

## INTRODUCTION TO HEAT TRANSFER

### ACTIVITY 1 – HEAT TRANSFER

**Directions** - Use the amazing textbook of science pages 398 - 399 to define each of the following ways energy from the sun is transferred through the atmosphere and to create a picture showing how the energy transfers work.

<b>TRANSFER OF ENERGY</b>	<b>DEFINITION</b>	<b>PICTURE</b>
<b>CONDUCTION</b>		
<b>CONVECTION</b>		
<b>RADIATION</b>		

### ACTIVITY 2 – THE ELECTROMAGNETIC SPECTRUM ANTICIPATION GUIDE

**Directions** - Read all of the statements below and predict if the statement is true or false. Then ask the teacher for the Electromagnetic Spectrum article. Read through the article to identify if the statement is true or false.

<b>PREDICTION TRUE/FALSE</b>	<b>STATEMENT</b>	<b>TRUE/FALSE</b>
	The EM Spectrum is the complete (entire) range of EM waves in order of decreasing frequency and increasing wavelength	
	All EM waves are radiation.	
	The higher the frequency, the less energy in the wave!	
	Radio waves are used in RADAR (radio detection and ranging), cell phones, cooking and satellite transmissions.	
	Infrared is used to find people in the dark and in TV remotes.	
	Visible light is such a large portion of the entire spectrum.	
	UV rays are easily stopped by clothing.	
	X-rays are used to look for cracks in bridges.	
	Gamma rays have the shortest wavelengths .	
	Gamma rays are the least damaging to tissues	

### **ACTIVITY 3 - ELECTROMAGNETIC SPECTRUM MODEL**

Purpose - To design and build an electromagnetic (EM) spectrum model. The model will demonstrate the relationship between wavelength, frequency, and energy.

Requirements -

1. Create a model of the EM spectrum. **Posters and slide shows** will not be accepted. Be creative
2. Be sure to include ALL 7 types of radiation in order of energy. Be sure to identify if the order is high to low or low to high
3. Illustrate and label the relative wavelength and frequency for each type of radiation. Be clear in your illustration and labeling on how they differ from each other. Printed internet pictures are not acceptable. Providing numbers for the wavelengths will not count
4. Provide an example and explanation of a use for each type of radiation.
5. Choose at least 3 types of radiation to explain how it interacts/affects Earth's atmosphere
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
6. Must cite your work (where did you get your information)
7. This is a GVS assignment, so will be graded as an assessment