

## Year 7 Independent Learning Project (ILP)



Subject: **Maths**

ILP Title: **The school fair**

<b>In this project you will learn:</b> <ul style="list-style-type: none"><li>• To investigate probability.</li><li>• To use a range of calculations in real life problem solving.</li></ul>	<b>Time you should spend on this project:</b>  No more than 4 hours
<b>At the end of this project you should:</b> <ul style="list-style-type: none"><li>• Have answered all questions and shown your working out.</li><li>• Checked your answers using a calculator.</li><li>• Hand your completed activities to your maths teacher.</li></ul>	
<b>You should break down your time in the following way:</b> Tasks 1-3 should take no more than 1.5 hours. Tasks 4 & 5 should take no more than 1.5 hours. You should use the extra hour to present your work neatly.	
<b>Weblinks you should use to help you with this task:</b> <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> : probability introduction (search 1210).	
<b>Other resources and ideas which may help you could be:</b>	
<b>Your work will be assessed by:</b> Your maths teacher will provide a written or verbal comment on the tasks you have completed.	
<b>The key words to learn in this project are:</b> Probability, chance, tombola, profit.	
<b>Your parents may be able to help you by:</b> <ul style="list-style-type: none"><li>• Test you on the definitions of key words and explain them if needed.</li><li>• Checking spelling.</li><li>• Ensure you complete all tasks.</li></ul>	



## Case study 6: The school fair

A school is holding a fair to raise money. They need to make sure that they make a profit.

### Task 1

- What is your chance of winning if you have the red card?
- What is your chance of losing if you have the blue card?
- Is the stall holder right to say "A prize every game"? Do you think it is misleading?

**SPIN IT TO WIN IT!**

To play the game, pay 50p and choose a coloured card. The spinner will spin when all 5 colours have been bought. The person with the colour the spinner stops at wins a prize!

**a prize every game!**

**50p per go!**

### Task 2

Look at the notebook page entitled "SPINNER GAME COSTS". The total cost of prizes has been smudged out.

- Find the total cost of prizes for this game.
- How many games need to be played before the stall makes any profit?

### SPINNER GAME COSTS

7 cuddly toys @ £3.00 each  
 5 boxes of chocolates @ £2.20 each  
 10 key rings @ 20p each  
 10 cans of drink @ 25p each

Total cost of prizes: ~~£30.00~~

### Task 3

- Could the stall run out of the more expensive prizes before it makes a profit?
- Suggest how the stallholder could make the game fairer.

**DRINKS FOR SALE**

### Task 4

The tombola is filled with 100 tickets numbered from 1 to 100.

- Find the probability that the first person to buy a ticket wins a prize.
- Find the probability that the first person to buy a ticket does not win a prize.
- Find the probability that the first person to buy a ticket wins the watch.
- (Challenge)** What is the largest profit that could be made from this game? How likely is that to happen?

### Task 5 (Challenge)

Bethan is running a drinks stall. She has bought 5 bottles of squash and 6 packs of cups. Each bottle costs £1.80 and can make 30 cups of squash. The packs of cups cost £2.20 each and there are 24 cups in a pack. How much will Bethan need to charge per cup to ensure she makes a profit before she runs out of squash or cups?

**TOMBOLA**  
All tickets ending in 0 or 5 win a prize!

**50p per go**

