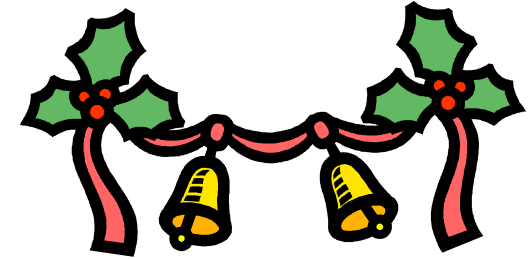


**Aughton & Ormskirk U3A**

**Science Group**

**Christmas Quiz**





**Quiz questions will be  
answered at the  
December 7<sup>th</sup> meeting**



**Q1**

***The Rainford Bypass between Ormskirk and St Helens in places runs 4 feet above the surrounding fields.***

***Why?***



# Q2

***If Grand Central Station in New York were a nuclear power station it would be closed down.***

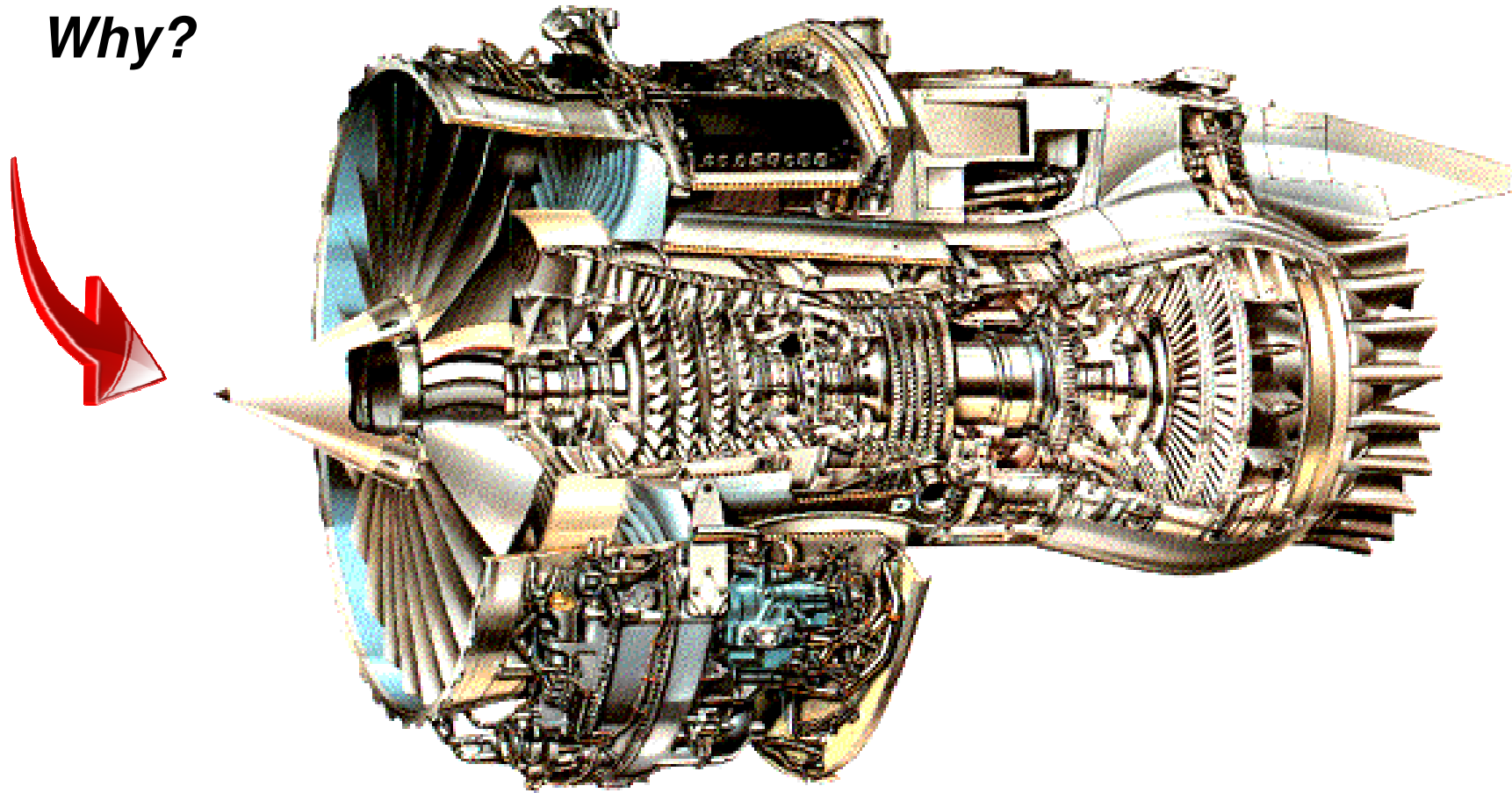
***Why?***



# Q3

*The Rolls Royce Trent aero engine has a rubber tip to the cone at the centre of its air input fan.*

*Why?*



# Q4

***The emperor of China wished to reward the inventor of the game of chess. The inventor requested a grain of rice for the first square of the chess board, double for the second (two grains), doubled again for the third (four grains), doubled again for the fourth (eight grains) etc. The emperor granted his request readily.***

***Was he a wise emperor?***



# Q5

*You can rotate your right leg and right arm simultaneously in a clockwise direction.*

*Can you rotate your right leg **clockwise** and your right arm **anticlockwise**?*



