CHEMISTRY (CLASSES XI-XII)

Chemistry (Class XI)

Learning Outcomes	*Sources/Resources*	*Suggested Activities (to be guided by teachers)*
The learner • understands and appreciates the contribution of ancient chemistry of India and its role in different spheres of life such as, *Rasayan Shastra, Rastantra, Ras Kriya* or *Rasvidya,* etc. • Identifies and appreciates the modern principles of chemistry in different spheres of life such as weather patterns, functioning of brain and operation of a computer, production in chemical industries, manufacturing fertilisers, alkalis, acids, salts, dyes, polymers, drugs, soaps, detergents, metals, alloys, etc. • explain the characteristics of three states of matter such as solids, liquids and gases • classifies different substances as elements, compounds and mixtures • uses SI Units, symbols, definitions, nomenclature of physical quantities and formulations as per international standards, such as, length (m), mass (kg), etc.	**NCERT/State Textbook** Chemistry Part I **Theme** Some Basic Concepts of Chemistry Contents discussed in the textbook • Importance of chemistry • Nature of matter • Properties of matter and their measurement • Uncertainty in measurement • Laws of chemical combinations • Dalton atomic theory • Atomic and molecular masses • Mole and Molar mass • percentage composition • Stoichiometry and stoichiometric calculations E-Resources developed by NCERT, which are available on NROER and also attached as QR Codes in textbooks of NCERT http://ncert.nic.in/ncerts/1/khepsol.pdfhttps://www.youtube.com/watch?v=DN8SINM9y9U	**WEEK 1** The Learners are told to use textbooks / web resources to explore the following: • Ancient chemistry vs Modern chemistry • Importance of chemistry in everyday life • Issues which affectour environment such as effects of pesticides, acid rain, green houses gases, use of heavy metals, etc. • Compile the report and share with your classmates on Zoom, a Googlegroup or WhatsApp group • Open the given link https://www.youtube.com/watch?v=DN8SINM9y9U https://www.youtube.com/watch?v=lJKT3DSZUd0&list=PL0OtfIH2_0K3dKPkoYY-jTihD9IUi3NXo • Observe the videos and try to solve problems given in your textbook related to these concepts. If you have any doubts, discuss with your friends or teacher. • Solve the various types of questions given in *Exemplar Problems for Class XI Chemistry*, prepared by NCERT, on a daily basis. • Involve yourself in some indoor activities like yoga, meditation, etc. • Get enrolled on the NROER CIET platform, use other e-resources available on NROER, e-pathshala **WEEK 2** Open the given links. These videos discuss so-me basic concepts of

• differentiates between precision and accuracy; • explains various laws of chemical combination such as Law of conservation of mass, Law of multiple proportion etc. • plans and conducts investigations and experiments to arrive at and verify the facts or principles to seek answers to queries on their own, such as, to verify various Laws of Chemical Combinations, etc. • takes initiative to know about scientific discoveries and inventions, such as, Antoine Lavoisier, Joseph Proust, Joseph Louis for discovering various Laws of Chemical Combinations • calculates and appreciates significance of atomic mass, average atomic mass, molecular mass and formula mass, stoichiometric calculations, etc. • handles laboratory apparatus instruments, and devices properly, such as, analytical balance, graduated cylinders, volumetric flask, burette, pipette, etc. • communicates the findings and conclusions effectively (orally and written form) • realises and appreciates the	https://www.youtube.com/watch?v=lJKT3DSZUd0&list=PL0OtfIH2_0K3dKPkoYY-jTihD9IUi3NXo https://www.youtube.com/watch?v=3JhpdUt3CMM https://www.youtube.com/watch?v=40OiAt2t658 https://www.youtube.com/watch?v=sSlObBndH-A&list=PLDAj64x1PE-nVzv4Kn-7uOlRCR7RITsF3 https://www.youtube.com/watch?v=OqUSjzJ_wng https://www.youtube.com/watch?v=bOzArOtRtSY https://www.youtube.com/watch?v=L9JHyT9wvbs https://www.youtube.com/watch?v=hhMO7GPi3VI https://www.youtube.com/watch?v=WPmYlBk_utE	chemistry. https://www.youtube.com/watch?v=3JhpdUt3CMM https://www.youtube.com/watch?v=40OiAt2t658 https://www.youtube.com/watch?v=sSlObBndH-A&list=PLDAj64x1PE-nVzv4Kn-7uOlRCR7RITsF3 https://www.youtube.com/watch?v=OqUSjzJ_wng https://wwwtube.com/watch?v=bOzArOtRtSY https://www.youtube.com/watch?v=L9JHyT9wvbs https://www.youtube.com/watch?v=hhMO7GPi3VI https://www.youtube.com/watch?v=WPmYlBk_utE After watching these videos, read the chapter from your textbook. Try to solve the questions given at the end of the chapter in your notebook. • Try to develop assignments based on the concepts given in the chapter and exchange them with your friends. Discuss the innovative questions developed in this process with your friends. • Prepare some simple activities of your own on mole concept, states of matter, etc. • Identify some homogeneous and heterogeneous mixtures present in your home/ surroundings. • Read and find out more about scientists and their experiments based on chemistry. Prepare the report and share with your friends. You can carry the report to school once it is open. The report can be placed in the library as an example for other learners. • Balance some chemical reactions given in NCERT Textbook. • Try to read some research papers

