

PRODUCT WARS: ULTIMATE SMOOTHIE

These activities are designed for 60-minute lessons. You may need to adapt the materials for use in longer or shorter lessons.

INTRODUCTION

In this activity, pupils are asked to create a range of smoothies choosing from a list of potential ingredients. They are then asked to complete a nutrition label for each smoothie and, in some instances, are invited to compare their smoothies, e.g. with Guideline Daily Amount figures.

This activity is mainly ICT based. It has been designed for use with pupils in an ICT suite although it could be adapted for use in a maths classroom equipped with a data projector and whiteboard. It is suggested that pupils work together in pairs or small groups to encourage appropriate levels of participation and discussion.

The activity contains 3 options offering varying degrees of challenge. Different pupil pairs or groups within a class can work at different options. Alternatively, you may prefer to ensure each group has a mix of pupils. This will help to create appropriate conditions for peer support.

These different options are as follows:

- **Option A:** Pupils are presented with a list of potential ingredients and are asked to use 3 different ingredients to make 96g of smoothie. They then calculate the percentage of each ingredient to complete a nutrition label for each smoothie. This option is considered appropriate for learners working at **level 4 – level 5 of the National Curriculum**.
- **Option B:** Pupils are presented with a list of potential ingredients and are asked to use 4 different ingredients to make 360g of smoothie. They then calculate the number of kcals and the amount of protein, fat and carbohydrate in a 100g serving to complete a nutrition label for each smoothie. Pupils are then asked to construct a range of graphs comparing the figures for each smoothie. This option is considered appropriate for learners working at **level 5 – level 6 of the National Curriculum**.
- **Option C:** Pupils are presented with a list of potential ingredients and are asked to use at least 4 different ingredients to make 980g of smoothie. They then calculate the number of kcals and the amount of protein, fat and carbohydrate in a 100g serving to complete a nutrition label for each smoothie. Pupils are then asked to construct a range of graphs comparing the figures for each smoothie with some Guideline Daily Amount (GDA) figures. This option is considered appropriate for learners working at **or above level 6 of the National Curriculum**.

OBJECTIVES

- Pupils will use problem-solving skills.
- Pupils will need to calculate percentages.
- Pupils will use ratio and proportion.
- Pupils will draw pie charts of results.

RESOURCES

Pupils will need the following:

- access to computers
- pencil and paper
- copies of the support worksheets for Options A and B

- calculators.

DELIVERING THE CASE STUDY

- Pupils should be introduced to the nutritional information given on packaged food.
- Ask your pupils to discuss the best way of providing this information.
- Project the accompanying spreadsheet on to the whiteboard.
- Take some time to introduce the features of the spreadsheet to your pupils.
- In particular, emphasise that pupils will be required to:
 - type the name of the ingredients they want to use in column H
 - enter the amount of each ingredient they want to use in column I
 - input the kcals per 100g for each ingredient in column J.
- Demonstrate how changing values in one cell can affect the value in other cells. For example, changing the value in cell I9 will alter the total value in cell I15. Similarly, changing the amount of each ingredient used will result in changes in the cells in column K and in the number of kcals recorded in cell J17.
- Ask pupils to suggest ways in which they could attempt to reduce the number of kcals per 100g. Try a number of changes to familiarise pupils with the spreadsheet.
- Allow time for pupils to work within their groups.
- Once they have met the criteria that the smoothie must have fewer than 60kcals per 100g they should go to the relevant label sheet and enter the number of kcals in the appropriate cell.
- Pupils then use pencil, paper and calculators to find the additional information required on the label, enter the results and print the labels. Help sheets are provided for Option A and Option B. The label print outs can be used for the Package Design activity.
- If time allows, encourage pupils to create up to 4 different smoothies.
- Option C pupils with the necessary spreadsheet knowledge should be encouraged to use the Chart Wizard to draw a pie chart of their results. Others should draw them by hand.
- Pupils could be encouraged to research nutrition on the Internet. Some useful sites are:
 - <http://www.nutritiondata.com/>
 - <http://www.nutrition.gov/>
 - <http://www.nutri-facts.com/>

HOMEWORK SUGGESTIONS

Pupils could be asked to collect the nutritional information panel from 1, 2 or 3 products and calculate the kcals, protein, fat and carbohydrate in the whole pack.

Most products provide nutritional information for a 'standard' serving of x grams. Ask your pupils to weigh out one of their typical 'helpings' and compare it to the 'standard' serving.

Alternatively, pupils could be asked to research the RDA (Recommended Daily Allowance).