# Q6

*You flip a coin three times and it comes up heads every time.*

*What is the likelihood of it coming up heads for the fourth time?*





# Q7

***You are in a lift with your caged budgerigar, which is flying around the cage. The lift cable breaks and the lift cabin hurtles towards the ground; however you are clever and jump in the air just before the lift hits the ground so that you fall gently to the floor while the fluttering budgerigar gently settles on your shoulder.***

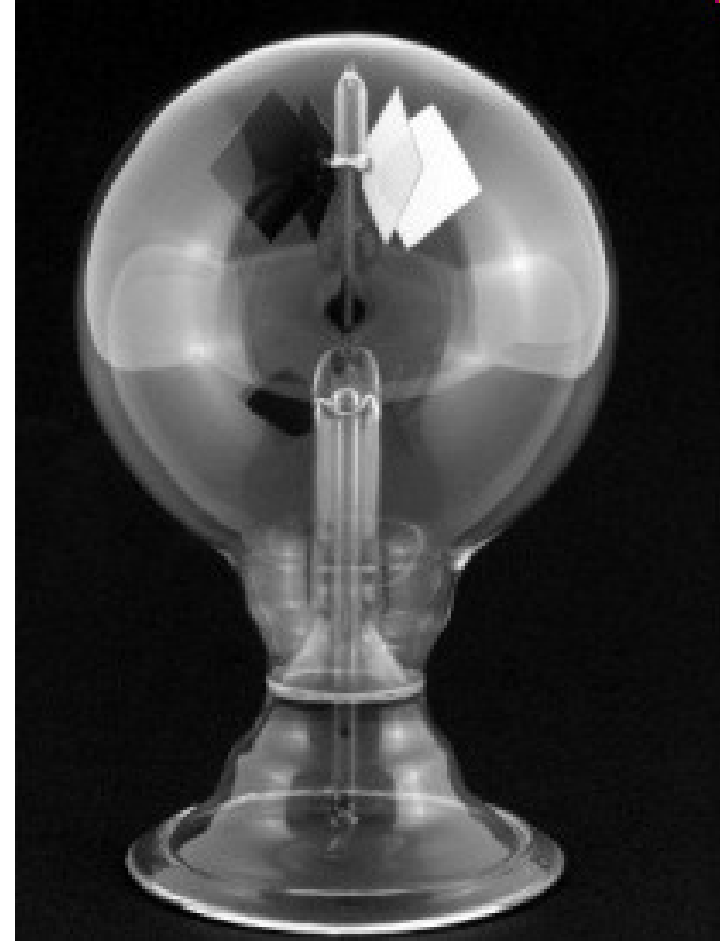
***Is that what happens?***



# Q8

***The Crookes radiometer comprised vanes on a freely rotating paddle wheel in a vacuum. One side of the vanes are silvered and the other side blackened. When light shines on the radiometer the wheel rotates due to light pressure; photons bouncing off the silvered side of the paddles pushing the wheel around; or at least that's the conventional explanation.***

***What's wrong with it?***



# Q9

***Tides are caused by the gravitational attraction of the water in the oceans to the moon, as the earth rotates once a day a tidal ocean wave sweeps around the earth.***

