“A Slick Solution: Cleaning an Oil Spill”

Integration Notes

Lesson 1 (Tehya’s Pollution Solution)

ELA
- Vocabulary words
- Classification
- Use internet, newspapers, magazines to find stories about environmental issues
- Retelling the story
- Write a story about an oil spill that’s happened in the past
- Higher level questioning, inferences, summarizing, and paraphrasing
- Students read in pairs and write responses to reading
- Students develop their own questions
- Use Tehya’s Pollution Solution instead of the Good Habits, Great Reader for a non-fiction unit.
- Give students a WIDA writing prompt to assess their language development
- Using an EL level 2 and 3 adapted version of the story.

Social Studies
- Indigenous populations, Westward expansion, European/native conflicts
- US History, Northwest tribes, Mississippi River
- Geography – Washington state
- Find and discuss stories in the news about oil issues
- Artwork of Native Americans
- Cultural differences among different tribes

Science
- Look at playground runoff
- Go to Lake of the Isles, observe water runoff that empties into the lake

Miscellaneous
- Tie in with protection of the Mississippi (Big River Journey)
- Collaborate with Environmental Education Teacher
- Field trip to the Minnesota Zoo

Lesson 2 (An Enviro-Mystery)

ELA
- Letter writing is important in 5th grade, wrap-up could be a letter they write about the findings
- Write a persuasive essay
- Integrate with books on pH and pH testing

Math
- Use bar graphs to compare data
- Define data chart in relation to math

Social Studies
- Map skills
- Social studies unit on landforms, landmark data can be done prior to this lesson
- Discuss how topography could influence results
- Community – could we test our water in Minneapolis?
- Discuss the effects of pollution on a neighborhood and an economy

Science
- Waters to the Sea (http://www.hamline.edu/education/cgee/waters-to-sea.html)
- Environmental Detectives (GEMS)
- Additional resources from the Minnehaha Creek Watershed district
- Enviroscape (available from the Met Council)
- Service learning/clean-up
- Go to a nearby lake or pond, take water and soil samples, test pH
- Test water at school, soil outside, drinks
- Cross check vocabulary and concepts with FOSS kit (Environments)
- Relates to discussion from FOSS aquatic environments kit of what causes acid in water
- Teach the link between acids, bases, and pollution
- Test pH levels throughout the FOSS Environments kit
- Connects well with FOSS investigations 3 and 6 (students grow plants in a range of environments). (Provides exposure to pollution and its effects of the environment – hits a standard that isn’t covered by FOSS Environments
- How acidic and basic foods/drinks affect the body

**Miscellaneous**
- Big River Journey (Ecosystem is a vocabulary word for this trip)
- IB Unit – Human Impact on Natural Systems
- Reduce—Reuse—Recycle

### Lesson 3 (A Slick Idea)

**ELA**
- Journaling
- Implicit questioning
- Non-fiction reading about food chains
- Technical writing – how to write directions or cause/effect essay
- English language connections - _________ affects _________ because________.
- Comparisons and superlatives
- Vocabulary
- Create directions for testing materials for a handout or PowerPoint

**Math**
- Measuring
- Collecting data

**Social Studies**
- Importance of water, pollution’s impact on available water
- Building community—how are we all connected?
- Oil spills around the world and impacts

**Science**
- Observe ecosystems at a nearby body of water
- Discuss interconnectedness of organisms in the ecosystem
- What is a model? Show examples. Introduce – cars, airplanes, buildings, structures
  - Why use models instead of testing in the environment?
- Comparing and contrasting of materials used
- Introduce ecosystem and food chain in FOSS Environments kit

**Miscellaneous**
- Web is similar to a web in Junior Achievement, where string is used to connect components of automobile production, showing interconnectedness of parts of a global economy
- Use web as a get to know you activity and find connections with others
- Create a large student-made web – could be done outside
- Zoo Safari – Tie in with zoo curriculum (biotic/abiotic, environments)
  - “Bare Necessities”

### Lesson 4 (Cleaning an Oil Spill)

**ELA**
- Integrate with the memo writing activity, technical writing
- Record procedures in science journal
- Groups could present their findings and scores
- Write about whether it worked or not and why

**Math**
- Working with a fixed budget
- Percentages—what percent of budget was spent on each material?
- Money and place value
- Grids for math and mapping

**Social Studies**
- Current events – Research BP oil spill or similar events
- Technology/Media – research actual news events
- Fits with Physical Features and Geographic Terms units
- Working in a community
Science
- Incorporate outdoor lesson at a lake
- Project Wet (projectwet.org) – Worldwide water education
- Put oil in stream flow table and watch the results
- Connect to landforms – erosion/deposition
- Environmental awareness
- Water monitoring

Miscellaneous
- Problem solving
- Sharing and listening to others’ ideas