# YEAR 12 G /D – CHEMISTRY

**WEEK 4 (20th Sept to 24th Sept)**

**Work Sent to the students through Zoom Learning Platform / Google classroom**

**Topic:–** Atomic orbitals and electronic configurations

**Resources:** Text book, Worksheet file, video, power point presentations.

| Date | Topic | |
|---|---|---|
| 22.09.2020<br>Tuesday<br>1 **12G**<br><br>21.09.2020<br>Monday<br>3 **12D**<br><br>**Mode of Teaching:**<br>Zoom | **Lesson Objective:**<br>Know the number of electrons that can fill the first four quantum shells.<br>Know that an orbital is a region within an atom that can hold up to two electrons with opposite spins.<br>Know the shape of an *s*-orbital and a *p*-orbital<br>Know the number of electrons that occupy *s*, *p* and *d*-subshells<br>**Learning Outcome:**<br>Predict the maximum number of electrons in each quantum shell.<br>Define an orbital.<br>Distinguish the shapes of electron density plots (or maps) for s and p orbital.<br>Predict the maximum number of electrons occupied in the different subshells. | Teacher uses PowerPoint presentation that contains interactive questions to explain the different atomic orbitals, their shapes and the maximum number of electrons the subshells can occupy. |
| 22.09.2020<br>Tuesday<br>2 **12G**<br><br>7 **12D**<br><br>**Mode of Teaching:**<br>Zoom | **Lesson Objective:**<br>Know that electrons fill subshells singly, before pairing up, and that two electrons in the same orbital must have different spins<br>Be able to predict the electronic configurations, using 1s notation and electrons in-boxes notation, of<br>i) atoms, given the atomic number, *Z*, up to $Z = 36$<br>ii) ions, given the atomic number, *Z*, and the ionic charge, for *s* and *p* block ions only, up to $Z = 36$.<br>**Learning Outcome:**<br>Deduce electronic configurations of atoms and ions using spdf configuration.<br>Compare the exceptions of Cu and Cr due to added stability of half-filled or filled 3d sub shell. | Teacher uses PowerPoint presentation that contains interactive questions to explain the different atomic orbitals. |
| 23.09.2020<br>Wednesday<br>2 **12G**<br><br>24.09.2020<br>Thursday<br>**7 12D**<br>**Mode of Teaching:**<br>Zoom | **Lesson Objective:**<br>Know that elements can be classified as *s*, *p* and *d*-block elements<br>Understand that electronic configuration determines the chemical properties of an element<br>**Learning outcome:**<br>Use the diagram of periodic table split into s, p, d and f – idea that all elements belong to one of these blocks and block gives sub-shell in which outer electrons are found.<br>Writes the subshell electronic configuration to identify the differences in different group elements. | Teacher uses PowerPoint presentation that contains interactive questions to explain s,p,d and f block elements in the periodic table. |

**HOMEWORK:** Complete the textbook questions page 19

# YEAR 12 G/D – CHEMISTRY

**WEEK 4 (20th Sept to 24th Sept)**

**Work Sent to the students through Zoom Learning Platform / Google classroom**
**Topic 2 – shapes of molecules and ions .**
**Resources:** Text book, Worksheet, Video , Boardworks , powerpoint

| **Date** | **Topic** | |
|---|---|---|
| 22.09.20<br>Tuesday<br>8 **12D**<br><br>21.09.20<br>Monday<br>6 **12G**<br><br>**Mode of Teaching –**<br>Zoom | **Learning Objective:**<br>- To be able to explain the VSEPR theory<br>- To understand how the VSEPR theory can be used to predict molecular geometry<br>- To visualize the shapes of molecular orbitals using balloons<br>**Learning Outcome:**<br>1) Recalls:VSEPR - stands for Valence Shell Electron Pair Repulsion - describes the shape that molecules form in compounds<br>- based on idea that electron pairs in the valence shell with repel and try to be as far from each other as possible<br>Explain molecular geometry two bond pairs and three bond pairs. | Teacher uses powerpoint and interactive animation for shapes.<br><br>molecule-shapes_en.html<br><br>Instructions will be given to complete chapter questions. |
| 21.09.20<br>Monday<br>7- **12G**<br><br>23.09.20<br>Wednesday<br>7- **12D**<br><br>**Mode of Teaching –**<br>ZOOM | **Learning Objective:**<br>- To understand how the VSEPR theory can be used to predict molecular geometry on the bases of bond pairs and lone pairs.<br>- To visualize the shapes of molecular orbital on the basis of repulsion between lone pairs is much more than repulsion between lone pair and a bond pair, as well as repulsion between bond pairs<br><br>**Learning Outcome:**<br>- describes shape that molecules form various numbers of bond pairs and lone and lone pairs<br>Predict the bond angles, shapes of simple molecules and ions using electron pair repulsion theory. Predict the nature of intermolecular forces resulting from London forces, permanent dipoles and hydrogen bonds. Assessment 2 | Teacher uses powerpoint presentation and animations to explain shapes.<br><br>Teacher uses worksheet that contains interactive questions, to explain the shapes. |

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|---|---|---|
| 23.09.20<br>Wednesday<br>**8- 12D**<br>**1-12G**<br>**Mode of Teaching –**<br>GC | • Solve the given worksheet. | Teacher uses past paper questions based on bonding. |

**HOMEWORK:** Solve textbook questions page 52