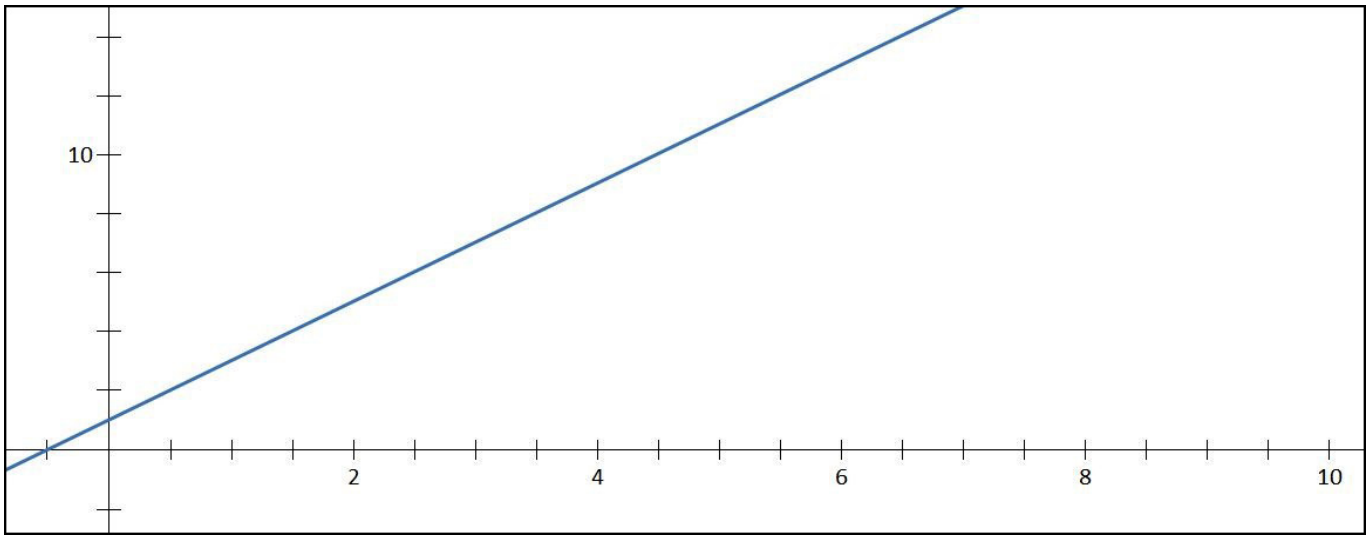
Going up in twos

Annotation

Helena can recognize a linear relationship expressed on a graph. She is able to move flexibly between representations of the relationship and can explain her thinking. Helena is able to suggest a situation that the equation and graph describe.

Problem: Going up in twos

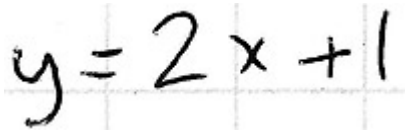
The teacher shows the student the following graph:



Then the teacher poses this problem:

This graph fell out of someone's maths folder. What is this graph showing and what situation could it describe.

Student Response



Teacher:	Tell me about your thinking here.
Helena:	Well first I could see it's a linear relationship. I worked out that the value of each mark on the y axis is two. The x axis has two marks to show 1. Once I had done that, I could see that the y axis on the graph shows 1 at 0 on the x axis. That's the + 1. Then, as you move along the x axis, y goes up from there in twos. So I thought it would help to write an equation. y is the same as $2x$. I tried with numbers for x and y to check. If x is 2 then y = 2 x 2 + 1, so y = 5. You can see that on the graph.
Teacher:	And what situation could this equation be describing?

Helena: Well, say you had to pay one dollar to get into the school fair. Once you were in, you had to pay two dollars to play at each of the fun stalls where you could win a prize. x would be the number of stalls you visited and y would be the total amount you spent.