



Escape the classroom again

Education in Chemistry

November 2019

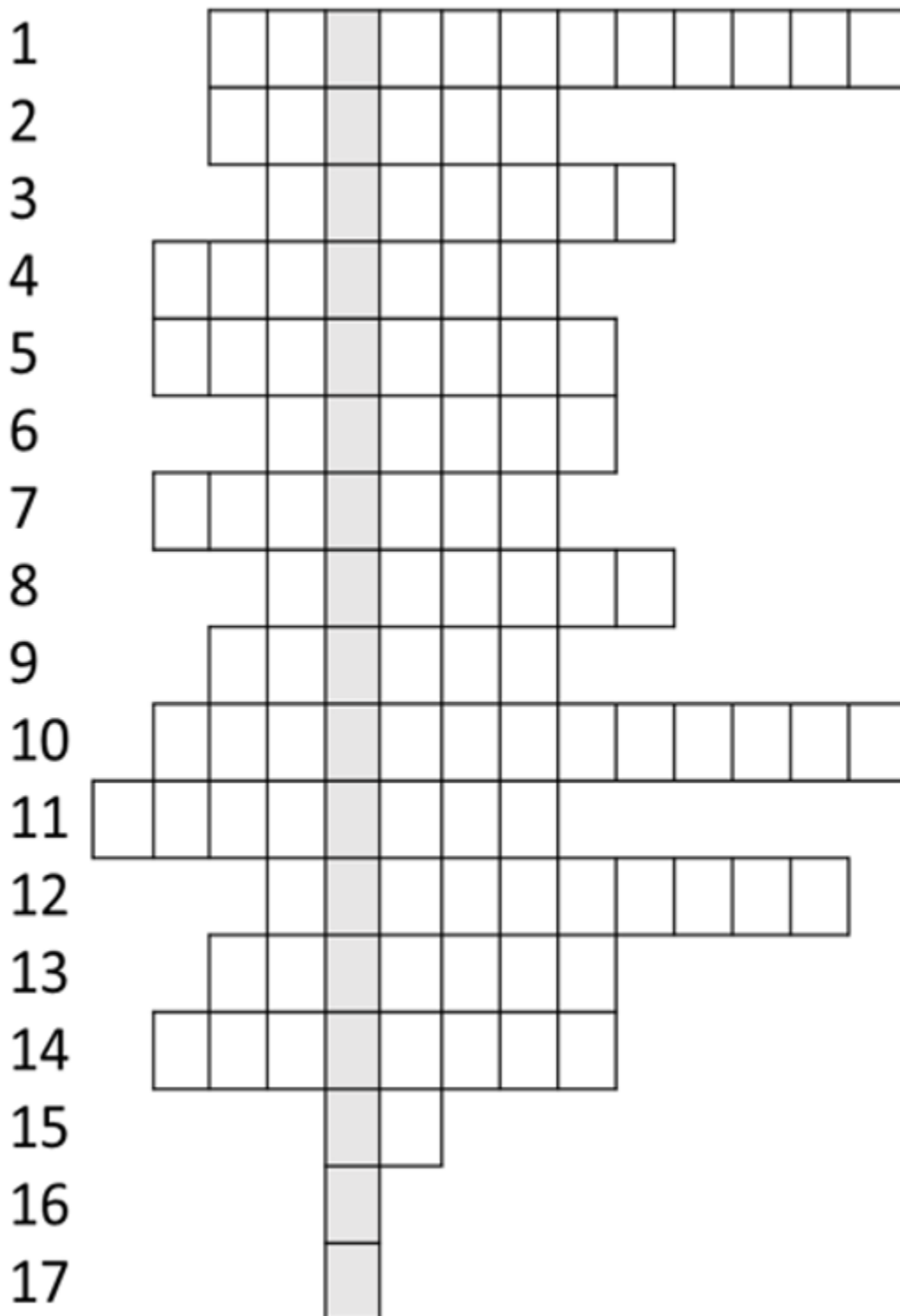
rsc.li/34maTCe

Modelled on Escape rooms, these Escape the classroom activities challenge students to solve chemistry-based puzzles to open a locked folder containing a reward. On the following pages are the puzzles and the solutions.

