

Free CD!

You need: a copy of the charts (see copymaster),
30 coloured beans (10 colour A and 20 colour B), classmates



ACTIVITY ONE

1. a. If Pia buys 3 boxes, is she guaranteed to win a free CD? Why or why not?
b. Is it possible for Pia to win 2 or even 3 CDs if she buys 3 boxes?
2. a. Do this trial with a classmate.
 - i. Place 30 beans (10 of colour A and 20 of colour B) in a bag. Colour A represents the boxes with a CD, and colour B represents the boxes without CDs. Take out 3 beans and record whether you “win” a CD. Repeat this 20 times (replacing the 3 beans each time).



ii. Record your results on your blank copy of this chart:

Number of CDs	Tally	Frequency	Fraction	Percentage
No CD	### /	6	$\frac{6}{20} = \frac{3}{10}$	30
1 free CD	###	9		
2 free CDs		4		
3 free CDs	/	1		
Total		20		

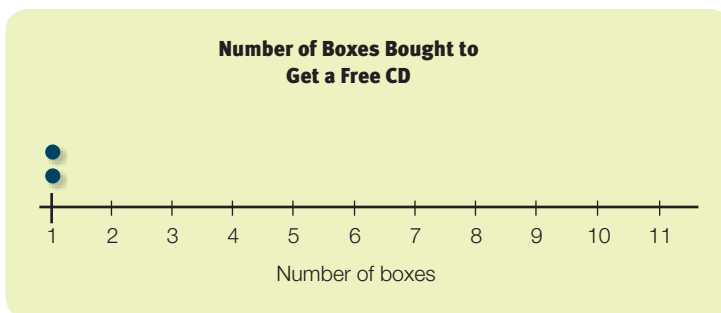
- iii. Compare your results with those of your classmates.
- b. Now look back at Pia and Zareb’s comments. What would you say to them now?

1. a. How many boxes do you think Pia needs to buy to guarantee a free CD? Discuss with your classmate. Then together do the experiment in **b**.
- b. This time, you will each do 10 trials to see how many boxes of cereal you have to buy to win a free CD.
 - i. For each trial, take out 1 bean at a time until you pull out a winning bean. Record (see copymaster) how many boxes you had to buy. Replace the beans in the bag. Repeat until you have 10 results each.



Trial		1	2	3	4	5	6	7	8	9	10
Number of boxes to win	Classmate 1										
	Classmate 2										

- ii. Combine your data with that of 4 other pairs and summarise it in the summary sheet (see copymaster).
2. a. Display your group's results graphically (for example, in a dot plot or bar graph).



- b. In your group, discuss the features of this distribution. How might it change if 1 000 trials were recorded?
- c. Look back at your answer to question 1a. Do you need to change that answer? Explain.

Focus Making evaluations from probability simulations