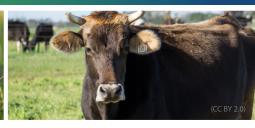


Agriculture in Education: an educational resource for the Year 5 Maths Curriculum

Design and Make a Financial Plan for a Market Garden







This project is funded by the Australian Government, Department of Education and Training, through the Agriculture in Education Initiative.



Resource 1: Money and financial mathematics

Content Descriptor:

Maths

Create simple financial plans

ACMNA106

The particular elements of Numeracy addressed by this content description:

- · Estimating and calculating with whole numbers
- · Estimate and calculate
- · Use money

The particular elements of critical and creative thinking addressed by this content description

Inquiring – identifying, exploring and organising information and ideas

- · Identify and clarify information and ideas
- · Organise and process information

Generating ideas, possibilities and actions

Imagine possibilities and connect ideas



Learning Outcome/s

Students will be able to explain plans for simple budgets.

Description

This resource uses the context of designing and planning for a market garden in which students will brainstorm and research possible crops, growing conditions and sales potential, design appropriate spaces and compile lists of equipment/resources and a regime for maintaining the health and optimum growth of plants.

Students will develop a budget based upon their research to establish the garden and will calculate ongoing costs and estimate potential profits based on projected sales.

This resource can be used as a stand-alone teaching resource or ideally as a part of a larger cross curricula unit with a similar context such as Where Does My Food Come From. Some extension activities and teaching resources are included with links to further learning outcomes in the Australian curriculum.



Parts of this resource have been adapted from the Setting Up And Running A School Garden – Toolkit; a resource produced by the Food and Agriculture Organization of the United Nations (FAO). The toolkit is available at http://www.fao.org/3/a-a0218e.pdf.



Setting the scene

If possible, visit a local market garden and or invite local market gardeners to talk about their successes. Students will be more willing engage with this resource if it is practical and relevant to them. Ideally this activity should be used as a preliminary stage to creating an actual class garden.

- 1. Explain to class that before setting out on a venture like creating a market garden they will need to do some research about gardening with profit in mind.
- 2. This will lead into telling the sad tale of <u>Kyle and Kira and the Tomatoes</u>¹ and corresponding discussion.
- 3. Work Tasks The instructions for these tasks are also presented in the accompanying PowerPoint and may be printed and used as worksheets or used on a Smartboard for example. The PowerPoint may be customized to suit individual circumstances.
- 4. It is suggested that teachers collect a number of hardware and nursery catalogues to have handy in the classroom that students can use to research prices of the items they will need for the garden.

¹ See Appendix 1 Kyle and Kira and the Tomatoes



Work Task 1: Planning our Market Garden

You are going to research and design a garden bed, including its location and the layout of chosen crops. The garden bed is to be used for a small market garden that the class could manage. We want the garden to be sustainable so you must allow for maintenance and crop rotation.

Below are some questions to help you in your research:

- a. In order to sustain our garden we should practice crop rotation. What does this mean and how does it affect the crops we choose?
- b. What do crops need to help them grow?
- c. Where could a garden patch be established in our school?
- d. What size will our garden be?
- e. What sort of crops would be most suitable for us to grow?
- f. When should we plant our seeds?
- g. How long does it take these crops to grow from seed to be ready for harvest?
- h. What yield can we expect from these crops?
- i. Do we plant seeds or seedlings?
- j. Where can you buy the seeds?
- k. Is there anything else we could do to make our crops grow faster or be healthier?

Draw your garden plan on the worksheet 2 provided. Think carefully about sun, shade, access to water and how we will be able to look after it and harvest the crops.



