

A NON-HISTORICAL INTRODUCTION FOR STUDENTS TO THE PERIODIC TABLE

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Background

In many Universities there is a growing population of first year students who enter the system with very little prior knowledge of the subject. This, coupled with preconceived ideas of subject difficulty, necessitates that the introduction of key concepts is carried out in a non-threatening, engaging and simplistic manner. To this end, we have introduced a number of strategies to address this first contact situation with key concepts for first year chemistry students. One of the most important tools that a chemistry educator has at their disposal is the periodic table and this provides an important foundation for all aspects of chemistry. Indeed the periodic table is a fundamental classificatory system which underpins the whole realm of chemistry (Rouvray, 2004) and has even managed to transmute beyond the chemistry domain (e.g., Pugno, Marino and Carpinteri, 2005 & Brooks 2015). Traditionally this chemistry resource is introduced in a historical manner which identifies various aspects and builds up the table through time often highlighting key individuals. Numerous alternatives to this traditional approach also exist such as a context-based introductions (Demircioglu, 2009). We have adopted a novel non-historical approach for introducing the periodic table to our first year chemistry students beginning with the periodic table of super heroes (important historical components/aspects are introduced in other parts of the course and or in other chemistry courses).

Aims

Our aim was to develop, implement and refine a novel introduction to the periodic table for students which is based on key features of the periodic table including; Grouping using blocks and colour, Numbering, Use of Abbreviations, Combining individual objects/elements together, Transitioning across and down the Periodic table e.g., Size changes across and down the table.

Design and methods

We presented the key framework of the periodic table using a variety of illustrative 'Tables' with objects and components already familiar to the student. This included the periodic table of iPad apps, fruit and nuts, meat and super heroes. Each table is used to illustrate a key feature or features which is transferable to aspects relating to the periodic table of elements.

Results

Initial feedback from students was positive in relation to understanding the key aspects listed in the aims.

Conclusions

A contemporary and novel approach to introducing the periodic table, suitable for students of varying subject knowledge has been incorporated into the first year chemistry course (currently in its fourth iteration and delivery for first year students).

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