How Heavy is That?

Overview

This practical and enjoyable activity uses a series of mystery parcels to give students some appreciation of weights in metric units. Familiar products of known weight are used as references for students to compare as they estimate the unknown weights.

The activity is best carried out by small groups of up to five students. For larger classes it can be done in parallel with other measuring and/or problems solving activities to minimise the amount of equipment required.

Skills and Knowledge

- Estimating metric weights
- Weighing with kitchen scales
- Metric units of weight: kg, gram
- Conversion between units

Preparation and Materials

- A set of mystery parcels (see details below)
- A range of supermarket items with weights clearly marked (see details below)
- Kitchen scales
- Bathroom scales (optional)
- Photocopy Activity Sheet 1 (1 per small group)

Preparing the mystery parcels

Collect a range of objects: from just a few grams, such as a packet of stock cubes or sweets, through to heavier items such as one or two large books.

Wrap the items in paper so that students cannot see any printed weights and are estimating from the feel rather than knowledge of the objects. (Old books of different weights are useful for this exercise and easy to wrap, eg 1, 2 or 3 paperbacks in a parcel). Label the parcels A, B, C etc.

Note:
Since students will eventually need to weigh the heavier items on the scales, make sure the parcels are within the range of the scales you have available. If you have bathroom scales then you could also use heavier items, such as a small suitcase filled with something, as one of the mystery weights.

Very small weights of a few grams will possibly not register on the kitchen scales so you may have to tell the students these weights (select items with weights written on them).

Collecting the supermarket items

These items will be used as 'references' for comparison, so you need things ranging from a few grams to a few kilograms. Things like stock cubes, cakes of soap, packets of spaghetti and rice of varying weights, washing powder in 1 or 1 ½ kg boxes and 2 kg bags of apples or potatoes, are useful for this purpose.

It would be useful to have a few items that students can remember for later reference. For example a typical cake of soap weighs 100 grams, a litre of milk weighs 1kg, a teaspoon of sugar weighs 5 grams.

Suggested Procedure

Give the set of mystery parcels and the reference weights to a small group of students.

Supply them also with one copy of the Activity Sheet.

Ordering the weights

Ask:

- *Feel the weight of the parcels and see if you can arrange them from lightest to heaviest.*
- *Then write the letters on the parcels in the Activity Sheet in that order.*

Comparing to the reference items

Explain:

- *Now go through the items one by one and decide which of the supermarket things has the nearest weight.*
- *Decide whether it is lighter or heavier.*
- *Use this idea to make an estimate of the parcel's weight.*
- *Write your estimate into the 'estimated weight' column on the Activity Sheet.*

Weighing the items

Explain:

- *The last step is to weigh the parcels on the scales.*
- *Then record the weight in the 'actual weight' column of your activity sheet.*
- *Discuss which your best estimates were and why you think this was so.*

Discussion

Ask students to tell you what are some of the regular items that they buy and whether they are aware of the weight they buy. For example, do they know the weight of the packs of pasta or rice they buy, or is it just the large or small packet or sack.

It is interesting to compare how people from different communities and cultures buy their staple food items.

It is interesting to note in our society we do not often estimate weight by feel. When we shop we may know we want 250 grams of sliced meat or ½ a kilo of cheese, but it usually judged by sight rather than feel.

Follow up activities

Language tasks

You could ask students to write sentences about the parcels and the reference items using a range of words, such as heavier, heaviest, lighter, lightest, weight, weighs.

For example:

- *Parcel B is the heaviest in the set.*
- *The rice is 30 grams heavier than parcel C*
- *The weight of parcel A is .....*
- *The rice weighs more than ....*

Conversions and fractions

Depending on how the items are marked, ask students to change them to grams or kilograms.

For example:

- *½ kg of pasta → how many grams is that?*
- *250 grams of sliced meat → what fraction of a kilo?*

This would also be an ideal time to calculate some prices when items are sold with a price per kilo.

For example:

- *The cost of 250 g of cheese @ about $8 per kilo.*
- *The cost of 1 ½ kg of sausages at $6 a kilo.*

Label	Estimated weight	Actual weight	Comment