

Unit 1 Introducing Chemistry

CORE 1

chemical reaction

a change in which new substances are formed

使新物质形成的变化

precipitate

powdery solid formed in a chemical reaction

在化学反应中形成的粉末状固体

effervescence

bubbling up and fizzing

起泡沫和发嘶嘶声

atoms

very tiny, round-shaped particles from which all substances are made

构成所有物质的非常细小，圆形的微粒

element

a substance in which all the atoms are of one kind only

所有原子只是同一种的物质

compound

a substance made up of atoms of different kinds joined together

不同种原子结合在一起形成的物质

soluble substance

one that dissolves

溶解的物质

solution

mixture formed when a substance dissolves in a liquid

当一种物质溶解成液体时形成的混合物

insoluble substance
one that does NOT dissolve
不溶解的物质
molecule
a group of atoms which are joined together
连接在一起的一组原子
residue
the solid left in the filter paper
残留在过滤纸上的固体
filtrate
solution which has passed through the filter paper
透过过滤纸的溶液
distillate
the liquid which has been distilled
经过蒸馏的液体
formula
a chemical code using symbols and numbers
运用符号和数字构成的化学编码
properties of a chemical
what it is like, and what it can do
化学品是什么样的，它能做什么
state (in chemistry)
whether a substance is solid, liquid or gas
物质是固体，液体还是气体
an "ide" compound
substance in which usually only <u>two</u> elements are combined
通常只有 <u>两种</u> 元素结合的物质

an "ate" compound
substance in which usually <u>three elements</u> are combined, one of them being oxygen
通常 <u>三种元素</u> 结合的物质, 其中一种元素是氧气
EXTENSION 1
element
a substance which can not be broken down into simpler substances
不能分解成更简单物质的物质
a row in the Periodic Table
a horizontal line of elements going from left to right
元素从左到右的水平线
a period (in the Periodic Table)
just another word for a row
行的另外一个词
a column (in the Periodic Table)
a vertical line of elements going <u>from top to bottom</u>
元素 <u>从上到下</u> 的垂直线
a group (in the Periodic Table)
another word for a column
列的另外一个词
compound
a substance in which two or more elements are combined
两个或两个以上的元素结合成的物质
compound
a single substance which can be broken down into simpler substances
可以分解成更简单物质的单一物质

UNIT 2 : Blazing Away!

CORE 2

fuel

a chemical that burns giving out heat energy

燃烧时释放热能的化学品

hydrocarbon

a compound which is made of *carbon* and *hydrogen* only

只由Carbon和Hydrogen构成的化合物

fossil fuels

Coal, oil and natural gas. Made from ancient living things millions of years ago.

煤、油和天然气。由几百万年以前的古生物形成。

EXTENSION 2

burning

a chemical reaction in which enough energy is produced to give a flame.

一种化学反应，它产生足够的热能以发出火焰。

explosion

an extremely fast reaction that gives out lots of energy very quickly

一种急速的反应，迅速地释放出大量的能量

exothermic reaction

a reaction which gives out heat energy

释放热能的反应

combustion

the burning of a substance in *oxygen*

物质在氧气中燃烧

viscosity

how difficult it is for a substance to flow

物质流动的难度

flammability
how easy it is for a substance to be ignited
物质的易燃度
catalyst
a substance that helps a reaction to happen without itself being changed.
一种自身不改变而帮助反应发生的物质。
cracking (in Chemistry)
breaking up of large <i>molecules</i> into smaller <i>molecules</i>
将大的molecules分解成更小的molecules
a saturated hydrocarbon
has only single bonds between <i>carbon atoms</i>
在carbon atoms之间只有单一的键
an unsaturated hydrocarbon
has at least a double bond between two <i>carbon atoms</i> in its <i>molecules</i>
至少有一个双键在molecules中的两个carbon atoms之间
an addition reaction
one in which a <i>molecule</i> adds on to another across a double bond
通过双键将一个molecule加到另一个molecule上的反应
isomers
<i>molecules</i> with the same <i>molecular formula</i> but different structures
有相同molecular formula但不同分子结构的molecules
alkane
a <i>hydrocarbon</i> made from a chain of <i>carbon atoms</i> joined by single bonds
由单键连接的一个carbon atoms链构成的hydrocarbon
alkene
a <i>hydrocarbon</i> in which 2 <i>carbons</i> are joined by a double bond
hydrocarbon中有由一个双键连接的两个carbons

cycloalkane

a hydrocarbon made of ring molecules in which the carbons are joined by single bonds

由ring molecules形成的hydrocarbon, ring molecules其中的carbons由单键连接

Unit 3 : See How They React.

