



Activity type	classroom <input checked="" type="checkbox"/> homework <input checked="" type="checkbox"/> independent learning <input checked="" type="checkbox"/> other <input type="checkbox"/>		
Activity objectives(s)	At the end of this topic, you should know that: <ul style="list-style-type: none"> • The covalent radius is a measure of the size of an atom. • The trends in covalent radius across periods and down groups can be explained in terms of the number of occupied shells, and the nuclear charge. • The trends in ionisation energies across periods and down groups can be explained in terms of the atomic size, nuclear charge and the screening effect due to inner shell electrons. • Atoms of different elements have different attractions for bonding electrons. • Electronegativity is a measure of the attraction an atom involved in a bond has for the electrons of the bond. • Electronegativity values increase across a period and decrease down a group. • Electronegativity trends can be rationalised in terms of nuclear charge, covalent radius and the presence of 'screening' inner electrons. 		
Activity resources(s)	Students will need access to the internet and their SCHOLAR login details. Students will need access to a data book.		
Delivery mode	teacher led <input checked="" type="checkbox"/> student led <input checked="" type="checkbox"/>	Collaboration type	individual <input checked="" type="checkbox"/> pairs <input type="checkbox"/> groups <input checked="" type="checkbox"/>



SCHOLAR Lesson Outline

Task description

Computer task

Get pupils to navigate to the correct topic - Higher (CfE) Chemistry Unit 1 Topic 1.6 - Periodic Table Trends. Navigate through the topic and complete the end of topic test for homework.

Students should be familiar with how to use their data books to source periodicity information.

- Periodic trends can be illustrated by graphing properties such as covalent radius, first ionisation energy and electronegativity against atomic number.

- Interactive Periodic Tables are available online such as <http://www.periodicvideos.com> and <http://www.webelements.com>.

- Element cards can be prepared showing atomic number, element name and symbol, electronegativity, covalent radius and first ionisation energy. Learners can lay out the cards on a large table or lab floor and experiment with different arrangements.

- The molecular nature of sulfur can be discussed during an exploration of the allotropes of sulfur. (See *Classic Chemistry Demonstrations*, Lister T., The Royal Society of Chemistry (1995), pp. 191–195).

- Molecular models can be constructed or viewed.

- A bonding simulation from the PhET initiative from the University of Colorado can be used in which you can adjust the electronegativity of each atom, and view the effect of the resulting electron cloud.

- The story of Linus Pauling, after whom the most commonly used electronegativity scale is named, is available from the RSC.

- The RSC interactive Periodic Table can be very useful for showing trends.

Focus on definitions of "Electronegativity", "Ionisation Energy", "Covalent Radius" and "Monatomic". Also focus on the ability of students to describe why each of these trends arises.

Whole class

You may wish to give feedback to students on their progress.
Display a report of the exercise.

Card sorts can be a good way of checking students understanding of the concepts covered in this topic.



SCHOLAR Lesson Outline

Differentiation (Alternative use)	<p>With an able group of students, you may wish to set this as a homework task to review the topic when you have completed it.</p> <p>With weaker students, you may wish to carry this out as an in class activity so you can answer any questions they may have as they attempt the exercise.</p>
Hints & Tips	<p>This task is best done in pairs or individually.</p> <p>Go round the class and get students to explain their answers. Focus not only on identifying the trends in the Periodic Table but also explaining how these occur.</p> <p>It is a good idea to get students to show you their score when they finish the exercise. If they do not get full marks you can send them back to have another try while the rest of the class finish off.</p> <p>Some teachers like to generate a report while students are logged in so that they can be shown what the teacher can see. This will highlight progress and any pupils who are just clicking reveal, as full marks can only be achieved by entering correct answers.</p> <p>There is online training available to help you learn how to do this. When you are logged in you will see a course called Succeed with SCHOLAR. Unit 1 Topic 7 introduces you to the reporting system.</p> <p>Choose some questions for students to try from the textbook / past paper questions in advance so faster pupils can move onto these.</p> <p>Questions in the end of topic test give extra practice.</p>
Notes	<p>Pupils will need access to a data book.</p> <p>The SCHOLAR section of this material should take approx 30 minutes.</p>