**Investigating ways to clean up oil spills**

**Levels:** 4-6  
**NoS achievement aims:** Investigating in science, Participating and contributing   
**Contextual strands:** Living world, Planet Earth and beyond   
**Topic:** Environmental studies

**Rationale**

Oil spills on water need to be contained because of their impact on living organisms in marine and coastal communities.

Models can be used to investigate possible ways of coping with oil spills.

**What you need**

* News items of oil spillage disaster at sea (for example, internet and newspaper articles, videos).
* For each group:
  + a large shallow pan or tray (square if possible)
  + water
  + heavy machine oil, for example, dirty automotive oil
  + drinking straw or electric fan (to simulate wind)
  + string
  + a glass ‘wave-maker’ plate which fits into the end of the pan (optional)
  + sand and rocks to make a ‘shoreline’ (optional).

**Focus**

* How does oil behave when it mixes with water?
* How does oil in the water affect seabirds?
* What needs to be done to save animals affected by oil?
* Is caring for the environment part of what scientists do?
* Why do scientists take the trouble to study pollutants in the environment?
* Why should students care about developing an understanding of an environmental problem?

**Exploration**

1. As a class, look at and discuss the oil spillage disasters. Get students to share their ideas about how the environment (wind, waves, and coastline) affects the oil spill, and how the oil spill affects the environment.
2. In groups, get students to:
   * pour water into the pan so it is two-thirds full
   * gently add a small amount of oil
   * loop the string around the ‘oil spill’
   * mark the length of the looped string, measure it, and record the length on a data table
   * wait 3 minutes, then repeat the string measurements and make any observations.
3. Get students to repeat steps 3 through 5 for a total of six readings.
4. Next, get them to:
   * use the straw to lightly blow from one direction on the spill to spread it out (if using a fan, exercise caution)
   * record observations
   * repeat the ‘blow and record’ process every three minutes. (If the spill covers the entire pan, start again.)
5. Get students to:
   * shake or vibrate the pan (or use the wave-maker) to create light wave action
   * record observations
   * investigate answers to the questions: If left alone, how does the oil spread out? What effects do waves have on the spill? What is the effect of wind?
6. (Optional) Students could also:
   * make a ‘shoreline’ of sand and rocks
   * record observations of the effects of oil on these materials.

**Reflection**

* How could the use of a model such as the one in this investigation help scientists work out how to deal with oil spills?
* Based on your results from this investigation what would you consider when deciding how to deal with an oil spill?

Source of this activity: Hayley Beaumont, Pukekohe High School.