***OK, but why are there two tides a day rather than one?***



# Q10

*The north pole of a compass needle points to the north (of course) because that is where the magnetic north pole is: but north poles of magnets are supposed to be attracted to south poles of magnets and repelled from north poles.*

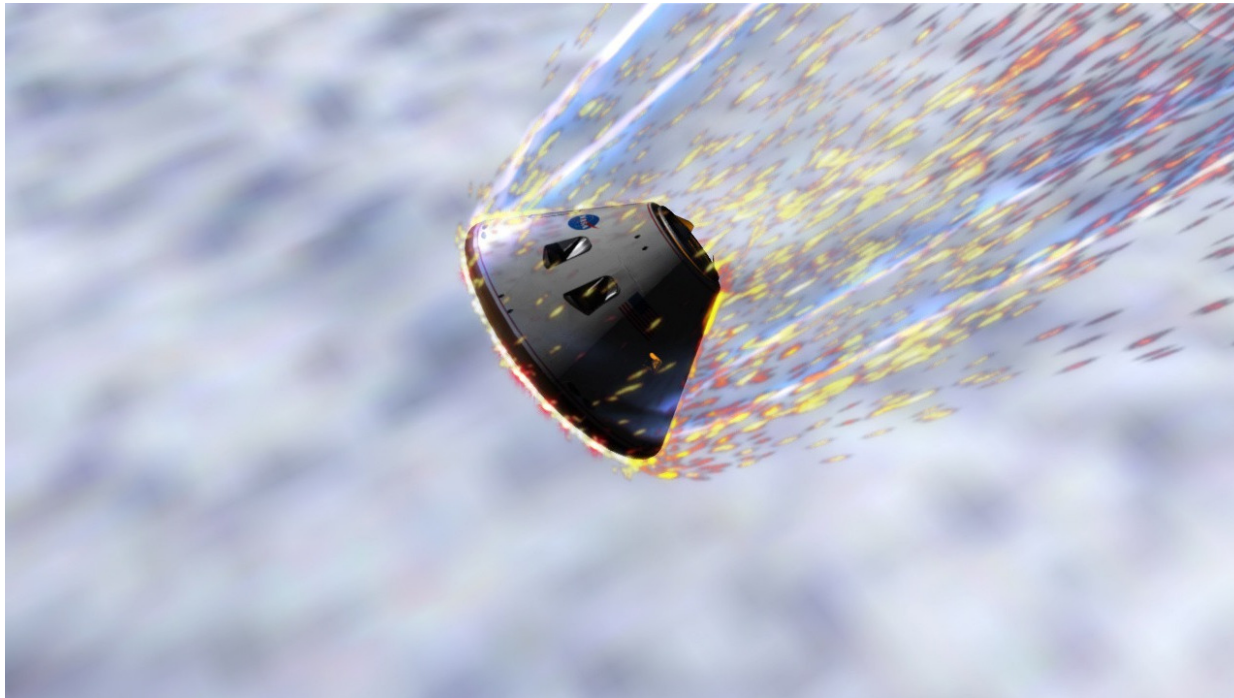


*Is our compass needle pointing the wrong way?*

# Q11

***Q11: When a space craft re-enters the earth's atmosphere it heats up due to friction with the air.***

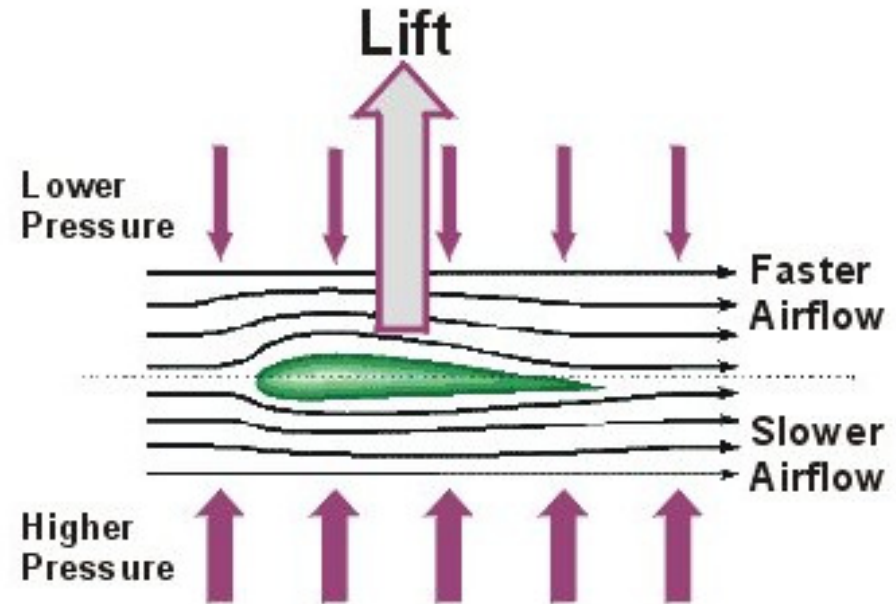
***Why were the Apollo re-entry capsules so blunt, wouldn't it have been a good idea to make them streamlined to reduce the friction?