

# WESTGATE SCIENCE CLUB

issue 11

DECEMBER 2011



## making science cool

### WHAT IS....

**Highest Mountain** A Kilimanjaro, B Ben Nevis, C Mount Everest

**Largest Ocean** A Pacific, Atlantic, B Indian

**Coldest Place on Earth** A Greenland, B Iceland, C Antarctica.

**Earth's Population** A 7 million, B 7 trillion, C 7 billion.

**How many bones in an adult** A 186, B 206, C 236

**How much blood in adult in pints** A 5-7, B 8-10, C 14-16

**What is approx population of Exeter** A 80,000 B 100,000 C 120,000

**What is the part of the River Exe called between Exeter and Exmouth:**  
A Delta, B Middle Course, C Estuary.

**Name of nearest star:** A Sirius, B Polaris, C Our Sun.

**5th planet from the Sun** A Mercury, B Jupiter, C Earth

**Chemical name of salt:**

A Potassium, B Sodium Chloride, C Calcium Chloride

**Base + Acid = Salt + ??**

**DID YOU KNOW:**

**If you fully stretch your arms out,  
the fingertip to fingertip length is  
almost exactly your body height.**



## CHEMICALS

N	O	P	U	M	U	I	C	L	A	C	I	D
N	S	N	M	U	I	S	E	N	G	A	M	U
I	U	S	C	I	E	N	C	E	D	I	X	O
C	G	L	I	S	A	L	T	T	C	N	I	Z
K	A	E	R	S	M	A	S	I	U	O	F	A
E	R	R	O	A	G	U	U	H	R	M	E	A
L	E	M	B	T	S	A	L	P	R	M	R	Y
I	T	E	S	O	I	O	P	A	I	A	R	C
O	A	E	D	P	N	A	H	R	M	U	O	H
L	W	I	E	E	D	A	A	G	C	P	U	A
M	U	R	H	O	E	A	T	R	P	L	S	L
M	E	P	S	L	I	M	E	E	S	T	U	K
N	S	O	D	I	U	M	R	L	E	S	A	B

WESTGATE SCIENCE CLUB ACID AMMONIA  
 POTASSIUM GRAPHITE BORIC ZINC SODIUM  
 COPPER CHALK SUGAR MAGNESIUM SULPHATE  
 LEAD CALCIUM SODA LIME WATER ALUM  
 MERCURY SALT NICKEL OXIDE PHENOL  
 FERROUS CARBONATE BASE



One of a number of telescopes. The Planetarium



Steven & Hannah checking out one of the exhibitions



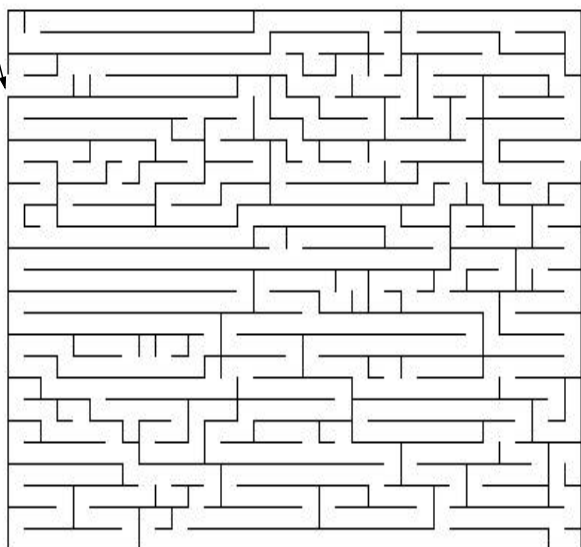
One of the Amateur Radio Rooms  
 (connecting the world by radio)

Westgate Science Club  
 visit to the  
**NORMAN LOCKYER  
 OBSERVATORY**  
 Sidmouth

Friday 11th November 2011



START WESTGATE SCIENCE CLUB  
 Maze FINISH



What in radio terms was invented by Mr Samuel Morse  
 What are the 2 basic symbols used in the above.  
 (answers somewhere in this booklet)

## Westgate Science Club quiz...

- 1 CAN FROGS LIVE IN SALT WATER ? YES / NO
- 2 A PERSON WHO STUDIES BIOLOGY IS CALLED A ...
- 3 BACTERIAL INFECTIONS IN HUMANS CAN BE TREATED WITH WHAT ?
- 4 OUR SOLAR SYSTEM IS PART OF THE .....GALAXY
- 5 BASE + ACID = SALT + .....
- 6 WHAT IS THE EARTH'S PRIMARY SOURCE OF ENERGY
- 7 WHAT IS THE NAME OF THE LARGEST OCEAN ON EARTH ?
- 8 WHAT IS THE SECOND MOST COMMON GAS FOUND IN THE AIR WE BREATHE ?
- 9 THE GEMSTONE RUBY IS TYPICALLY WHAT COLOUR ?
- 10 WHAT IS THE NAME OF THE HIGHEST MOUNTAIN ON EARTH ?