interface of chemistry with other disciplines, such as Biology, Physics, Mathematics, etc. • applies concepts of chemistry in day-to-daylife while making decisions and solving problems • takes initiatives to know and learn about the newer research, and inventions in Chemistry • appreciates the role and impact of Chemistry and technology towards the improvement of quality of human life. • exhibits values of honesty, objectivity, rational thinking, while sharing experimental results.		which interest you based on these concepts. • Involve yourself in various indoor fitness activities
• understands about the discovery of electron, proton and neutron • takes initiative to learn about the Thomson, Rutherford and Bohr atomic models • understands features of the quantum mechanical model of atom • understands properties of electromagnetic radiations and Planck's quantum theory • explains photoelectric effect and atomic spectra • understands de Broglie relation and Heisenberg uncertainty principle • learns about quantum numbers	**Theme** Structure of Atom Content discussed in the textbook • Sub-atomic particles • Atomic models • Developments leading to the Bohrs atomic model of atom • Bohr model for hydrogen atom • Quantum mechanical model of the atom https://www.youtube.com/watch?v=RhiDeoQYHR0 https://www.youtube.com/watch?v=4dXlkdThEfM https://www.youtube.com/watch?v=VAMMvv7UG3k	**WEEK 3** Learners are told to use the textbook / web resources and try to explore the following: • discovery of electron, proton and neutron • Thomson, Rutherford and Bohr atomic models • quantum mechanical model of atom • electromagnetic radiations and Planck's quantum theory • photoelectric effect and atomic spectra • de Broglie relation and Heisenberg uncertainty principle • quantum numbers • Aufbau principal, Pauli exclusion principle and Hund's rule of maximum multiplicity • write electronic configuration of atoms Open the links which are given

• understands Aufbau principal, Pauli exclusion principle and Hund's rule of maximum multiplicity • takes initiative to know and learn about electronic configuration of atoms • exhibits values of honesty, objectivity, rational thinking, while sharing experimental results.		https://www.youtube.com/watch?v=RhiDeoQYHR0 After watching the video discuss it with friends and teachers online and try to find solutions to your queries. Solve Exemplar problems for Class XI in Chemistry prepared by NCERT and also use E-resources available on NROER and e-pathshala. Try to understand the gas discharge tube, determination of e/m of cathode rays, Millikan's oil drop experiment. Read about Madame Curie, James Chadwick, Thomson, Rutherford and their discoveries **WEEK 4** Open the links which are given here https://www.youtube.com/watch?v=4dXlkdThEfM https://www.youtube.com/watch?v=VAMMvv7UG3k and try to understand the concepts which you have seenin videos. Understand the nature of light and various developments related to it Learn about Black body radiations, Photoelectric effect, dual nature of light and atomic spectrum and solve Exemplar problems for Class XI in Chemistry prepared by NCERT and use E-resources available on NROER and e-pathshala. Involve yourself in various indoor fitness activities.