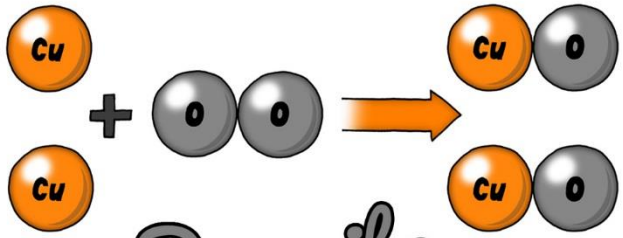
Li
Na
K
Rb
Cs
Fr

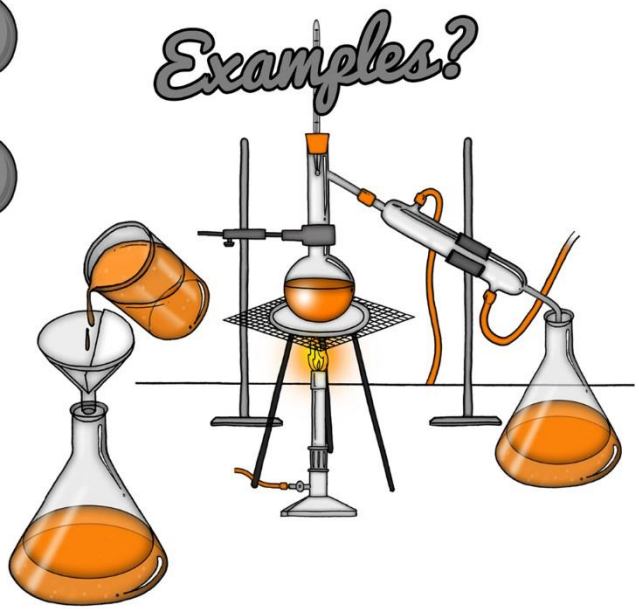
Patterns and trends?

F
Cl
Br
I
At



Describe

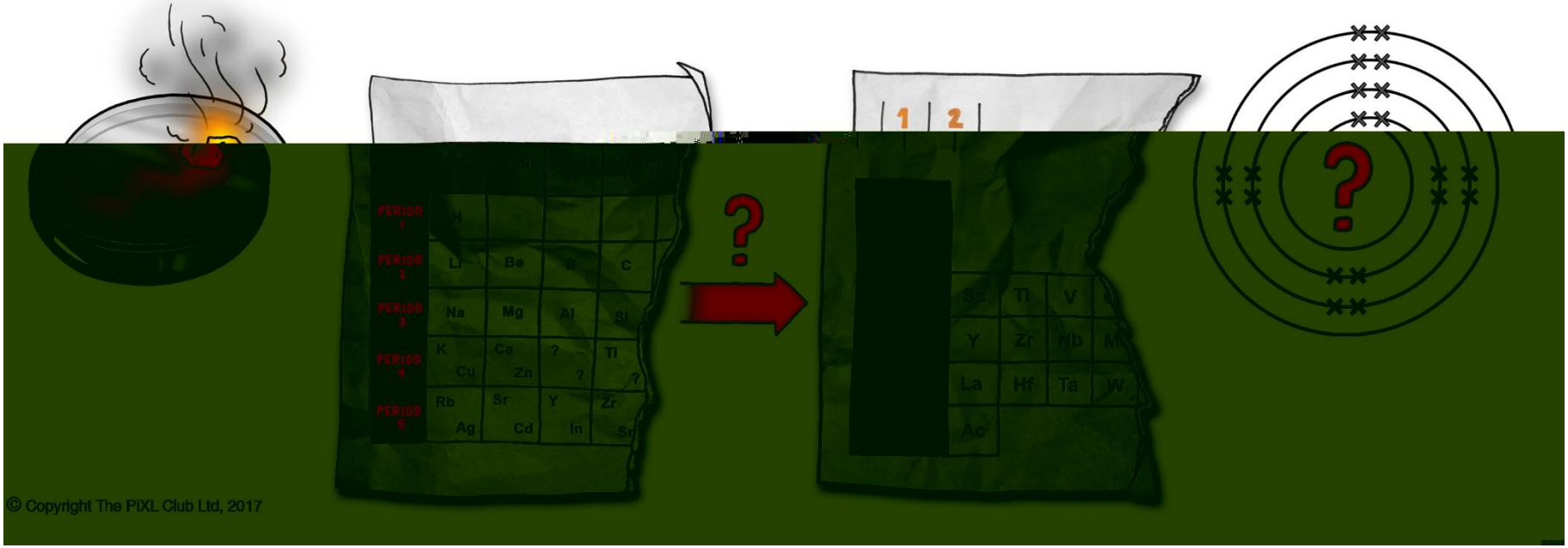
Examples?



AQA GCSE

ATOMIC STRUCTURE AND THE PERIODIC TABLE

THINK IT!



AQA

Atomic structure and the periodic table

ThinkIT!

Atoms, elements and compounds:

- Discuss the stages involved in writing ionic equations and explain why state symbols are important.
- Sodium and chlorine would be dangerous to the body in their natural state. Use your knowledge to explain why sodium chloride is a comparatively inert molecule.
- *HT only – give the balanced ionic equation for the formation of copper hydroxide.*

Mixtures:

- Fizzy drinks are a mixture of several compounds including water, sugar, carbon dioxide. Describe the methods used to separate these compounds from the mixture.
- Air is a mixture of gases. Suggest how these gases could be separated using your knowledge of kinetic theory.
- Food scientists can identify the different colours in food colouring. Describe and explain how. You can use a diagram.

The development of the atomic model:

- Explain how the discovery of the electron led to Thomson's plum pudding model.
- Describe Geiger and Marsden's scattering experiment and explain how the results disputed the plum pudding model.
- Explain Niels Bohr's version of the atom.

Transition metals (chemistry only):

- Evaluate the statement "Hydrogen should be placed in Group 1 of the periodic table".
- Explain why the transition metals form ions with different charges.
- Discuss the economic advantages of the transition metals as catalysts.

Atomic structure:

- Compare the radius of the nucleus to the radius of the atom.
- In terms of particles, explain the relationship between two isotopes of the same element and explain why these isotopes have identical chemical properties.
- It is impossible for an atom to have a mass of 35.5. Explain why this is the quoted mass for Cl in the periodic table.

Metals and non metals:

- Germanium reacts with acids to form a salt and water, it is a semi-conductor, has a melting point of 937°C and reacts with chlorine to from $GeCl_4$. Justify whether you think Germanium is a metal or non-metal.
- Discuss the effects of atomic radius and shielding on the reactivity of group 1 and 7 elements.
- Explain what happens when a solution of bromine is mixed with sodium iodide solution.

The periodic table:

- How would you explain the structure of the modern periodic table to John Newlands?
- Explain how Dmitri Mendeleev used atomic weights to construct his periodic table and explain why scientists came to believe Mendeleev's periodic table?

Electronic structure:

- Explain how the position of an element in the periodic table is related to the arrangement of electrons in its atoms.
- Describe how to calculate an element's electronic structure.
- Explain why the number of bonds an atom can form depends on the number of electrons available.