

<b>An Agent of Evolution</b>	
<b>Course:</b> Marine Science 101 – Unit 2	<b>Date:</b>
<p><b>Problem:</b> Educating 5<sup>th</sup> grade students about evolution.</p> <p><b>Details:</b> Students must identify an agent of evolution and devise an activity that will be both engaging and educational for 5<sup>th</sup> grade students.</p> <p><i>Notes: Students should be encouraged to get creative in their activity format. This is an opportunity for creativity and possibly integrating the arts and technology to engage younger students in a complex topic.</i></p>	
<b>Agents of evolution:</b> natural selection, mutation, genetic drift, gene flow	
<p><b>Brainstorm:</b> <i>What are events or issues that align with the content I'm teaching (based on the standards)?</i></p> <p>What is evolution?            How is each "agent" of evolution different?            How does each "agent" of evolution impact a population over time?</p>	
<b>Learning Goal(s):</b>	<p><i>Students understand that...</i></p> <ol style="list-style-type: none"> <li>1. Evolution is a natural process that occurs over time.</li> <li>2. Evolution occurs in different ways.</li> <li>3. Communicating scientific information is part of the scientific process.</li> </ol>
<p><b>Driving Question:</b>  <i>What are some examples?</i></p>	<p>How does evolution occur?            What are the different ways to model how a species changes over time due to different agents of evolution?            What would make a 5<sup>th</sup> grade student interested in learning about evolution?            How can technology and hands-on be used to teach about evolution?</p>
<p><b>Inquiry Process/Research and Investigation Plan:</b>  <i>What are necessary steps for students to plan for and ensure their research and/or investigation is thorough and reliable?</i></p>	
<ol style="list-style-type: none"> <li>1. Identify student groups of three to four and assign, or have groups choose, an agent of evolution.</li> <li>2. Using the student template provided, research the topic.</li> <li>3. Create a plan that shares your best research and thinking to get 5<sup>th</sup> graders to understand the agent of evolution.</li> <li>4. Present your activity.</li> <li>5. As each group presents, record in your science notebook key ideas. Ask questions regarding their proposal.</li> </ol>	
<p><b>Formative Assessment and Feedback:</b>  <i>Identify when and how formative assessment will occur.</i></p>	
<i>Student</i>	<i>Instructor</i>
<ol style="list-style-type: none"> <li>1. Research assigned agent of evolution.</li> <li>2. Identify a learning activity for 5<sup>th</sup> grade students.</li> <li>2. Outline key tasks and design activity plan.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify dates for group progress review as well as research and final product goals.</li> </ol>

3. Presentation. Provide feedback to peer groups.			
<b>Summative assessment:</b> <i>Identify what summative assessment will be and when it will occur. Identify how will it be assessed.</i> <ul style="list-style-type: none"> <li>Final group presentation of their activity.</li> </ul>			
<b>Revision:</b> <i>Identify opportunities for revision based on formative assessment feedback.</i> <ol style="list-style-type: none"> <li>Address feedback and provide clarification and revisions as needed.</li> </ol>			
<b>Communication:</b> <i>How will students communicate their learning?</i>			
<b>Purpose</b> To educate 5 <sup>th</sup> grade students about evolution.	<b>Audience</b> Peers. Advanced audience could be the local 5 <sup>th</sup> grade students.	<b>Presentation Type</b> Informal presentation with peers. Creativity is highly encouraged.	<b>Impact</b> Improving 5 <sup>th</sup> grade students' scientific understanding of evolution.
<b>Standards: All Content Areas</b> <i>Not all will always apply</i>			
English-Language Arts	<p><i>ELA-Literacy.RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.</i></p> <p><i>ELA-LITERACY.SL.11-12.1.C Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.</i></p> <p><i>ELA- Literacy.SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.</i></p> <p><i>ELA-LITERACY.SL.11-12.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.</i></p> <p><i>ELA-LITERACY.SL.11-12.6 Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.</i></p>		
Mathematics			
Science	<b>Disciplinary Core Ideas</b> <i>Natural Selection and Evolution</i> LS4.A Evidence of Common Ancestry and Diversity	<b>Science &amp; Engineering Practices</b>	<b>Crosscutting Concepts</b> Patterns  Cause and Effect

	LS4.B Natural Selection LS4.C Adaptation	Obtaining, evaluating, and communicating information	
History			
Arts/ Technology/ PE/Languages	Dependent on the group presentation style		