

<b>Lesson Update and CRT Addendum</b>	
<b>Lesson/Activity Title: Exploring Radiation in Your Life</b>	<b>ID: 3-133</b>
<b>Product Number:</b>	<b>Grade: MS</b>
<b>URL for Lesson: <a href="http://spacemath.gsfc.nasa.gov/earth/7Page73.pdf">http://spacemath.gsfc.nasa.gov/earth/7Page73.pdf</a></b>	
<b>Subject: Unit conversion, reading graphs, comparing percentages</b>	
<b>Summary: In this activity students use radiation exposure data to manipulate units and percentages.</b>	
<b>Materials for lesson: No extensive materials beyond common classroom technology.</b>	

<b>Review and Recommendations</b>	
<b>ALIGNMENT TO STANDARDS</b>	
<b>NGSS</b>	<b>N/A for this particular activity. The suggested extension activities cover a wide range of Life, Physical, and Earth/Space Science standards and topics.</b>
<b>Common Core State Standards in Mathematics</b>	<b>6.RP, 6.NS, 6.EE, 7.RP, 7.NS, 7.EE, 8.EE</b>
<b>CULTURAL RESPONSIVE TEACHING (CRT) RECOMMENDATIONS</b>	
<b>5E Lesson/Description</b>	
<b>1. Engage</b>	<p>Teacher can facilitate a discussion about times and places students believe they are exposed to radiation. Teacher should reveal normal small dose exposure sources: i.e., x-rays, <b>sunlight</b> and cosmic rays, radon and other elements, and some electronic equipment. The EPA has good resources about state and local radon programs and maps (link can be found in Additional Resources below).</p> <p>Using NASA Earth Observatory Net Radiation Global Map combined with Snow Cover map (link included in Additional Resources below) teacher can open a dialogue about the correlation between skin pigment as biological protection against UV radiation and ancestral geographic location.</p>

<b>2. Explore</b>	NASA Activity: Radiation Exposure on Earth (link in Additional Resources) will give a good foundation and background for what radiation is and how normal levels of exposure compare to those experienced by astronauts.
<b>3. Explain</b>	The Exploring Radiation in Your Life Activity is found on page 110 of 188 in the Space Math VII packet.
<b>4. Expand/Enhance</b>	NASA has a much more in depth Interdisciplinary Guide on Radiation (link in Additional Resources) that covers: General Radiation Introduction, Damage to Living Organisms, Protection from Radiation, and Applications to Life on Earth with accompanying activities and assessment.
<b>5. Evaluate</b>	Evaluation is included in each activity.

**Additional Resources:**

EPA Radon Information:

<https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information>

NASA Radiation Exposure Activity:

[http://www.nasa.gov/pdf/551457main\\_SF\\_Radiation\\_Exposure.pdf](http://www.nasa.gov/pdf/551457main_SF_Radiation_Exposure.pdf)

Space Faring: The Radiation Challenge:

[http://www.nasa.gov/pdf/284277main\\_Radiation\\_MS.pdf](http://www.nasa.gov/pdf/284277main_Radiation_MS.pdf)

NASA Earth Observatory Global Maps:

[http://earthobservatory.nasa.gov/GlobalMaps/view.php?d1=CERES\\_NETFLUX\\_M&d2=MOD10C1\\_M\\_SNOW](http://earthobservatory.nasa.gov/GlobalMaps/view.php?d1=CERES_NETFLUX_M&d2=MOD10C1_M_SNOW)