***



# Q12

***Aircraft wings have special aerofoil shapes so that the air flowing over the top surface of the wing has further to go than over the bottom surface before it joins up with the flow again at the bottom surface of the wing. The reduced air pressure on the top surface gives the lift to keep the aircraft aloft.***

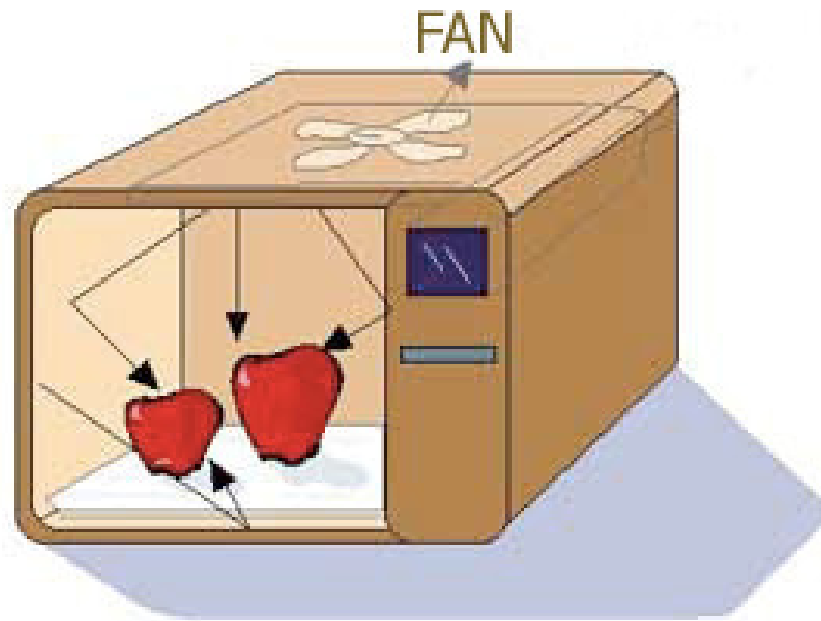
***OK, but why can aerobatic aircraft fly upside down?***



# Q13

*Microwave ovens often have a rotating fan in the top of the oven.*

*As the air in the oven isn't heated and doesn't need a fan to circulate it uniformly, what is the purpose of a fan?*



