

SAMPLE PHENOMENA, ACTIVITIES & PROJECTS ALIGNED TO NGSS- GRADES 9-12

DISCIPLINE	PHENOMENON	WEBLINK	SUGGESTED ACTIVITY/PROJECT
LIFE SCIENCE:			
<u>HS-LS4-3; HS-LS4-4</u>	Underwater Chromatophores	http://tinyurl.com/gv38pyh	http://tinyurl.com/zfvgy5f
<u>HS-LS2-6; HS-LS2-7</u>	Vanishing of the Bees	https://www.youtube.com/watch?v=u-JjQH_HUHQ	PBL- Use an interactive in the associated presentation that includes features of a honeybee colony. The interactive includes potential causes of colony collapse disorder (CCD). Students explore the interactive and “report” back to the queen bee (teacher) with possible causes of CCD. (http://tinyurl.com/gvkcncj)
<u>HS-LS1-1; HS-LS1-4</u>	Stem Cells Get Hip - Mayo Clinic	https://www.youtube.com/watch?v=iqw3r-musrE	http://tinyurl.com/oz2br7y
<u>HS-LS1-1; HS-LS1-4</u>	Stem Cell Treatment Cures Blindness	https://www.youtube.com/watch?v=Kn3lgskKA08	http://tinyurl.com/oz2br7y
PHYSICAL SCIENCE:			
<u>HS-PS1-1; HS-PS1-2</u>	Sandia Labs Developing New Shape-Shifting Alloys	http://tinyurl.com/jfkejkq	http://tinyurl.com/pxaavys
<u>HS-PS3-1; HS-PS3-3</u>	Iceland Geothermal Energy Case Study	http://tinyurl.com/hrjvbj9	PBL- Develop a research project on energy alternatives. Describe each of these and give pros and cons about each. Which are renewable and nonrenewable? Are all alternatives available in your state? What environmental impact would these energy resources have? (http://tinyurl.com/ow3rt2g)
<u>HS=PS4-1; HS-ESS2-3</u>	Just Released! Tsunami Super Wave Destroys Parts Of Japan!	http://tinyurl.com/znhlm3t	http://tinyurl.com/zuabngp
<u>HS-PS1-5</u>	Incredible Chemical Reaction	https://www.youtube.com/watch?v=C5tOEBmBAHg	http://tinyurl.com/zyh9p8n
EARTH/SPACE SCIENCE:			
<u>HS-ESS2-1</u>	Bay of Fundy, Time-lapse	http://tinyurl.com/h76x58q	PBL- Perform a comparative study of the seasonal tidal fluctuations of 3 local bays and/or beaches. (http://tinyurl.com/jjplssp)
<u>HS-ESS2-4; HS-ESS3-5</u>	Climate Change: What Happens If The World Warms Up By 2°C?	https://www.youtube.com/watch?v=9GjrS8QbHmY	PBL- Students will learn about the importance of large-scale forest landscapes and the impacts of deforestation and reforestation with a focus on global climate change. Focus will be given to the carbon cycle and the ways in which forests decrease carbon dioxide and greenhouse gases in the atmosphere, thereby minimizing climate change, and improving air quality. Consideration will also be given to the ways in which deforestation and forest restoration affect wildlife. (http://preview.tinyurl.com/z7qc8uw)

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<u>HS-ESS2-4; HS-ESS3-5</u>	Climate Chaos : Climatologist Warns Of A Godzilla El Nino Affecting Global Weather	https://www.youtube.com/watch?v=ICAKgYlwipQ	PBL- In this 5E, project based lesson, students conduct research and present information on the environmental and economic impacts of an El Nino - Southern Oscillation (ENSO) event on various affected regions. They practice responding to a released AP free response prompt related to El Nino and use the AP rubric to evaluate their responses. This project helps students understand the climatic changes that accompany an ENSO event and consider the possible impacts of those changes. (http://tinyurl.com/qbjg5h7)
<u>HS-ESS2-5</u>	El Nino Storms Wipe Out California Beach	http://tinyurl.com/nuauzbb	PBL- There are multiple ways to protect coastlines. In this lesson, students compare strong (but expensive) construction materials with the less robust (but cheaper) oyster reefs. Students first use an online tool to find historic tide data in a selected coastal location. Then they use a hands-on model to explore the use of different materials in protecting coastlines. In this lesson, students have the opportunity to practice and learn across a wide range of disciplines. (http://preview.tinyurl.com/naaoq9v)