Puzzle 1 – Hydrophobic revelation

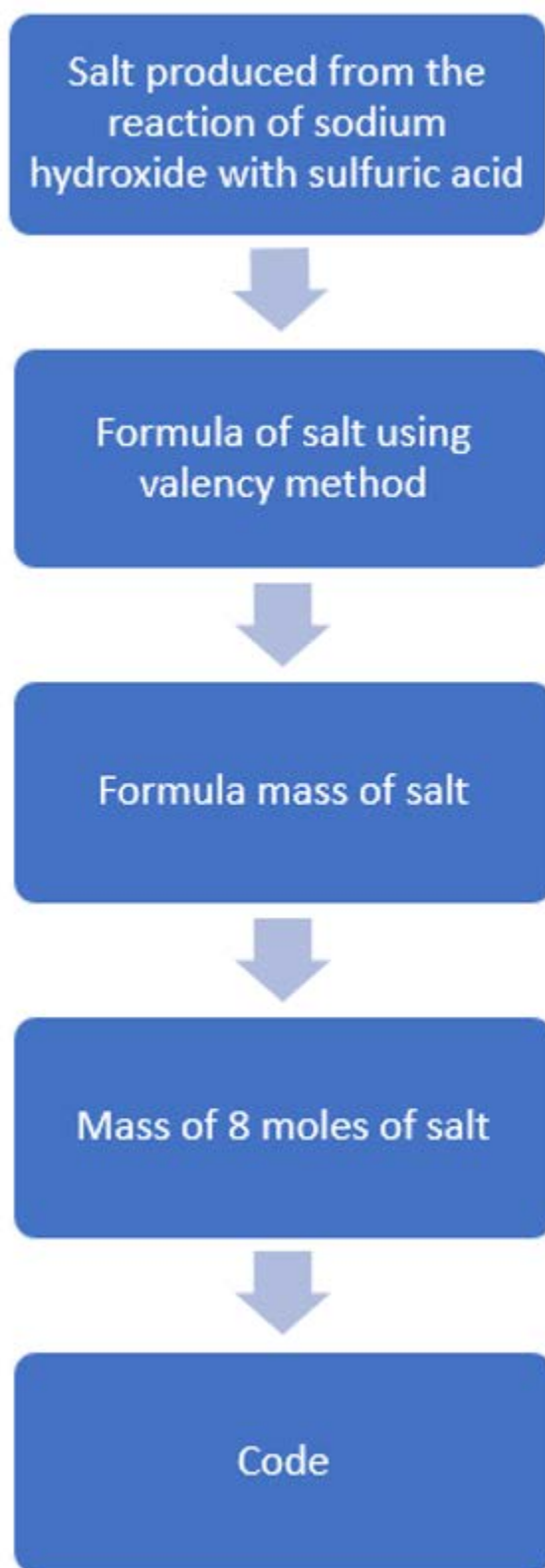
The code to find
Is set in stone
Dihydrogen oxide
Will make it known ...

Puzzle 2 – Word grid



1. Family of saturated hydrocarbons, general formula C_nH_{2n} .
2. Unsaturated hydrocarbon with formula C_2H_4 .
3. An example of this type of formula is C_nH_{2n} .
4. This solution will rapidly decolourise in the presence of unsaturated hydrocarbons.
5. Alkenes will react with bromine in this type of reaction.
6. Compounds with same molecular formula but different structural formula.
7. Hydrocarbon with formula C_5H_{12} .
8. Hydrocarbon with formula C_3H_8 .
9. This element is required for combustion.
10. Gas produced during combustion of hydrocarbons.
11. Name given to $-OH$ functional group in ethanol.
12. Series with similar chemical properties and same general formula.
13. Family of saturated hydrocarbons, general formula C_nH_{2n+2} .
14. Alcohol with three carbon atoms.
15. Number of hydrogens in hexane.
16. Number of carbons in methanol.
17. Number of hydrogens in ethane.

Puzzle 3 – Interweaved enigma



Puzzle 4 – A question of balance



This equation needs balance
This is conservation of mass
Get the right numbers
The next stage you will pass ...

Puzzle 5 – Particle poser



The first number is atomic
the second is mass
The third is number of neutrons
Next is ion charge and you will pass ...

Puzzle 6 – Riddle

I'm a molecular solid element
When burning I look grand
I was isolated from urine
By the German Henning Brand
I'm in DNA, fertilisers
Matches and much more
My molecules aren't diatomic
I group my atoms in four
The temperature I boil at
Will give you the clue
To open lock 1
How will you do?

Solutions

Puzzle 1

346

Puzzle 2

c	y	c	l	o	a	l	k	a	n	e	s	
e	t	h	e	n	e							
	g	e	n	e	r	a	l					
b	r	o	m	i	n	e						
a	d	d	i	t	i	o	n					
	i	s	o	m	e	r						
p	e	n	t	a	n	e						
	p	r	o	p	a	n	e					
	o	x	y	g	e	n						
c	a	r	b	o	n	d	i	o	x	i	d	e
h	y	d	r	o	x	y	l					
	h	o	m	o	l	o	g	o	u	s		
	a	l	k	a	n	e	s					
p	r	o	p	a	n	o	l					
		1	4									
		1										
		6										

Puzzle 3

Sodium sulfate

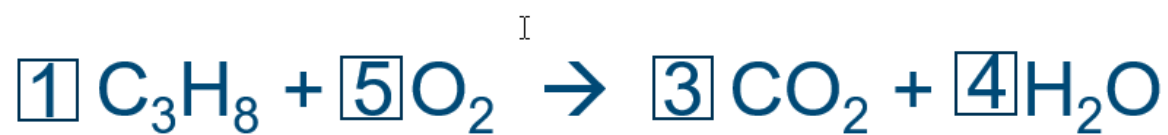


$$(2 \times 23) + 32 + (4 \times 16) = 142$$

$$142 \times 8 = 1136$$

$$\text{Code} = 1136$$

Puzzle 4



Puzzle 5

Atomic number is 4
Mass number is 9
Neutrons = 5
Charge is 2+
So code is 4952

Puzzle 6

Boiling point = 280