Work Task 2: Budgeting

- A. Draw up a budget for creating and maintaining your market garden including planting out your first crops. A budget is a list of all the costs so that you can see at a glance how much in total your garden will cost. A budget is a great idea because you can easily see where you might make savings or can afford to buy more. Use the worksheet provided. Begin by making a list of all the seeds, tools, fertilisers, soil, etc. that you might need.
- B. If all goes well, how much produce can you expect to harvest in one season? Answers will be in kilograms (e.g. for carrots) or bunches (e.g. for herbs such as mint) or for perhaps for single items (e.g. for lettuces)
- C. Due to lack of funds you have been told that your original budget has to be cut back. You must reduce your budget by \$20.00!!!³

 You will still have the same size garden bed but somehow you must cut costs. Redo your budget and describe the decisions that you have made to make you garden still work.



task

Work Task 3: Budgets and Profits (an extension activity)

- A. If you sell your produce, what will your profit be?
 - To work this out you will first need to find out how much per bunch or per kilogram or per item you can sell your crops for. Supermarket catalogues (paper or online) will help you to find these.
 - Use the price per item to calculate the total amount you can expect for each of your crops.
 - Finally subtract the budget costs from this total.
- B. How much profit can you expect to earn over a whole year? You do not need to include the setting up costs in these calculations, but you will need to work out a budget for the ongoing maintenance and buying new seeds, fertilisers and pest control, etc. if needed



Teacher support resources

For further ideas, <u>Agriculture in the Classroom website</u>, although an American website, has some wonderful resources. Also see http://www.growtolearn.org/view/schoolgarden101

² See Worksheet in Appendix

³ This is an arbitrary figure which teachers should review and replace appropriate to the budgets students have developed.



Kyle and Kira and the Tomatoes

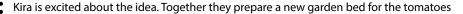


Kira and Kyle are brother and sister. More than anything they want a bicycle each, so they can ride to school and visit friends. They have saved 20 dollars, but even a good second-hand bicycle costs at least 40 dollars. They have been thinking about how to get the money to buy them.

They have a home garden where they grow food for the family. But how can they make money from it?*

Kyle suggests that they sell tomatoes.

"If we plant four times as many as usual," he says, "we will have about 20 kg. If we sell them for 5 dollars a kilo, we will have 100 dollars."





To be sure of having enough to sell, they buy seed for a small kind of tomato which is productive, delicious, nutritious and keeps well. The seed costs 5 dollars. They also buy fertilizer for 10 dollars. As they walk home they are worried.*

They have already spent 15 dollars.

"But remember we'll be making 100 dollars!" says Kyle.

When they get home they sow all the tomato seed at once because they are in a hurry to make a profit. They are good gardeners and everything goes well, but it's quite a lot of work. Their friends play while they work.

"Wait till they see our bicycles!" says Kira.

In three months the plants are loaded with ripe tomatoes. They harvest the first crop, and next day they get up early to go to market. They carry the tomatoes in two big boxes, 3 kg in each. It's a hot day.

"This would be easier if we had our bicycles!" says Kira.

Note: Pause at the stars* for discussion.



What do they see when they get to the market?*

There are many people selling tomatoes, and they are selling them for only three dollars, not five! Everyone has tomatoes, so they are very cheap.

Kira and Kyle are dismayed. They sit down to sell their tomatoes. Then there are more problems.* The small tomatoes are hard to sell.

"We like the big kind," customers say.

Kyle argues with them. He says the small kind are delicious and nutritious, and keep twice as long. But the customers don't listen: they are not used to small tomatoes. Kyle and Kira have to reduce the price to two dollars.

And then there's a packaging problem. They have nothing to put the tomatoes in for the customers. Kyle goes to buy some paper bags. He has to buy 100 and they cost another 5 dollars.



They go home very disappointed. They have sold all their tomatoes but how much money have they made? They have only made 12 dollars so far, and they have spent 25. The next day they try again. In the end they sell their whole crop: 15 kg for 2 dollars a kilo.

How much money have they made? And how much profit?*

Some weeks later there are not so many tomatoes in the market. Prices have gone up to 5 dollars a kilo. But Kyle and Kira's tomatoes are finished. They planted early and they harvested early.

They can't understand what they did wrong.

pause to discuss

What should they have done differently?*



Produced by



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