

Grade 10-12

Distance Learning Module 7: Week of: May 18<sup>th</sup> – May 22<sup>nd</sup>

## **Physics Level 2- Modified from Unit #6 - Waves and Harmonic Motion**

### **Targeted Goals from Stage 1: Desired Results**

#### **Content Knowledge:**

- When waves encounter objects they can reflect, refract, diffract or absorb depending on the property of material.
- Two or more waves that occupy the same space at the same time may interfere constructively or destructively.
- Students will understand that the cause of every wave is a vibrating source
- Students will be able to define the word medium and be able to identify the mediums of common waves.
- Students will be able to diagram a wave by identifying features (amplitude, wavelength, frequency etc)
- students will be able to define simple harmonic motion and identify the force(s) creating this motion in pendula, springs and other situations

#### **Vocabulary:**

- Simple Harmonic Motion (SHM)
- Pendulums
- Waves
- Crests
- Troughs
- Frequency
- Period
- Energy
- Vibration
- Reflect
- Refract
- Diffract

- Absorb
- Constructive Interference
- Destructive Interference
- Medium
- Amplitude
- Wavelength

**Skills:**

- solve spring and pendulum problems for period, frequency or force
- calculate the period and frequency for an object in SHM
- draw standing waves and identify wavelength, amplitude and calculate velocity of the wave
- describe how the spring constant affects the period of a spring in SHM

**Expectation:**

Description of Task (s):	Resources and Materials: (links are posted in Google Classroom)	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
Monday: Students are to check Google Classroom and review the posted videos on notes.	Crash Course Physics Videos: Simple Harmonic Motion: Crash Course Physics #16  Traveling Waves: Crash Course Physics #17  Sound: Crash Course Physics #18  The Physics of Music: Crash Course Physics #19  Flipping Physics Videos: <a href="http://flippingphysics.com/waves.html">flippingphysics.com/waves.html</a>  Khan Academy Physics Videos:	Comment on Google Classroom/e-mail to teacher

Description of Task (s):	Resources and Materials: (links are posted in Google Classroom)	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
	khanacademy.org - Introduction-to-Waves  The Physics Classroom tutorials Physicsclassroom.com Vibrational-Motion Lesson	
Tuesday: Students are to complete the assignment that is due (UTexas) or lab Students are to check in via Google Meets as needed with teacher	Crash Course Physics Videos: Simple Harmonic Motion: Crash Course Physics #16  Traveling Waves: Crash Course Physics #17  Sound: Crash Course Physics #18  The Physics of Music: Crash Course Physics #19  Flipping Physics Videos: flippingphysics.com/waves.html  Khan Academy Physics Videos: khanacademy.org - Introduction-to-Waves  The Physics Classroom tutorials Physicsclassroom.com Vibrational-Motion Lesson	UTexas Assignment/Lab assignment  Check in with teacher via comment on Google Classroom or e-mail, or in person check in
Wednesday: Students are to check Google Classroom and review the posted videos on notes.	Crash Course Physics Videos: Simple Harmonic Motion: Crash Course Physics #16  Traveling Waves: Crash Course Physics #17	

Description of Task (s):	Resources and Materials: (links are posted in Google Classroom)	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
	<p>Sound: Crash Course Physics #18</p> <p>The Physics of Music: Crash Course Physics #19</p> <p>Flipping Physics Videos: flippingphysics.com/waves.html</p> <p>Khan Academy Physics Videos: khanacademy.org - Introduction-to-Waves</p> <p>The Physics Classroom tutorials Physicsclassroom.com Vibrational-Motion Lesson</p>	
<p>Thursday:</p> <p>Students are to complete the assignment that is due (UTexas) or lab</p> <p>Students are to check in via Google Meets as needed with teacher</p>	<p>Crash Course Physics Videos:</p> <p>Simple Harmonic Motion: Crash Course Physics #16</p> <p>Traveling Waves: Crash Course Physics #17</p> <p>Sound: Crash Course Physics #18</p> <p>The Physics of Music: Crash Course Physics #19</p> <p>Flipping Physics Videos: flippingphysics.com/waves.html</p> <p>Khan Academy Physics Videos: khanacademy.org - Introduction-to-Waves</p>	

Description of Task (s):	Resources and Materials: (links are posted in Google Classroom)	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
	The Physics Classroom tutorials Physicsclassroom.com Vibrational-Motion Lesson	
Friday: Students are to check Google Classroom and review the posted videos on notes.	Crash Course Physics Videos: Simple Harmonic Motion: Crash Course Physics #16  Traveling Waves: Crash Course Physics #17  Sound: Crash Course Physics #18  The Physics of Music: Crash Course Physics #19  Flipping Physics Videos: <a href="http://flippingphysics.com/waves.html">flippingphysics.com/waves.html</a>  Khan Academy Physics Videos: <a href="http://khanacademy.org">khanacademy.org</a> - Introduction-to-Waves  The Physics Classroom tutorials Physicsclassroom.com Vibrational-Motion Lesson	Participation in Google Meets meetings as required/needed. Completion of UTexas with a 75% or higher

**Week criteria for success** (attach student checklists or rubrics): Greater than 75 % on Assigned UTexas Assessments

**Supportive resources and tutorials for the week** (plans for re-teaching): Textbook; Finals site resources (PowerPoints, worksheets with answer keys, pdf notes); Khan Academy; Crash Physics videos; PHeT simulators from University of Colorado; Flipping Physics videos; Interactions with teacher using Zoom.