

## C2.1 Hand washing

Fried chicken was served for lunch. As Mia goes to the sink with her greasy fingers, her mother calls out, “Don’t forget to use soap!”

It certainly isn’t possible to get rid of the greasy film on her skin with plain water and no soap; her hands won’t get clean. But why does it come off right away with soap?



Figure 1: Washing hands.



**Find out what happens when you mix grease and water. Instead of soap, you will use dish detergent in this experiment. Dish detergent works like strong soap.**



**Write down your ideas and guesses:**

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**You need the following for the experiment:**

- 1 container with lid, 100 ml
- dish detergent
- oil
- 2 pipettes
- 1 wooden skewer
- water

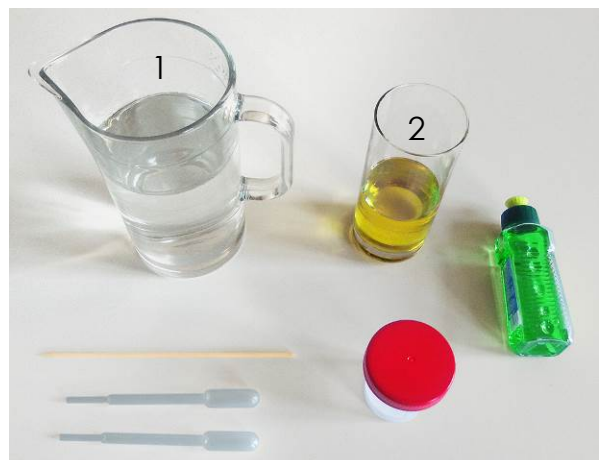


Figure 2: Required materials.  
1: water, 2: cooking oil.



### How to set up the experiment:

Lay out all the materials as shown in the photo.



### How to conduct the experiment:

1. Fill the container with water.
2. Use the pipette to add a large drop of oil on top of the water and observe what happens.

Tip: You can add several droplets until you have a large drop. Do not add the drops too vigorously, or else you will have lots of small drops. You can use the wooden skewer to combine drops that are too small into one large drop.

3. Use the other pipette to add a drop of dish detergent on top of the oil drop.



### Write down your observations:

Observe the drop of oil in the water: Where is it, and what does it look like?

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Closely observe for a few minutes what happens when you add the dish detergent to the water.

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**Evaluate your observations:**

1. Soap responds to grease in the same way dish detergent does. Discuss with your partner why you use soap to clean greasy hands.

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2. You can also draw a picture of your ideas, showing what you can see through a very strong magnifying glass when you wash your greasy hands.



**Doing further research:**

1. Find out how to best remove the following things from hands or clothing: glue residue, felt-tipped pen marks, nail polish, grass stains from a fall, or what's left of a temporary tattoo.
2. Write down what you find out.

**What is your opinion?**

Your friend has come to your house for lunch after school. Your mother calls you to the table. You both go into the bathroom. Your friend says, "I don't need soap. My hands will get clean with water."

**Think about it: What would you do?**

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