

AO3. Further fat research

Cooking up trouble?

Unsaturated fatty acids become more saturated with use. This is an established fact but the consequences on our health are largely unknown. There is no legal requirement for caterers to change the fat used for frying after any particular amount of use. This is usually governed by subjective tests such as 'it doesn't look right any more'. This project allows pupils to find out common practice in various catering establishments.

What a lot of fat

The Department of Health has set a target to reduce the percentage of energy derived from fat from 40 % to a healthier 33 %. The levels of saturated fatty acids should be reduced from 15.4 % for men and 16.5 % for women to 10 % for both genders.

The Health of the Nation programme is also aiming to reduce obesity (see chart below) to 6 % in men and 8 % in women by the year 2005.

At the moment it seems unlikely that targets will be met. Indeed the current rates of obesity, of 13 % in men and 16 % in women, are actually predicted to rise!

This project asks pupils to find out about the fat content of common foods, simple ways of reducing fat intake and the contribution that 'light' versions of foods may make to our diets.

KS4

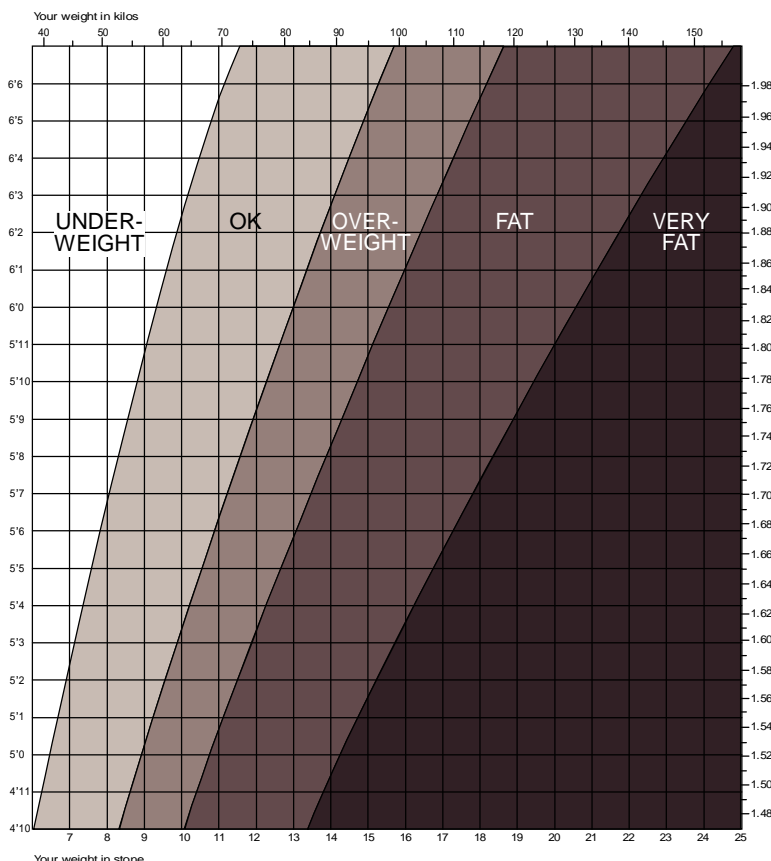
science and food technology

Timing; 2 possible homework exercises

Pupil activity sheet, AO3 accompanies these activities.

As a consequence of The Department of Health's 1992 White Paper "The Health of the Nation", the public was advised to reduce their total fat intake in an attempt to significantly reduce coronary heart disease in Britain by the year 2000.

Access to books, leaflets and/or computer databases/programs and food labels is needed. The booklet 'Enjoy healthy eating - the balance of good health' published by the Health Education Authority (ISBN 0 7521 0408X) is particularly useful.



Graph to show ideal Height :Weight ratio Adapted from the Health Education Authority booklet: Changing what you eat.

Cooking up trouble?

As fats get older they react with oxygen in the air and will eventually go rancid. This is an unpleasant and potentially dangerous condition. The monounsaturated and polyunsaturated fats become more saturated, i.e. the number of carbon to carbon double bonds decreases while the number of carbon to carbon single bonds correspondingly increases. There is no simple way of knowing that this is happening. The saturated fats are not as healthy as the unsaturated fats. The rate at which this happens will increase if the fat is heated.

This can have important consequences for food that is deep fried. Initially food may be being fried in an unsaturated fat but as time progresses this will change to a more saturated fat. This may not be good for your heart!

If food is deep fried in kitchens at your school, try and find out some information about how this is done. You could look at the following areas:

- What sort of fat is used for frying?
 - What is the typical composition (% saturated, monounsaturated, polyunsaturated fatty acid content) of this fat?
 - Is the same fryer and fat used for different foods?
 - What temperature is the fat heated to when food is being cooked? Is a thermometer used to check this?
 - How often is the fat changed? Is it changed completely or is it just 'topped up' as it is used up?
 - Who decides when it is changed? How do they decide that this should happen?
- Find out the answers to similar questions for the fat that is used at home. You may like to extend your research to local restaurants and cafes.

What a lot of fat

Many people are surprised by the amount of fat contained in common everyday foods such as peanuts and avocado pears. Using nutrition/science text books, computer resources and/or food labels, display information on the amount of fat in frequently eaten individual foods and complete dishes. Your display will be clearer if you can find out the percentage of saturated, monounsaturated and polyunsaturated fatty acids in the foods. Try to show people how much fat they eat on a regular basis. We are advised to cut down on the total amount of fat we eat. Find out the meals that you and your friends regularly eat. For each meal suggest some ways in which the fat content could be reduced so that you are eating more healthily.

From magazines, etc. find some advertisements for foods that have 'light' varieties and critically analyse the claims that are made. You could devise taste panels to test acceptability to the consumer. From the labels of these products compare their composition with 'ordinary' equivalents. Discuss the ways in which you think these products may help people to reduce their total fat intake.