CORE 3**alloy**

a metal which is a mixture

是混合物的金属

metal ore

compound found in the ground from which a metal can be made

在地下发现的可以制铁的化合物

EXTENSION 3**decomposition reaction**

when a substance breaks up into simpler substances, with no other reactants being involved

当物质分解成更简单的物质时，没有其他反应物参与

mass number (of an atom or ion)

the number of *protons* plus *neutrons* in the *nucleus*

nucleus里面protons和neutrons的数量

isotopes

atoms of the same element but they have different *masses*.

元素相同而masses不同的原子

isotopes

atoms with the same number of *protons*, but a different number of *neutrons*

protons数量相同但neutrons数量不同的原子

isotopes

atoms with the same *atomic number* but with different *mass numbers*

atomic number相同而mass numbers不同的原子

average atomic mass (relative atomic mass) of an element

the average mass of an *atom* in any natural sample

在任何自然样品中一个atom的平均质量数

UNIT 4 : Electric Chemistry

CORE 4

solute

a substance which can be dissolved in a liquid

可以溶解成液体的物质

solvent

a liquid which dissolves other substances

溶解其他物质的液体

solution

the mixture formed when a substance dissolves in a *solvent*

当物质在solvent中溶解时形成的混合物

electrolysis

breaking up a *compound* into its *elements* using electricity

用电将compound分解成elements

flat battery

a cell or battery in which one of the chemicals has been used up. It no longer

produces electricity

化学品中的元件或电池用完。它不再产生电。

EXTENSION 4

electrolyte

a liquid or *solution* in which *conduction* takes place by *ions* moving

通过ions的运动而产生conduction的一种液体或solution

electrodes

rods at which electrolysis happens

发生电解的杆

Unit 5 : Acids in Action	
CORE 5	
catalyst	
	a substance that speeds up a chemical reaction without itself being used up
	一种加速化学反应而自身不被消耗的物质
antacid	
	any substance which cancels out acidity by reacting with the acid
	任何一种在与酸反应时抵消酸性的物质
EXTENSION 5	
excess of chemical	
	an amount that is more than enough for complete reaction
	比充分反应所需要的还多的量
alkali	
	a solution of a metal <i>hydroxide</i>
	一种金属hydroxide的溶液
base	
	a metal <i>oxide</i> or a metal <i>hydroxide</i> .
	一种金属oxide或者一种金属hydroxide.
spectator ions	
	<i>ions</i> which are present but do not take part in a reaction
	在场但不参与反应的ions
a salt	
	substance formed by the replacement of the <i>hydrogen ion</i> in an acid with
	another positive <i>ion</i>
	在酸中通过用另外一个正ion置换hydrogen ion而形成的物质

Unit 6 : Plants and Fertilisers

CORE 6

a fermentation reaction

one in which a sugar is broken down into alcohol by yeast

通过酵母将糖分解成酒精的反应

an enzyme

a biological catalyst

一种生物催化剂

EXTENSION 6

isomers

molecules with the same molecular formula but with different structures

有相同分子式但不同分子结构的分子

saccharide

each sugar unit has 6 carbon atoms and is called a *saccharide*

每个糖单位有6个碳原子，就叫saccharide

monosaccharide

single unit sugars (*mono = one*)

单一单位的糖

disaccharides

double unit sugars (*di = two*)

双单位的糖

hydrolysis

the splitting of a larger *molecule* into smaller *molecules* by the action of water

通过action of water将一个较大的molecule分裂成较小的molecules

polysaccharides

large carbohydrate *molecules* such as starch

大的碳水化合物molecules，例如淀粉

digestion
the breaking down of starch and other food <i>molecules</i>
对淀粉和其他食物molecules的分解
empirical formula
the simplest formula worked out purely from experimental information
仅从试验报告中计算得出的最简单公式
Unit 7: Corrosion of Metals
CORE 7
corrosion
a chemical reaction in which the surface of a metal changes into a <i>compound</i> . This causes the metal to be eaten away.
金属表面变成一种compound的化学反应。这种反应使金属受到侵蚀。
galvanising
coating iron with zinc
给铁镀锌
tin-plate
iron which has been coated with tin
已镀上锌的铁
cathodic protection
using the negative terminal of a power supply to protect an object
用电源的负极来保护一个物体
EXTENSION 7
sacra protiection
sacrificing a more reactive metal by corrosion to prevent a less reactive metal from corroding
通过腐蚀放弃掉一个较容易反应的金属的方式来避免一个较不容易反应的金属受到腐蚀