# Q14

*What is odd about this clock?*





# Q15

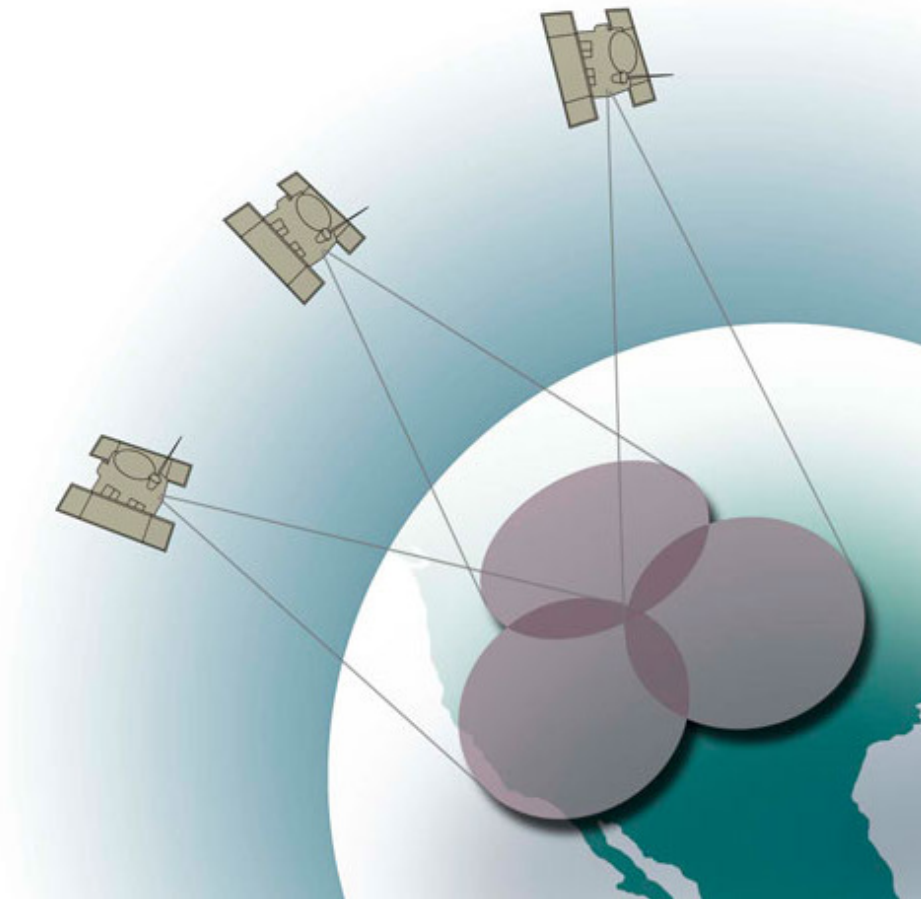
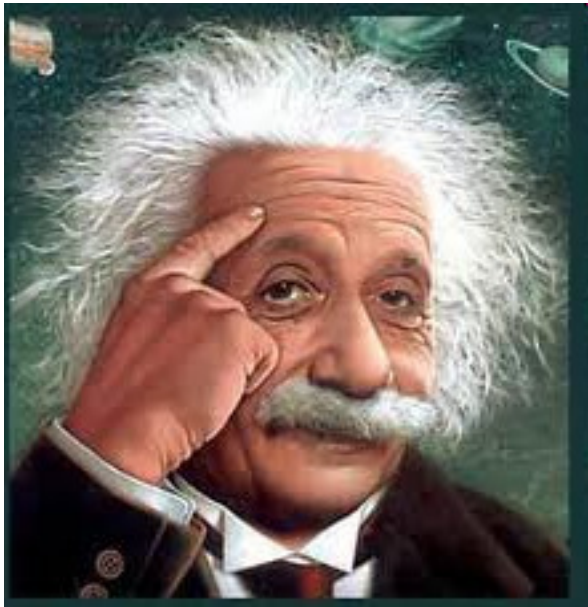
*Why is the standard gauge (width between the rails) of a railway track 4' 8½"?*

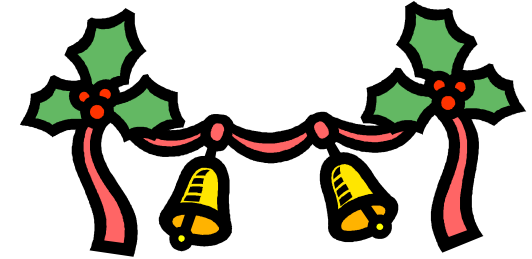


# Q16

***Without Albert Einstein your SatNav would get you lost.***

***Why?***





**Aughton & Ormskirk U3A**

**More questions at the  
December 7<sup>th</sup>  
meeting**



# Next meeting

The **next** Science Group meeting is **next** week, on Tuesday 2nd November, at 2pm:

## **“Beekeeping - with a scientific slant”**

*There has been much interest recently in the problems of the decreasing bee population and how that might affect crop and fruit production.*

*Come and hear about this issue first hand, as well as gaining a scientific insight into the fascinating topic of bee keeping, from Martin Smith, President of the British Bee Keepers’ Association, and son of our own Audrey Smith.*

Details of future events are on the Science Group website:

[aou3science.wordpress.com](http://aou3science.wordpress.com)

