

WEEK: 10

Week Beginning: 25-5-20

Subject: SCIENCE

Year: 9

Lesson Objective:

- Go over homework questions
- Development of the periodic table
- Modern Periodic Tables

Keywords/ Concepts

- Groups, periods, element

Class Worksheets

- Questions below

Homework

- Notes

Additional Notes

- Attach all the classroom worksheets and homework worksheets to this lesson plan and email together.
- Assume the students don't have revision guides and workbooks. Attach all the pages you want them to have.

Classwork

1. How were elements arranged in the early periodic table?
2. How are the elements arranged in the modern periodic table?
3. If two elements are in the same group, what will they have in common?
4. What discovery supported Mendeleev's decision not to place elements in order of relative atomic mass?

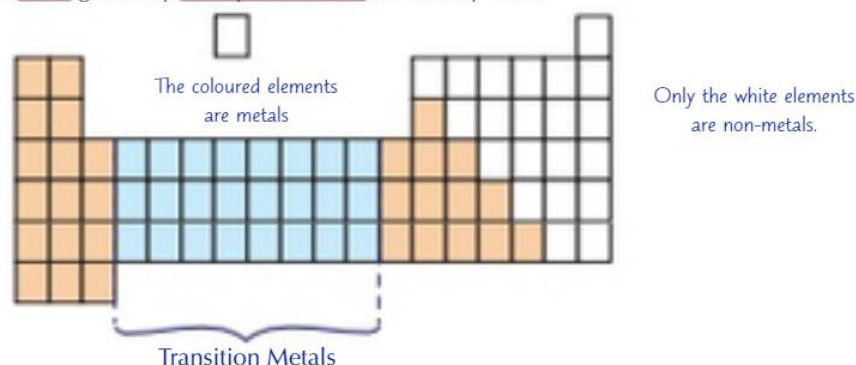
Homework

Metals and Non-Metals

Metals are used for all sorts of things so they're **really important** in modern life.

Most Elements are Metals

- 1) Metals are elements which can **form positive ions** when they react.
- 2) They're towards the **bottom** and to the **left** of the periodic table.
- 3) **Most elements** in the periodic table are metals.
- 4) **Non-metals** are at the far **right** and **top** of the periodic table.
- 5) Non-metals **don't** generally **form positive ions** when they react.



The Electronic Structure of Atoms Affects How They Will React

- 1) Atoms generally react to form a **full outer shell**. They do this via **losing, gaining or sharing** electrons.
- 2) Metals to the **left** of the periodic table **don't** have many **electrons to remove** and metals towards the **bottom** of the periodic table have outer electrons which are a **long way** from the nucleus so feel a weaker attraction. **Both** these effects mean that **not much energy** is needed to remove the electrons so it's **feasible** for the elements to react to **form positive ions** with a full outer shell.
- 3) For **non-metals**, forming positive ions is much **more difficult**. This is because they are either to the right of the periodic table — where they have **lots of electrons** to remove to get a full outer shell, or towards the top — where the outer electrons are close to the nucleus so feel a **strong attraction**. It's far more feasible for them to either **share or gain** electrons to get a full outer shell.

Metals and Non-Metals Have Different Physical Properties

- 1) All metals have **metallic bonding** which causes them to have **similar** basic physical properties.

- They're **strong** (hard to break), but can be **bent** or **hammered** into different shapes (malleable).
- They're great at **conducting heat** and **electricity**.
- They have **high boiling and melting points**.

- 2) As non-metals **don't** have metallic bonding, they don't tend to exhibit the same properties as metals. They tend to be **dull looking**, more **brittle**, **aren't always solids** at room temperature, **don't** generally **conduct electricity** and often have a **lower density**.

Non-metals form a variety of different structures so have a wide range of chemical properties.