

# WESTGATE SCIENCE CLUB

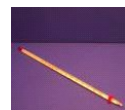
issue 12

JANUARY 2012



## making science cool

Describe the equipment



A

1 BEAKER

2 CRUCIBLE

3 BURET

4 BOTTLE

5 THERMOMETER

6 TRIANGLE

7 FUNNEL

8 PIPET

9 ERLENMEYER FLASK

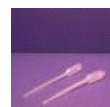
10 VOLUMETRIC GLASS



K



B



C



J

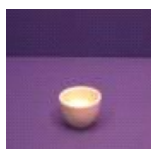
answers in this booklet



D



H



G



F



E

### SCIENCE PUZZLE

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

WESTGATE SCIENCE CLUB EXETER  
 CHEMISTRY BIOLOGY ASTRONOMY  
 PHYSICS CIRCUIT COMPOUND CURRENT  
 DILUTE EARTH ELEMENT ENERGY  
 EXPLOSION FILTER FUNCTION  
 GAS SOLID STEAM JOULE

Page 6 - any row of numbers up/down/diagonal always add up to

Some of our many experiments...

'Elephant's Toothpaste'



Making Hydrogen and Oxygen Bubbles from Water with the aid of some salt and a 9 volt battery



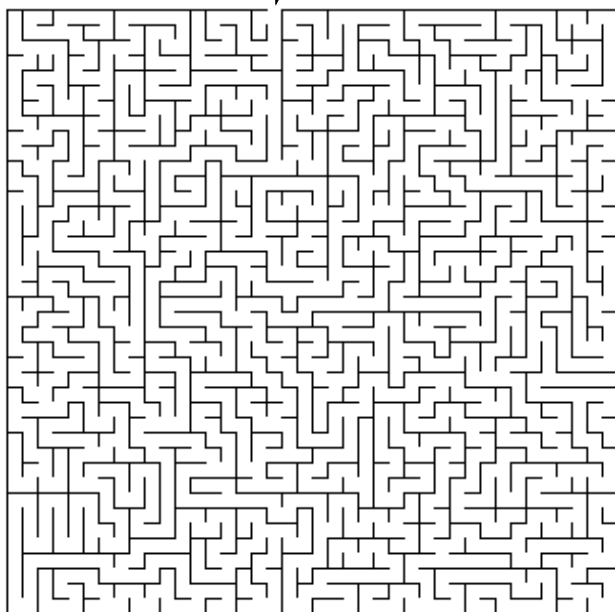
Visit of the Astro-Physics group from Exeter University



3

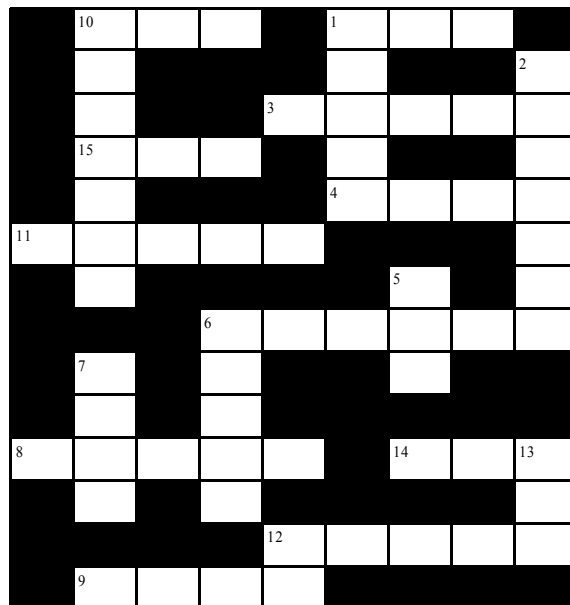
*making science cool*

START OF EXPERIMENT



FINISH OF EXPERIMENT

DRAW A LINE—find your way through—  
 from start to finish without crossing a wall



DOWN:

- 1 THE SUN HAS
- 2 THE MOON HAS
- 5 OLIVE
- 6 HOW MANY BRIGHT STARS IN THE PLOUGH
- 7 THE SUN IS A
- 10 NAME OF STAR ABOVE NORTH POLE
- 12 OPPOSITE TO OFF
- 13 EXETER'S RIVER

ACROSS

- 1 NO CLOUDS JUST THE BLUE
- 3 WHAT TYPE OF VEHICLE ON MARS
- 4 SODIUM CHLORIDE
- 6 BRIGHTEST STAR AT NIGHT
- 8 BASE + ACID = SALT +
- 9 ACID CAN
- 11 THE WORD FOR COMING NO 1
- 12 CFC's DESTROY THIS AIR LAYER
- 10 THE SEED OF A FRUIT
- 14 YOU HAVE TEN OF THESE
- 15 MEASUREMENT OF CURRENT

4	9	2
3	5	7
8	1	6

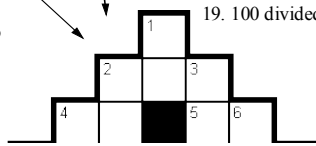
What's so special about this magic square ?

Answer is somewhere in this booklet

- Across
- 7 down minus 482
  - Number of weeks in a year
  - Number of days in four weeks
  - Seven times nine
  - 8617 re-arranged
  - 15 down plus forty-two
  - Quarter of 100
  - Half of 10486
  - Half of 10 across
  - Quarter of 4 across
  - Four times twenty-two
  - 82+62+78

- Down
- Four times eight
  - 12 across minus 16 across
  - 1640 doubled
  - 6 down minus 5 across
  - Nine times nine
  - Five times 121
  - Half of 1450
  - 716 doubled
  - A third of sixty-three
  - Number of hours in two days
  - Half of 164
  - 100 divided by five

CHECK OUT THE NUMBERS



## 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

Spring 2012 dates - Fridays -  
**13 January, 10 February, 9 March**  
For further detail see website



Making Science Cool  
for Primary School  
Children aged 7 yrs

Page 1 - 1K 2G 3C 4D 5A 6F 7B 8C 9H 10E

### 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! And remember:

TOP SECRET! MR C

ub evenings.

[www.westgate-science-club.co.uk](http://www.westgate-science-club.co.uk)  
3<sup>rd</sup> page

