



Generic Venues ~ Supermarket Science ~



Institute of *Physics*

Supermarket Science

Physics demonstrations combine with a shopping-related competition to highlight the centrality of physics to our everyday lives.

The ideal Supermarket has:

- A foyer in which to do the table top demonstrations
- A cooperative manager
- A way of hanging signs from the ceiling

Requirements:

- Event Team consisting of at least two people, including one person to perform the physics tricks – preferably someone confident, enthusiastic, outgoing and engaging.
- Quiz question sheets (included in this Pack).
- Answers to the quiz (included below).
- Prizes – Preferably of two types: small give-aways to be awarded immediately for anyone who gets a high proportion of the answers correct, and a major prize to be drawn at random from the correct answers at the end of the day.
- Ingredients for the physics demonstrations (see the 'Physics Tricks' section in this Pack).
- Table and chairs.
- Backdrop (posters, banner or similar) to announce the event.
- Signs related to the quiz for display around the supermarket.
- Boxes for completed quiz sheets.

Recommended Format

Set up a table in the foyer and put up some kind of backdrop that announces the event. Have either one person or a team perform physics demonstrations. A crowd will gather, particularly if there are children around. This will provide an opportunity to hand out the quiz sheets. Make sure you mention the prize!

Your performer (or team) will need to take breaks during the day. At those times, leave quiz sheets and posters advertising the event on the table with a card announcing when the next show will take place.

If possible, have signs made that are displayed close to whatever each question refers to within the store, e.g. hanging over the frozen food section for Q4 in the quiz. Many supermarkets have ways of suspending such signs from the ceiling or attaching them to shelves. Supermarket managers are sensitive about the 'look' of their store, so whatever you display will have to look professional.

Arrange for boxes to be placed at the supermarket exits into which people can drop their completed quiz sheets.

General Hints for Success

- Children will be particularly attracted if you provide simple, highly visual give-aways (such as balloons).
- If you find that children are interested in participating in the quiz (which is designed more for adults), consider preparing a 'hint' sheet.
- Children and adults alike will appreciate receiving recognition for attempting the quiz. Consider providing a small give-away for anyone who hands in a correct answer sheet.

The prizes (especially the small ones) should be appropriate to the venue, i.e. something that is available from the supermarket. Suggestions include sweets or ingredients for one of the physics tricks. The large prize could be cash or a store voucher.

Answers to the Supermarket Science Quiz:

1. c 2. c 3. c 4. b 5. a 6. b 7. b 8. a 9. b 10. b

Name _____ Phone number _____

Supermarket Competition

- Please tick
1. **Which of the following wouldn't work as a sunscreen?**
 - Toothpaste
 - Marmite
 - Baby Oil

 2. **The 'lead' in pencils is made mainly of:**
 - Lead
 - Slate
 - Carbon

 3. **Barcode scanners contain a:**
 - Light bulb
 - LED
 - Laser

 4. **Where does the ice in the freezers come from?**
 - It leaks out of the packaging from the frozen food
 - Water vapour from the air
 - It's put there by the supermarket

 5. **Why does the bottle break if you freeze a bottle of wine?**
 - The wine expands when it freezes
 - The bottle shrinks when it freezes
 - Cold glass is brittle

 6. **Balloons go down after a while because:**
 - The material properties of the rubber change
 - Air passes through rubber
 - Air pressure differences due to changing weather conditions

 7. **Food keeps in tin cans because:**
 - Tin kills bacteria
 - The food is sterilised before sealing in the can
 - Tin is a preservative

 8. **Microwave dinners get hot when you cook them because they contain:**
 - Water
 - Salt
 - Monosodium glutamate

 9. **A can of diet coke weighs less than a can of regular coke because:**
 - It has more gas in it
 - It has less sugar in it
 - It has less water in it

 10. **Shopping trolleys get harder to steer when they're full because:**
 - The centre of gravity is higher
 - More inertia due to greater mass in the trolley
 - The wheels get squashed so don't work as well