Nutritionists advise us to eat at least **5 fruit** or **vegetable** portions a day.

Estimate the weights of some fruit or vegetables.

Record your estimates before weighing the items. How accurate were you?

The guideline for a portion size is 80g.

Name of fruit or vegetable	Group estimate of weight	Actual weight	% error	How much is 80g?

What does a portion look like?

How much does a pea weigh?

Are all bananas the same weight?

food and drink

Nutritionists advise us to eat at least **5** **fruit** or **vegetable** portions a day.

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food and drink

How many portions of fruit and vegetables did you eat yesterday?

Green vegetables:
2 broccoli spears, 8 cauliflower florets, 4 heaped tablespoons of kale, spring greens or green beans.

Cooked vegetables:
3 heaped tablespoons of cooked vegetables such as carrots, peas or sweetcorn.

Salad vegetables: 3 sticks of celery, 5cm piece of cucumber, 1 medium tomato, 7 cherry tomatoes.

Tinned and frozen vegetables: roughly the same quantity as you would eat as a fresh portion: 3 heaped tablespoons of tinned or frozen carrots, peas or sweetcorn.

Pulses and beans:
3 heaped tablespoons of baked beans, haricot beans, kidney beans, cannelloni beans, butter beans or chick peas. Beans and pulses only count as 1 of the 5 portions, no matter how much you eat.

Does your class eat healthily?

Fresh fruit: small-sized fruit, such as 2 plums, 2 satsumas, 3 apricots, 2 kiwi fruit, 7 strawberries, 14 cherries, 6 lychees.

Medium-sized fruit:
1 medium fruit, such as 1 apple, banana, pear, orange, nectarine, or 1 sharon fruit.

Large fruits: half a grapefruit, 1 slice of papaya, 1 slice of melon (5cm slice), 1 large slice of pineapple, 2 slices of mango (5cm slices).

Dried fruit: 1 tablespoon of raisins, currants, sultanas, 1 tablespoon of mixed fruit, 2 figs, 3 prunes, 1 handful of banana chips.

Tinned fruit: roughly the same quantity of fruit that you would eat as a fresh portion: 2 pear or peach halves, 6 apricot halves, 8 segments of tinned grapefruit.

Juices: a glass (150ml) of 100% juice (fruit or vegetable juice or smoothie) counts as 1 portion, but you can only count juice as 1 portion per day, however much you drink.

http://www.5aday.nhs.uk/WhatCounts/PortionSizes.aspx

Going bananas: Five-a -day

Fruit and vegetable consumption, 2005

Portions per day	Age							
	16-24	25-34	35-44	45-54	55-64	65-74	75+	**Total**
	%	%	%	%	%	%	%	%
None	10	6	7	4	4	4	4	6
Less than 1 portion	3	3	3	4	2	3	4	3
1 portion or more but less than 2	21	16	16	17	12	10	14	15
2 portions or more but less than 3	20	18	17	15	15	17	17	17
3 portions or more but less than 4	16	13	17	15	16	17	19	16
4 portions or more but less than 5	14	14	13	15	17	17	16	15
5 portions or more	17	29	27	30	33	32	26	28

http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles-related-surveys/health-survey-for-england

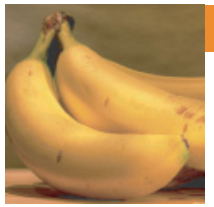
Data based on Table 13 from the Health Survey for England 2005

Data weighted for non-response.

Nutritionists advise us to eat at least **5 fruit** or **vegetable** portions a day.

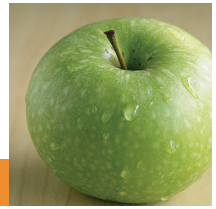
Smoothies usually contain many different ingredients:

6 mandarins

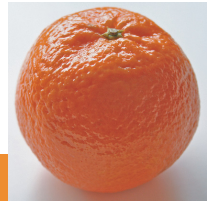


2 bananas

43 raspberries



2 apples



and 4 oranges!

What does your favourite smoothie have in it?

