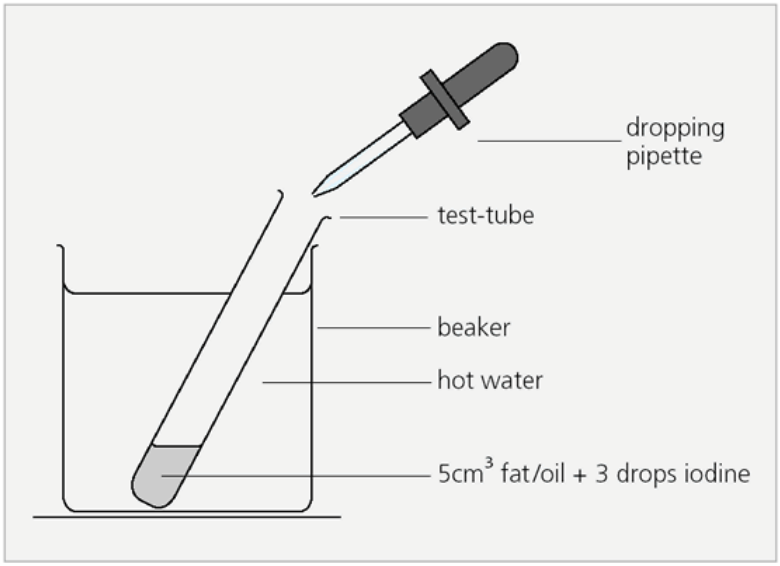
Name:…… Date:……

Fats, oils and fatty acids

Fats and oils have different 'fatty acids' in them (see **Did you know about fat?** and **Did you know more about fat?** for more information). Here you can find out how to test for different molecules.

What you need

- About 5 cm^3 of each fat (melted) or oil
- Measuring cylinder or pipette to measure each fat or oil
- One test-tube for each fat or oil
- Iodine solution, 2% (**Harmful**) in potassium iodide solution – use with care, will stain hands and clothes
- Dropping pipette
- White card for background
- Stopwatch
- 250 cm^3 beaker
- Glass rod
- Hot water
- Test-tube rack
- Eye protection.



What you do

1. Half fill a test-tube with a melted fat or oil. This should be about 5 cm^3.
2. Add exactly three drops of iodine solution. Stir so the iodine colour spreads out.
3. Place the test-tube in the beaker of hot water.
4. Start the stopwatch immediately.
5. Stop the watch when the red colour disappears. Record the time elapsed.
6. Repeat with the other fats and oils, using a clean test-tube for each.

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Fats, oils and fatty acids

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Safety
Wear eye protection. 

Results
Put your results in the table.

Results table

Fat or oil	Appearance	Time for red colour to fade / seconds	Comments

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Fats, oils and fatty acids

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Questions

Use **Did you know more about fat?** to help you make sense of the results.

1. Which fat or oil has the most unsaturated fatty acids?

……..

2. Which fat or oil has the least unsaturated fatty acids?

……..

3. Explain why 'unsaturated' fats are supposed to be 'good' for the body.

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Fats, oils and fatty acids

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Alternative questions

1. Which fats took the longest and the shortest times to decolourise the iodine?

……

……

2. Which fat is the most saturated and which is the least saturated?

……

……

3. Which fat is the most ‘healthy’ of those you tested?

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4. Discuss how this information could be used to inform people’s eating habits.

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5. What other tests could you carry out to decide if a fat is ‘healthy’ or not?

Note: This resource can be downloaded as part of a set of activities exploring lipid chemistry and dietary fats (https://rsc.li/3iHogdV) or for use with a lesson plan for 16–18 year olds investigating ‘healthy’ fats and unsaturation (https://rsc.li/3hAndVu).