AGENDAS FOR THE WEEK: THERMAL ENERGY AROUND US *DATES September7-10*

	MONDAY	TUESDAY (A) A4 13:30-15:00	WEDNESDAY (B)	THURSDAY (A) A4 13:30-15:00 CLASS PHOTOS DAY	FRIDAY (B)
	Labor Day	**Objective(s): SWBAT** * Investigate thermal energy transfer in the classroom to verify that heat transfer occurs hot --> cold. * Identify ways gas molecules are affected by temperature, pressure, and volume.	B-day Mr. Pieniazek only teaches classes on A-days.	**Objective(s): SWBAT** * Identify densities concerning gasses * Investigate methods of thermal energy transfer, including conduction, convection, and radiation * Define and contrast temperature and heat	B-day Mr. Pieniazek only teaches classes on A-days.
P		**Engage:** "Warm-up" challenge: Students will be given supplies with the goal of making a cup of room temperature water 30 degrees C without mixing the red-colored 40 degrees C water with the room temperature water. This will give light to how the students are thinking of heat transfer (convection, conduction). Which ways will work the best?		**Engage:** "Up up and away" warm up activity. -This is a demo where Mr. Pieniazek will show how temperature effects the density of air. -Two trials: hot to cold and cold to hot -Students will then answer a few PearDeck questions in their table groups.	
L A		**Explore:** Students will work in groups where they will: -read a brief one-page summary about heat energy/energy transfer/temperature -explore a simulation on heat transfer through conduction -explore a simulation on gas properties * Students will have a student sheet to focus on particular questions **Explain:** A short ppt on different kinds of heat transfer, gas properties that includes formative assessment. **Elaborate** Each group member will think back (past or recent) about a time they experienced/saw heat transfer firsthand. What kind of heat transfer was it?		**Explore:** Students will continue exploring gas properties via the interactive PhET simulation. (15 minutes) They will finish and submit their student sheet at this time with their respective group. **Explain:** Conduction, convection, and radiation will be introduced and explained along with formative assessment featuring PearDeck in Google Slides. -introducing the difference between heat and temperature -Earth's energy -Short scientific cooking video for conduction, convection, and radiation **Elaborate** Demo: tea bag rocket showcasing convection. Introduce the convection cell.	

N		**Evaluate** Blend exit ticket on heat transfer **Summary** Students will be probed about how they think about heat transfer prior to the lesson, explore transfer and gas properties in interactive simulations, then the teacher will elaborate with formative assessment, and finally the students will apply this new knowledge to their daily-lives to strengthen their understanding. **Assessment(s):** - Simulation student sheet with 1-4 confidence levels on the topics - Formative assessment during explanation - Summative assessment exit ticket		**Evaluate** Exit ticket with two questions: one easier question asking about the heat transfer responsible for the tea bag launching into the air and then a higher order question about how hot air balloons work. **Summary** Students will learn and verify how temperature affects density of air molecules. The three types of heat transfer (conduction, convection, and radiation) will be covered including demos and formative assessment questions. An exit ticket with a higher order question will be used to complete a formative assessment. **Assessment(s):** - PearDeck formative assessment throughout the lesson on how temperature affects the density of air, heat transfer, etc. - Summative assessment via a sticky note	
Resources:		**Resource Requirements:** - Thermometers - Plastic cups - Saran wrap - Rubber bands - Plastic vial with lid - Computer with internet connection		**Resource Requirements:** - Balloon - Empty flask - Ice water bath - Hot water bath - Computer with internet connection - Matches - Empty tea bags - Surface for launching tea bag rockets	