Understanding oil spills

Materials needed:

- a clear container
- tap water
- vegetable oil or any cooking oil
- small items (e.g., plastic toys, beads, or paper pieces) to represent pollutants
- a spoon
- a pipet
- wooden tongs
- cotton balls
- volumetric cylinder

For the additional tasks:

- dishwasher soap
- a feather

Experiment instructions

1. Prepare the experiment

1. **Set up your experiment.**
   Fill your container with clean tap water.
   This represents a clean and unpolluted environment.
2. **Have the table ready. Here you will write down your assumptions and observations.**
3. **Create an oil spill.**
   Carefully add a small amount of vegetable oil to the water.
   Watch how the oil behaves on the surface.

2. Clean up the oil spill

Try to clean up the oil spill. Make assumptions on how good the different tools are in cleaning up the oil spill. Write down your assumptions in the table. Then try to clean up the oil spill with the tool you chose. Write down your observation and the advantages and disadvantages of each tool.

1. **Use a spoon.**
   Attempt to remove the oil by scooping it out with the spoon.
   a) How much oil can you remove?
   b) How does the water look after using this method?

2. **Use a cotton ball.**
   Use cotton balls to absorb the oil from the surface of the water.
   Gently press the cotton ball onto the oil patches and lift it away.
   a) How much oil can you remove?
   b) How does the water look after using this method?

3. **Use a pipette.**
   Try to suck up the oil using the pipette.
   Be careful to target only the oil layer and not the water.

a) How much oil can you remove?
b) How precise is this method?

4. **Use wooden tongs.**
   If there are larger pieces of oil clumps or mixed pollutants,
   use the tongs to remove these from the water.
   a) How easy is this method?
   b) How effective is this method?

Additional tasks

5. **Use dishwasher soap.**
   Add a few drops of dishwasher soap to see if it helps break down the oil.
   Observe how the oil disperses or breaks up.
   a) How effective is this method?

6. **Use a feather.**
   Simulate how birds might be affected by oil spills.
   Dip a feather into the oily water.
   Then try cleaning it by using the soap and water.
   a) In what condition is the feather after attempting to clean it?

Before the cleaning attempts: What happens if you add a small amount of oil to the water?

1. What do you see happening to the oil on the water?
2. How does the water's appearance change?

Assumption	Observation

After the cleaning attempts: What I learned

1. Write down one new thing you learned from this experiment.

2. Why is it important to keep our water clean?

Methods for cleaning up an oil spill

Method:			
Assumption	**Observation**	**Advantages of this method**	**Disadvantages of this method**
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A project by Science on Stage Germany

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