

BADIA RESEARCH & DEVELOPMENT CENTRE		FIELD UNIT	G1
Principal Topic:	SOLAR ENERGY		
Location:	School Grounds		
Related Topics:	1.	Renewable resources	
	2.	Sustainability	
Questions:	1.	How suitable is the Badia region of Jordan for producing solar power?	
	2.	Does a solar balloon produce more lift in the UK or Jordan?	
Hypotheses:	1.	Jordan possesses more solar energy potential than the UK.	
METHODS:		EQUIPMENT:	
1.	Make a solar balloon (see below)*.		4 x Plastic bags (see below)*
2.	Record air temperature and wind speed.**		Tape*
3.	Inflate the balloon and wait for it to lift.		Thin line to tether balloon*
4.	Attach a bag for the weights.		Bag to attach to balloon
5.	Add weights until lift ceases.		Weights or sand
6.	Calculate the lift (see below)***		Recording sheet (FRS-17)
NOTES:			
<p>*Details of balloon making can be found at: www.solar-balloons.com (see photo in FRS-20)</p> <p>**Still air conditions will be best.</p> <p>***$9.81 \times \text{mass attached to balloon} = \text{force in Newtons}$ (Where 9.81 is acceleration due to gravity)</p> <p>Compare these results with a UK school carrying out a similar exercise.</p>			

FRS-17: SOLAR BALLOON EXERCISE

DATE:
RECORDERS:

WEATHER CONDITIONS:

Temperature: oC
Relative Humidity: %
Wind Speed: m/sec

Description of weather:

SIZE OF BALLOON

 cm

WEIGHT*

 gm

*without any attachments

WEIGHT**

 gm

**including weight of initial attachments

LIFT DETAILS:

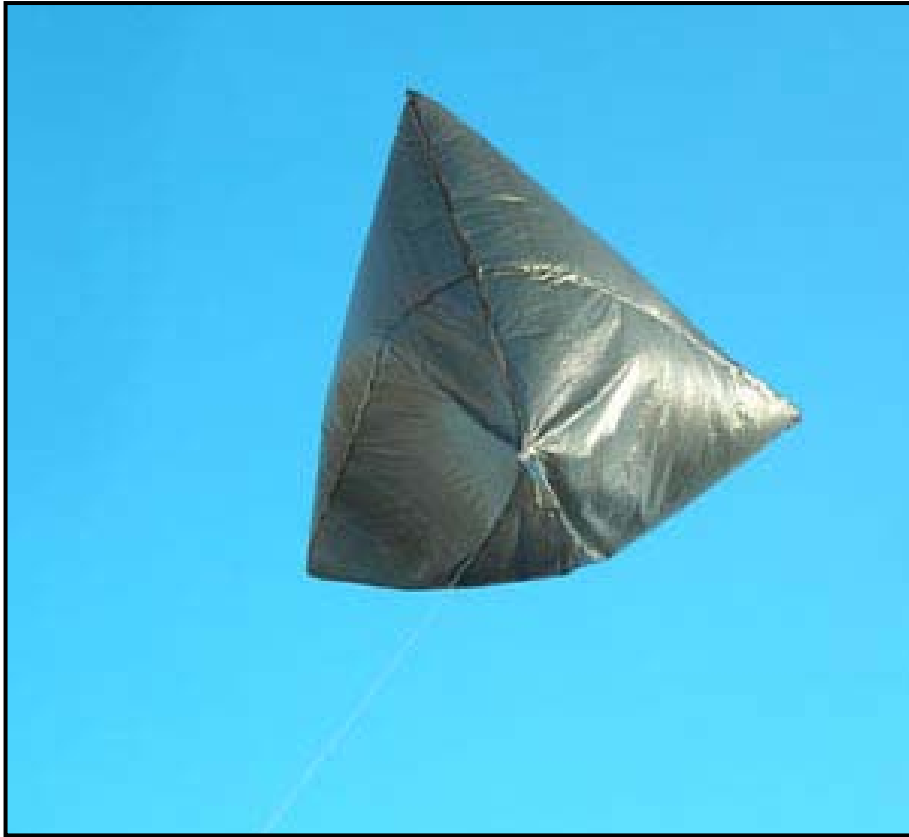
Time taken to lift off: min without any attachments
Weight added: gm to stabilise and halt the rise

CALULATE THE FORCE REQUIRED TO LIFT THE BALLOON

Force (Newtons) = 9.81 x the mass attached to the balloon

FORCE:

APPENDIX XXX:



Above: A Tetron balloon
Below: A Solar Hot Air Balloon



Source: www.solar-balloons.com