

Grade 10-12

Distance Learning Module 8: Week of: May 26th – May 29th

Honors Physics - *Modified from* [Unit # 13- Modern Physics](#)

Targeted Goals from Stage 1: Desired Results

Content Knowledge:

- Einstein's Theory of Relativity: How is it Mass and Energy can be interchanged
- Wave / Particle duality: How do small particles of matter act as both solid particles and as waves?
- Standard Model: The currently accepted scheme explaining the most fundamental particles in nature and how they interact with each other to form the world we live in.
- Energy is quantized
- Materials can absorb and emit energy as determined by their sub atomic structure
- When objects move close to the speed of light with respect to a reference frame, relative measurements of time, mass and size are all effected
- The speed of light in a vacuum is a constant; objects cannot exceed 3×10^8 m/s
- There is a world beyond the bohr model; the fundamental building blocks of the atom involve a newly discovered set of sum-atomic particles
- Radioactive decay of unstable elements results in new elements and the emission of energy
- An atom's nucleus is held together by binding energy, equal to the mass defect of the nucleus.

Vocabulary:

- Relativity
- Frame of reference
- Mass
- Energy
- Wave
- Particle
- Quantized
- Energy
- Absorb
- Emit
- Time
- Mass
- Size
- Vacuum
- Bohr model
- Atom
- Radioactive

- Decay
- nucleus

Skills:

- Apply understanding of various principles of physics studied during this course to investigate application of these principles to modern physics.
- Constructing Explanations and Designing Solutions
- Asking Questions and Defining Problems

Expectation:

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
Monday: Students will check in with teacher via google meets and complete assignments that are due next day	Relativity Crash Course Frames of Reference Khanacademy Length Contraction professor dave Textbook Google Classroom Posted Notes	<i>Greater than 75 % earned on University of Texas on-line Homework and Assessment (accounts required)</i> <i>quest.cns.utexas.edu</i> <i>Participation in Zoom classroom learning as available and needed</i>
Tuesday: Complete assignment online Attend online class	Same as above	<i>Greater than 75 % earned on University of Texas on-line Homework and Assessment (accounts required)</i> <i>quest.cns.utexas.edu</i> <i>Participation in Zoom classroom learning as available and needed</i>
Wednesday: Attend class	Same as above	<i>Participation in Zoom classroom learning as available and needed</i>
Thursday: Attend Class Work on assignment online	Same as above	<i>Participation in Zoom classroom learning as available and needed</i>
Friday: Same as above	Same as above	<i>Greater than 75 % earned on University of Texas on-line Homework and Assessment (accounts required)</i>

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
		<i>quest.cns.utexas.edu</i> <i>Participation in Zoom classroom learning as available and needed</i>

Week criteria for success (attach student checklists or rubrics):

Supportive resources and tutorials for the week (plans for re-teaching):