**Question de recherche:**Comment est-ce qu’on peut nettoyer les marées noires?

**Matériaux**

• 3 Paniers/bocals (remplit avec l’eau)

• 3 tasses

• l’huile (6 tbsp)

• poudre de cacao (1 tbsp)

• fécule de maïs (1 tasse)

• boules de coton

• cuillères

• pailles

• savon (3:1 l’eau: savon ~ 4 tbsp)

**Hypothèse: Il est prédit que ….   
*(évitez l’utilisation de “je pense”)*Procedure   
Énumérez les étapes que nous avons pris…**A) Les dispersants (Savon)   
1.   
2.  
3…   
B) Les microorganismes (Fécule de maïs)  
1.   
2.  
3…   
C) Les estacades (booms) et récupérateurs (skimmers)

1.   
2.  
3…

**Observations: qualitatives ou quantitatives**1) Quelle méthode a eu le plus du succès?

**Discussion:**2) Est-ce que c’était facile ou difficile? Pourquoi?  
3) Quelles conditions environnementales pourraient influencer le succès des méthodes?  
4) Pour combien de temps est-ce que tu penses l’huile peut persister dans la nature?  
5) Est-ce que tu connais des marées noires fameuses?  
6) Qui est responsable de nettoyer les marées noires? Au Canada? Au autres pays? Combien est-ce que ça coûte?   
7) Où est-ce que l’huile va? Comment est-ce que c’est éliminer?   
8) Comment est-ce que les marées noires influencent les écosystèmes? Quels organismes sont affectés?

**Background Information** Oil spills occur when crude oil is accidentally released into a body of water by an oil tanker, refinery, storage facility, underwater pipeline, or offshore oil-drilling rig. When an oil spill occurs, the oil floats and forms a millimeter-thick layer on the surface of the water. Oil spills can be extremely hazardous and environmentally threatening, and need to be contained and cleaned as soon as possible.

There are four basic ways to clean or contain an oil spill, and workers determine the most appropriate method depending on the type of oil, location of the spill, potential hazards, weather conditions, waves, and currents.

1. **(Straws and Spoons OR Cotton Balls)** Contain the spill using booms, and collect the oil from the surface of the water using skimmers. Booms are long, buoyant tubes, which can be solid or inflatable (sorbent), and are used to surround and isolate the oil slick. Most rise about a meter above the waterline and have skirts that hang about a meter below the waterline. Skimmers float across the top of the slick contained within the boom, and suck or scoop the oil into containment tanks. Booms and skimmers are less effective when deployed in high winds and high seas.

2. **(Dish Soap)** Use chemical dispersants to break down the oil and speed up its natural

biodegradation. Dispersants break the slick into droplets of oil, making it easier for the oil and water to mix, and for the slick to be absorbed into the aquatic system. Dispersants are most effective when used within an hour or two of the initial spill. However, they are not appropriate for all oils and all locations. Dispersion can cause the oil to be absorbed by marine organisms, allowing it to enter the food chain. 3. **(Cornstarch)** Add biological agents to the spill. Bacteria and other microorganisms can break down most of the components of oil washed up along a shoreline into harmless substances through a process called biodegradation. This natural process can be speed up by the addition of fertilizing nutrients such as nitrogen and phosphorous.

4. **(Control)** Let the oil break down naturally, if there is no possibility that it will pollute coastal

regions or marine life. A combination of wind, sun, current, and wave action can eventually disperse and evaporate most oils. Light oils will disperse more quickly than heavy oils.