Assessment: Mathematical Modelling: Class fundraiser

Assessment task

Use mathematical modelling to solve a problem related to planning a fundraising activity. Students will formulate and solve the problem, justifying their choices.

Guidance:

Assessing student understanding of mathematical modelling can be carried out effectively by setting practical problems that require students to apply mathematical concepts, procedures or structures to find a solution and communicate these findings.

The assessment of student understanding for this task may include solutions calculating:

- costs associated with purchasing items for example for a cake stall
- sponsorship of a student to carry out a task (dollars per task completion)
- recording and summing the money raised (in a spreadsheet)
- total profit: money raised take away any costs incurred
- amount raised per student.

Provide students with this task to be completed individually. Time can be given initially to clarify the scenario. Do not use this time to model or teach any mathematical skills or concepts, rather allow students to articulate any wonderings they may have aloud. If a student asks if they need to calculate the cost of … [insert idea] respond with a question to prompt students' further thinking. Encourage students to think about how they would plan the fundraiser and focus on what maths is required.

Assess how a student approaches the task by noting if they:

- understand the context and can identify the mathematical problem
- use a strategy to approach problem-solving
- apply mathematical concepts required to model a solution to the task
- evaluate the effectiveness of their approach in finding a solution
- communicate the solution to others, justifying their process.

Note whether students include profits considering any incurred costs. For example, in a cake stall money may be required to purchase ingredients. Students will need to calculate 'costs' to show how the $300 could be raised.

To complete the task, provide ample time for students to firstly consider the problem and then think about ways to model their solution mathematically.

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Mathematical Modelling: Class fundraiser

Task:
A class of Year 5 students have decided to raise money for a local cause. As a class, they are deciding how to raise at least $500.

Imagine you have been asked to come up with a plan to raise the money.
What do you need to think about to this problem?

1. How might a class of students try to raise money?
List all your ideas.

2. Select one of your ideas that you believe is most suitable. Think about and describe the maths that might be needed to work out the amount of money raised.

3. How can you model the process used to raise the money? Include the maths solution to show how much money could be raised. Include any payments for materials which may reduce your profits.

4. Is it possible to easily increase the money raised? What would need to be changed?

5. Why do you think your plan should be followed? Justify your thinking using your calculations as evidence.

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