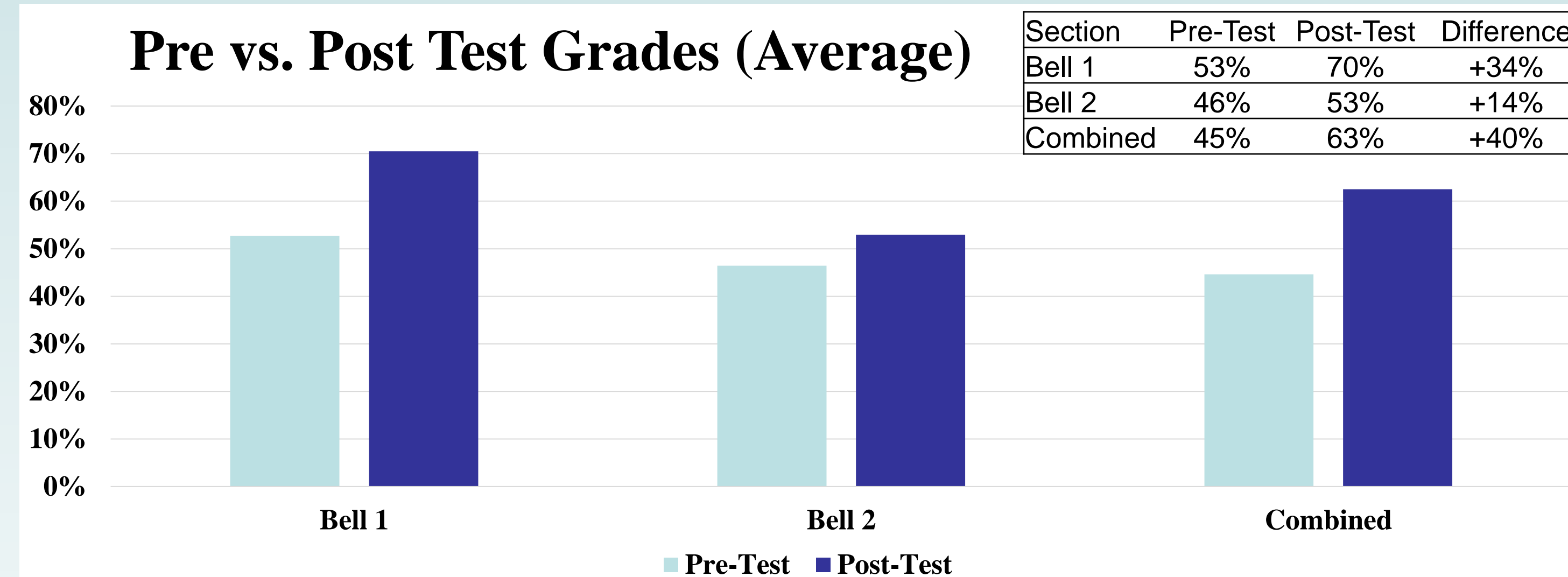
Step	Plan	Check	Rate	Results
Step 1				
Step 2				

RATE YOURSELF
On the following scale, give a score for your design.

CRITERIA	SCORE
When a spill occurs, clean	0
Almost a quarter of the oil removed	1
Almost half of the oil removed	2
Almost three quarters of the oil removed	3
No change, water is as oily as the beginning	4

YOUR SCORE: _____

Assessment Results: Impact on Student Learning



Reflection and Conclusion

What would you change?

- Student grouping chart (individual tasks)
- Material selection

BRAINSTORM: MATERIAL SELECTION

Up to 2 Items of the following	1 Item of the following
Rubber bands	Dishwashing detergent
Paper clips	Cooked rice (1 bag)
Straws (2)	Sponge (5 pieces)
Plastic Wipes (24")	Cotton balls (12 in a bag)
Plastic spoons	Hair (1 bag)
Tongue depressors	Masking tape
Hand-made fan	Ruler
String	Wooden match (1 bag)
Shredded paper (1 bag)	

What did I learn?

- Methods of assessing student learning
- The great amount of responsibility and courage required for the teaching job
- Professional and personal development

