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| School of Pedagogical Science (SPS), M.G University, Kottayam as a part of Ph.D. Programme  Research Scholar : SHANAVAS K E  Supervising Teacher : Prof (Dr.) SAJNA JALEEL, SPS, M.G University, Kottayam. |

**Action Script for E Content Lesson based on CDM 1**

Name of Teacher : Shanavas K E Standard : XI Science

Name of School : JHSS Thandekkad Strength : 59

Subject : Chemistry Time : 3 Minutes

Topic : Introduction to Thermodynamics

Chapter /Unit : 6 Thermodynamics

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| Audio | Video | Teaching - Learning Activities | Phases of CDM |
| My Dear Students,  Welcome to the world of Chemistry.  Is chemistry very interesting or easy to study. I give simple way and tricks to study chemistry much easier. That is learn chemistry in a simple way.  Let us starts with brainstorming question.  See Pictures.  Which is more hotter  Is the temperature, same or different  Can you define Heat and Temperature. Is any difference between Heat and Temperature  Then what is Temperature  How Heat is measured  What is the unit of Heat  How Temperature is measured  What is the unit of Temperature  Today I focus your attention on very interesting physical chemistry chapter 6 Thermodynamics. Have you heard about Thermodynamics  What is Thermodynamics  See these chemical reactions  What happens when adding water to NH4Cl in a beaker  What happens when adding water to CaCO3 in a beaker  Can you give the scope and application of T. D  Can you give the limitation of T.D | Teacher presents  **Slide**  Picture of Bucket with full of hot water and cup with full of hot water    Slide  The heat energy of a bucket full of hot water is more than that of a cup full of hot water.  Same. The temperature of a bucket full of hot water can be equal to that of a cup full of hot water  Slide  Heat is one form of energy. It is the amount of energy in a body of substance. It is the cause of Temperature  Slide  Temperature is the measure of intensity of Heat. It is the effect of Heat.  Slide  Heat is measured by Calorimeter.  The S. I unit of Heat is Joule (J). Another unit is Calorie.  Slide  The temperature is measured by Thermometer. The S.I unit of Temperature is Kelvin. Another unit is degree celesius 0C and Fahrenheit 0F  Slide  Picture based on Thermodynamics (T. D) Heat flow from hot to cold.  Slide  The word Thermodynamics implies ‘Flow of Heat’. Therm refers to heat and dynamics refers to movement or flow.    Slide  Experiment  Adding water to NH4Cl.  Cooling take place  Endothermic reaction. Heat absorbed. Increases in energy  Slide  Experiment  Adding water to CaCO3  Heat developed in the beaker  Exothermic reaction  Heat evolved  Decrease in energy  Slide  **Scope and application of T. D**  It provides explanation of Macroscopic or bulk or large properties of matter. It is Classical Thermodynamics.  Predict the feasibility of chemical reaction whether the reaction take place or not  Predict the extent to which the chemical reaction can occur before the equilibrium is attained.  Slide  **Limitations of T.D**  Its failure to tell the speed or rate of chemical reaction  Its inability to tell the mechanism or path of reaction because it deals with initial and final states of the system.  Its non-applicability to microscopic system such as individual atoms and molecules. It is only study in statistical Thermodynamics.  Slide  **Thank you**  Designate a study area  Get Organized. Learn well | Gaining attention to objectives  Presentation of slides  Audio- Video input  Developing the content  Audio-video input entering into the content  Asking questions  Developing the content  Audio-video input  Audio-video input giving experiments  Showing experiments  Audio-video input giving more application and problems  Evaluate and assess the content | **Phase I**  Establish rapports with the students  Confrontation with stage relevant task  Presents a puzzling problem  Elicit student’s  Responses  Seeks reasoning  **Phase II**  Inquiry  Insist to think  Probes reasoning.  Offer counter suggestions  Elicit student’s responses  Giving perceptual Cues or Hints  Probes reasoning.  Insist to think  Elicits student’s responses  Seeks Justification results in Assimilation  Accommodation of new learning experience leading to ability to apply in different learning situations. |