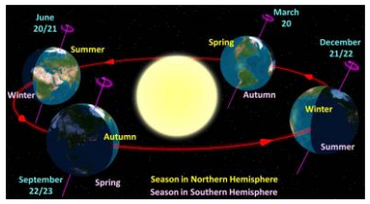
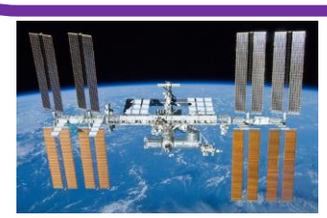
Year 7 Science: Term 4
Atoms, Elements and Compounds and Space





Week 1

Naming compounds

A compound is two or more elements joined together by a bond.
A molecule is two or more non metals joined together.
To name a compound the following rules can be used:

Rule 1: If a metal and a non-metal react, the name of the non-metal ends in –ide.

Magnesium + oxygen → magnesium oxide

Rule 2: For some compounds (where the elements are both non-metals), if there are a different number of atoms we add in 'mono' for 1, 'di' for 2 and 'tri' for 3

Carbon + Oxygen → Carbon **mono**x**ide**

Rule 3: If the compound names ends in –ate then it usually contains three elements, including a non-metal and oxygen

Magnesium + sulfur + oxygen → magnesium sulfate

Week 2

Chemical Formula

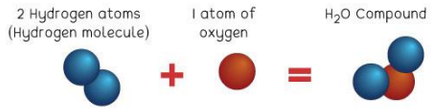
A **Compound** is a group of atoms (two or more) chemically joined together
If the compound is made only from non-metals it is called a molecule
A **chemical formula** shows the relative number of atoms of each element in a compound/molecule

O_2
oxygen
2 atoms

The small number (**subscript**) tells us the number of atoms

CO_2
Two oxygen atoms
One carbon atom

An oxygen molecule contains 2 atoms of oxygen (O_2)



Week 3

Gravity

Gravity is an **attractive non-contact** force between **all** objects with **mass**.

Gravity pulls all things with mass towards each other.

On Earth, an object which is free to move falls towards the **centre** of the Earth.

All objects with a mass have a **gravitational force.**

Increasing the **distance** between two objects **decreases** the gravitational **force** (i.e. it is <u>weaker</u> when <u>further</u> away).
Increasing the **mass** of either object **increases** the gravitational **force** (i.e. it's <u>stronger</u> when the mass is greater).

Week 4

The Planets

The Sun is a star at the centre of the solar system. The eight planets orbit the Sun, as do asteroids and comets, **E**asy **M**ethod **J**ust **S**peeds **U**p **N**aming' is a mnemonic used to help remember the order of the planets from the Sun.

The inner planets are all rock planets. The outer planets Jupiter and Saturn are gas giants, Uranus is an ice giant and Neptune is a blue gas giant.

Jupiter is the largest planet in the solar system; you could fit the Earth into it 1300 times.

Uranus orbits the sun in the opposite direction to all the other planets.

Week 5 & 6

Seasons

The Earth's axis is **tilted**.

This means the **days are longer** and the Sun is higher in the sky in summer than in winter.

The **radiation** from the Sun is spread out over a smaller area of land (i.e. **more concentrated**).

If the Earth wasn't tilted there would be no seasons. The equator would be hot and the North Pole cold.
A day happens when the Earth spins on its **axis**, with one **rotation** taking **24 hours**.

We experience **night** when the Earth turns **away** from the Sun and **day** when it is turned **towards** it.

Key words:

Atoms – The smallest particle of matter which can exist

Flammable – Will set on fire easily

Molecule - A small group of non-metal atoms chemically joined together

Asteroid - A small, rocky object that orbits the Sun (smaller than planets)

Comet - Objects made up of frozen gas, rock and dust orbiting the Sun

Mass – The amount of matter in an object

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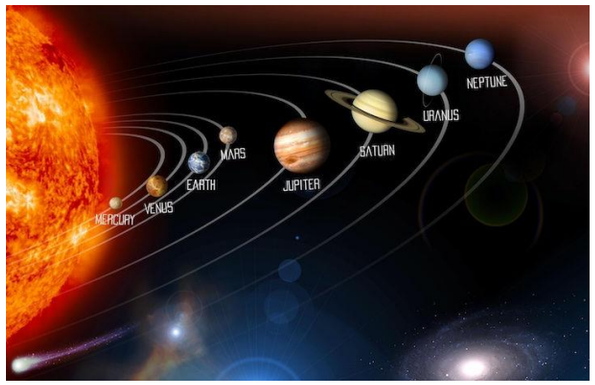
Atoms, Elements and Compounds and Space

Week 1

Questions	Answers
Zinc + oxygen →	Zinc Oxide
Beryllium + iodine →	Beryllium Iodide
Define a molecule	Two or more non-metal atoms chemically bonded together
Define a compound	Two or more elements chemically joined together
Iron + _____ → iron sulfide	Sulfur

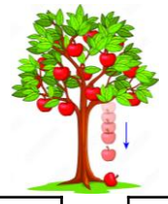


Week 2

Questions	Answers
How many atoms of each element are there in H_2O?	2 atoms of Hydrogen and 1 atom of Oxygen
How many atoms of each element are there in Na_2O?	2 atoms of Sodium and 1 atom of Oxygen
Calcium nitride is made of 3 calcium atoms and two nitrogen atoms what's the formula?	N_2Ca_3
What does the subscript (little number) after an element symbol represent?	The number of atoms of that element in the compound or molecule
A chemical formula shows...	the relative number of atoms of each element in a compound/molecule

Week 3

Questions	Answers
Define the word 'gravity'	Gravity is an attractive non-contact force between all objects with mass. It pulls all things with mass or energy toward one another.
Explain why the Sun has the greatest gravitational attraction in the Solar system.	The Sun has the largest mass. Gravitational attraction increases with increased mass.
Are all attracting each other gravitationally right now?	Yes, all objects with mass have their own gravitational field.
What happens if you increase the distance between objects?	The gravitational field reduces
How does the gravitation field change if you increase the mass of an object?	The gravitational field of the object increases



Week 4

Questions	Answers
Name the planets in our solar system	Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune
Name the largest planet in the solar system	Jupiter
What materials are the inner planets made from?	All the inner planets are made from rock
Which planet is an ice giant?	Neptune is an ice giant.
What is at the centre of the solar system?	The sun is at the centre of the solar system.

Week 5 & 6

Questions	Answers
Explain what causes us to have seasons on Earth.	The Earth is tilted at 22.3 degrees so different If the Earth wasn't tilted there would be no seasons. The equator would be hot and the North Pole cold.
What causes a day?	A day is caused when the Earth spins once on its axis
What would happen if the Earth didn't tilt?	If the Earth didn't tilt we would have no seasons.
Night happens when?	The Earth turns away from the sun

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