

INQ-ITS Virtual Lab	Standards			
	2009 OR Standards	NGSS	Common Core ELA	Math
<b>SCIENTIFIC INQUIRY</b>				
<b>Flower Activity</b>	<b>6.3, 7.3, &amp; 8.3</b> – A general lab for accessing student scientific inquiry skills.	Introduction to Scientific Inquiry Activity	<i>Please note that the following ELA standards apply to all of the activities and are listed here for simplicities sake.</i>	<i>Please note that the following Math standards apply to all of the activities and are listed here for simplicities sake.</i>
<b>PHYSICAL SCIENCE</b>				
<b>Phase Change</b>	<b>8.1P.3</b> - Explain how the motion and spacing of particles determines states of matter.	<b>PS1-4 (7<sup>th</sup>)</b> Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.	<u>CCSS.ELA-LITERACY.RST.6-8.3</u> Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.	6-8.MP.1 Make sense of problems and persevere in solving them.  6-8.MP.2 Reason abstractly and quantitatively.
<b>Free Fall: Energy &amp; Speed</b>	<b>7.2P.1-</b> Identify and describe types of motion and forces and relate forces qualitatively to the laws of motion and gravitation.	<b>PS3-5 (6<sup>th</sup>):</b> Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.	<u>CCSS.ELA-LITERACY.RST.6-8.4</u> Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 6-8 texts and topics</i> .	6-8.MP.4 Model with mathematics.  6-8.MP.5 Use appropriate tools strategically.
<b>Liquid Density</b>	<b>6.1P.1-</b> Describe physical and chemical properties of matter and how they can be measured. <b>8.1P.1-</b> Describe the atomic model and explain how the types and arrangements of atoms determine the physical and chemical properties of elements and compounds.		6-8.WHST.1 Write arguments focused on discipline-specific content.	6-8.MP.8 Look for and express regularity in repeated reasoning.
<b>Mass &amp; Weight</b>	<b>6.1E.2-</b> Describe the properties of objects I the solar system. Describe and compare the position of the sun within the solar system, galaxy, and universe. <b>8.2E.1-</b> Explain how gravity is the force that keeps objects in the solar system in regular and predictable motion and describe the resulting phenomena. Explain the interactions that result in Earth’s seasons.	<b>PS2-4 (8<sup>th</sup>)</b> Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.	a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.  b. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.	

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<b>Parabolic Motion</b>	<b>7.2P.1-</b> Identify and describe types of motion and forces and relate forces qualitatively to the laws of motion and gravitation.	<b>PS3-5 (6<sup>th</sup>):</b> Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.	c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.	
<b>Collisions</b>	<b>8.2P.2-</b> Explain how energy is transferred, transformed, and conserved.	<b>PS2-1 (8<sup>th</sup>)</b> Apply Newton’s Third Law to design a solution to a problem involving the motion of two colliding objects.	d. Establish and maintain a formal style.	
<b>LIFE SCIENCE</b>				
<b>Animal Cell Functions</b>	<b>6.1L.1-</b> Compare and contrast the types and components of cells. Describe the functions and relative complexity of cells, tissues, organs, & organ systems. <b>7.2L.1-</b> Explain how organelles within a cell perform cellular processes & how cells obtain the raw materials for those processes.	<b>LS 1-2 (6<sup>th</sup>)</b> Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.	e. Provide a concluding statement or section that follows from and supports the argument presented.  6-8.WHST.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.	
<b>Genetics: Bug Breeding</b>	<b>7.1L.2-</b> Distinguish between inherited and learned traits, explain how inherited traits are passed from generation to generation, and describe the relationships among phenotype, genotype, chromosomes, & genes.		a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.	
<b>Ecosystems</b>	<b>6.2L.2-</b> Explain how individual organisms and populations in an ecosystem interact and how changes in populations are related to resources.	<b>LS2-1 (7<sup>th</sup>)</b> Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. <b>LS2-3 (7<sup>th</sup>)</b> Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. <b>LS2-4 (7<sup>th</sup>)</b> Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.  c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.	

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<b>Evolution</b>	<b>8.2L.1-</b> Explain how species change through the process of natural selection. Describe evidence for evolution.	<b>LS 1-4 (6<sup>th</sup>)</b> Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.	d. Use precise language and domain-specific vocabulary to inform about or explain the topic.  e. Establish and maintain a formal style and objective tone.  f. Provide a concluding statement or section that follows from and supports the information or explanation presented.	
<b>Plant Cell Functions</b>	<b>6.1L.1-</b> Compare and contrast the types and components of cells. Describe the functions and relative complexity of cells, tissues, organs, and organ systems.  <b>7.2L.1-</b> Explain how organelles within a cell perform cellular processes and how cells obtain the raw materials for those processes.	<b>LS 1-2 (6<sup>th</sup>)</b> Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.	6-8.WHST.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.  6-8.WHST.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.	
<b>EARTH SCIENCE</b>				
<b>Plate Tectonics</b>	<b>8.2E.2-</b> Describe the processes of Earth’s geosphere and the resulting major geological events.	<b>ESS2-2 (7<sup>th</sup>)</b> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.		
<b>Seasons</b>	<b>8.2E.1-</b> Explain how gravity is the force that keeps objects in the solar system in regular and predictable motion and describe the resulting phenomena. Explain the interactions that result in Earth’s seasons.	<b>ESS1-1 (8<sup>th</sup>)</b> Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.	6-8.WHST.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	