Can you make your favourite smoothie cheaper than you can buy it?

Fruit Weight

Apple (medium)	182g
Apricot	35g
Banana (medium)	118g
Blueberry	1.36g
Cherry	4.8g
Grape	4.9g
Grapefruit (medium)	128g
Kiwi	76g
Lemon	108g
Lychee	10g
Mango	207g
Melon (Cantaloupe)	552g
Melon (Honey dew)	1000g
Nectarine (medium)	142g
Orange	159g
Papaya (medium)	304g
Passion fruit	18g
Peach (medium)	150g
Pear (medium)	178g
Pineapple	1000g
Plum	66g
Pomegranate	154g
Raspberry	1.9g
Satsuma	74g
Sharon fruit	25g
Strawberry	7g

based on information from United States Dept of Agriculture

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food and drink

Food and drink: Going bananas

Description

Current healthy eating guidelines advise eating at least 5 fruit or vegetable portions a day. In this topic pupils work out what a portion size looks like, find out whether they are eating enough fruit and vegetables and compare the costs of making and buying smoothies.

Activity 1: How much is a portion?

Activity 2: Five-a-day

Activity 3: The smoothie challenge

Resources

A selection of fruit and vegetables

Digital scales

A selection of 1 litre smoothie cartons

How much is a portion? asks pupils to estimate the weights of a selection of fruit and vegetables and investigate how much is needed to make up a 5-a-day portion. The guideline for a portion size is 80g.

Pupils work in small groups to estimate the weights of some fruits and vegetables. Give each group a clementine, or similar sized fruit weighing about 80g, labelled with its weight.

Each group should agree and record their estimates before a "weigh in" is performed by the teacher or pupil using the digital scales. Encourage discussion of how to obtain more accurate weight measurements of small items, like peas, and items that vary in size and weight such as bananas. You may also wish to use this opportunity for discussion on *rounding.*

The pupils should record the reported weights. The differences between their estimates and the reported weights motivates the % error calculation. Which group has the best estimate? The worst estimate? The best overall performance?

Pupils also calculate how many, or what proportion, of each fruit or vegetable make up an 80g portion. Their findings can be displayed in a poster.

Five-a-day investigates how many portions of fruit and vegetables pupils have on a daily basis and uses these results to compare the class with the latest data available for adults.

Each pupil calculates and records how many portions of fruit and vegetables they ate yesterday. Use class discussion to establish the intervals used in the National Health Service Survey, 2005.

The teacher can then collate the data for the class and lead a discussion of the types of graphs that could be used to illustrate this data – a tally chart, a stem and leaf, a bar chart. Gender comparisons could also be made using a back to back or a comparative bar chart.

Invite the pupils to consider what calculations would help answer the questions: does your class eat healthily? For example, pupils can calculate the mean number of portions of fruit and vegetables eaten and the proportion of pupils in their class that had eaten **at least** the recommended amount.

The activity is extended by comparing the class results with the official statistics. Are the class more or less healthy than adults in 2005? Estimates for the mean can be obtained for the grouped data and compared to your mean number of proportions. The *Fruit and vegetable consumption, by age in 2005 table* is provided as an Excel spreadsheet.

Food and drink: Going bananas

In **The smoothie challenge** pupils choose a smoothie and investigate whether it is good value for money. You could provide a selection of 1 litre smoothie cartons or print out the ingredients of a selection of 1litre smoothies from http://www.innocentdrinks.co.uk/our_drinks/cartons/

How much would it cost to **make** a smoothie? How does this cost compare to **buying** a smoothie? The prices of many of the individual ingredients can be found at http://ocado.com Some fruits are priced according to weight and information about the weight of fruit is provided.

The mathematics

In **How much is in a portion?** pupils estimate weight, work with measures and calculate percentage errors. **Five-a-day** explores the use of summary measures to describe and compare data. There are opportunities for pupils to compare data handling representations and to estimate means from grouped data. The smoothie challenge requires pupils to do calculations involving money, weight and volume and develops the skills of organising and processing information, making decisions and interpreting results.