Answers somewhere in this booklet

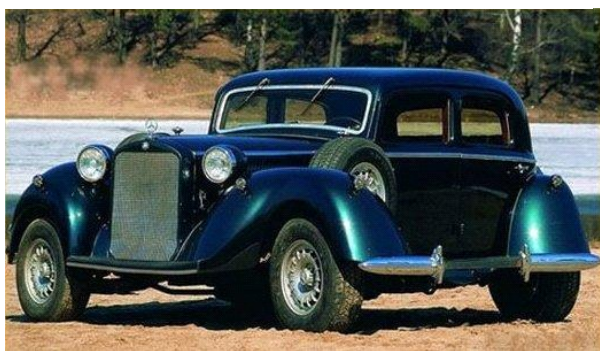
Check out our website:

[www.westgatescienceclub.org.uk](http://www.westgatescienceclub.org.uk)

*He was born on 31st December and spoke about it on January 1st*

## Eye tricks - OPTICAL ILLUSION

Which way is the car facing ?



PLANTS  
STARS  
SALT  
SATURN  
FLASK  
SATURATED  
FROG  
POTASSIUM  
BLOOD  
GRAVITY

**WHICH IS THE  
ODD WORD OUT?**

PHYSICS  
BIOLOGY  
ASTRONOMY  
CHEMISTRY

Answer in this booklet

When asked about his birthday, a man said:

'The day before yesterday I was only 25 and next year I will turn 28'

This is true for only one day in a year—when was he born ?

1 Frogs-No. 2 Biologists. 3 Anti-biotics. 4 Milky Way galaxy. 5 = water.  
6 The Sun. 7 Pacific. 8 Oxygen-21%. 9 Red. 10. Everest

## WESTGATE SCIENCE CLUB

For dates, times & other events see website

The Science Club is held at the Westgate Church Building  
(opposite The Picture House),  
Bartholomew Street West, Exeter - EX4 3AJ

phone Mike Coles Exeter 253064  
Naomi Patkai Exeter 466251  
e mail westgatescienceclub@gmail.com

Autumn 2011 dates - Fridays -  
9 Sept, 7 Oct, 11 Nov, 2 Dec  
For further detail see website

and for 2012 details



Morse Code: Dots & dashes

Making Science Cool  
for Primary School  
Children aged 7 yrs

History...

See what experiments we did on previous club evenings.

at [www.westgatescienceclub.org.uk](http://www.westgatescienceclub.org.uk)  
Slide show and photos on the 'contacts' page

Mount Everest - America. 200. 8-10 pairs.  
120,000. Our Sun. Sodium Chloride. water

## Your own **SECRET CODE**

How you can use the cipher wheel to encrypt a message in such a way that only a friend with the same cipher (wheel) can read it:

Firstly write down your message

example 'CONTACT THE SPEED BOAT'

Only use letters from the alphabet.

No numbers (write them out), and no punctuations.

The cipher wheel contains only 24 characters.

For a "J" put in a "Y", and for a "Q" put in an "O".



Select a single character from the alphabet (except "J" and "Q") and write down that character as the first letter of your encrypted message.

Rotate the upper wheel until the black triangle points to the character you have just selected. This character is called the "**Key**", you'll need both the cipher and the key to be able to decrypt the message.

**IMPORTANT:** Make sure the triangle keeps pointing to the key character during the encryption of the message!

Now, for each letter of your message, find that character on the outer wheel, and write down the letter that is exactly beneath it on the inner wheel. When finished, you'll have your encrypted message!

Then send the encrypted message to a friend.

**IMPORTANT:** Make sure the triangle keeps pointing to the key character during the decryption of the message!

Check the Y's and O's, if the message makes more sense with a J or a Q instead.

Don't forget to destroy the message after you've read it!

Have fun creating your own secret codes for kids! And remember:

**TOP SECRET! MR C**