Chocolate Mousse II



Chocolate mousse recipe - BBC Food
·185g cooking chocolate ·¼ cup hot water ·1 teaspoon vanilla essence ·5 large eggs ·1 ½ cup cream Melt chocolate. Beat eggs. Whip cream. Fold all ingredients together. Chill in fridge for 1 hour. Serve 4–6. Freda Nurke is planning a new cookery book where all her recipes are based around larger/extended families of 6 to 9 people. She would like advice on how she should change the chocolate mousse recipe from her previous book, as shown above
·Galbraith & Holton (2018)

Task 1: Describe

Describe the real-world problem. Identify and understanding the practical aspect of the situation
Real world problem how to multiply or to add ingredients to larger/extended for 6 until 9 people.

Task 2: Specify

Specify the mathematical problem. Frame the real-world scenario as an appropriate, related mathematical questions(s)
Compare or to make ratio between first amount with final amount to be achieved.

Task 3: Formulate

Formulate the mathematical model. Make simplifying assumptions, choose variables, estimate magnitudes of inputs, justify decisions made.
((initial amount/final amount)) x (first number ingredients)

Task 4: Solve

Solve the mathematics
((4 to 6)/(6 to 9)) x Number Ingredients = (3/2) x First Number Ingredients

Task 5: Interpret

Interpret the solution. Consider mathematical results in terms of their real-world meanings.

(3/2) x 185g cooking chocolate = 277,5
(3/2) x ¼ cup hot water = 3/8
(3/2) x 1 teaspoon vanilla essence = 3/2
(3/2) x 5 large eggs = 7,5 to be 8 eggs
(3/2) x 1 ½ cup cream = 9/4 or 2(1/4)

Task 6: Evaluate

Evaluate the model. Make a judgment as to the adequacy of the solution to the original question(s). Modify the model as necessary and repeat the cycle until an adequate solution has been found
The model is (3/2) x first number Ingredients

Writing a modelling report

Models are designed to address particular problems in specific situations. So, models must be capable of being evaluated and used by others, including non-mathematicians.

Information needs to be communicated clearly and fully.

Reports on mathematical models vary in style and detail, but they should always contain information that gives a complete picture of what the modelling has achieved.

Report writing checklist

A checklist for a good report may include:

- **Describing** the real-world problem being addressed.
- **Specifying** the resulting mathematical questions precisely.
- **Listing** all assumptions and their justification.
- **Indicating** sources of imported information (for example, websites).
- **Explaining** how numerical values used in calculations were decided on.
- **Showing** and justifying all mathematical working.
- **Setting out** all mathematical working, graphs, tables, etc.
- **Interpreting** mathematical results in terms of the real-world problem.
- **Evaluating** the result. Does your answer make sense? Does it help to answer the problem?
- **Dealing with** refinements to the original problem.
- **Qualifying** the solution.
- **Recommending** the solutions arising from the work. What further work is needed?

In practice, several of these activities can occur at the same time.

For example, obtaining a mathematical result, interpreting it, and evaluating its correctness or relevance, are aspects that are often dealt with together.

Report summary checklist

Writing reports is not easy. It takes a great deal of practice to produce reports of value.

Students should be guided to practice writing reports before the challenge.

The mathematics and the modelling should not be the focus of the report. The mathematics and modelling are the means to an end.

The focus of the report should be a solution to the real-world problem.

The IM^{2}C required participants to submit a one-page summary sheet and a solution of up to 20 pages. A well-written summary is vital. Consider it a direct statement to the people who needed to solve the real-world problem.

The summary should:

- state the problem
- state the assumptions made

- give a brief description of the mathematics used
- provide practical suggestions to solve the real-world problem.

The summary might also discuss what might have been done to develop the solution further on another occasion.