

Warm-up

1. What are the 4 different DNA nucleotides?
2. What are some ways DNA can be modified?

The Problem

The world is being flooded due to climate change, and soon everything will be entirely underwater. Geneticists (YOU) are desperately trying to find a solution to keep humans alive underwater, so they are starting to look at the DNA sequence of fish to see how they can breathe underwater.



Compare the DNA sequences of humans and fish and see if you can come up with a way to allow humans to breathe underwater

DNA sequence of humans:

ATATATGCC**CGGGATTTTTAAAGCCGGG**AGCAGTATATA

Lungs

DNA sequence of fish:

ATATATGCC**TACGGGAAAATTCCCCGATA**AGCAGTATATA

Gills

Standard	Excellent (5 points)	Understanding (3 Points)	Needs Improvement (1 Point)
<p>Justifying/Arguing for the way in which humans will be able to breathe underwater</p>	<p>Justify opinions or persuade others by making connections and distinctions between ideas and texts and articulating sufficient, detailed, and relevant textual evidence or background knowledge, using appropriate register</p>	<p>Justify opinions and positions or persuade others by making connections between ideas and articulating relevant textual evidence or background knowledge</p>	<p>Justify opinions by articulating some relevant textual evidence or background knowledge with visual support.</p>
<p>HS-LS3-2. Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.</p>	<p>Students will be able to make/defend all of their claims based on evidence/things they have learned before about how inheritable genetic variation used to create a human that can breathe underwater can result from either new genetic combinations, viable errors occurring during replication, mutations, or new technology</p>	<p>Students will be able to make/defend only some of their claim based on evidence/things they have learned before about how inheritable genetic variation used to create a human that can breathe underwater can result from either new genetic combinations, viable errors occurring during replication, mutations, or new technology</p>	<p>Students will be able to make/defend few or none of their claim based on evidence/things they have learned before about how inheritable genetic variation used to create a human that can breathe underwater can result from either new genetic combinations, viable errors occurring during replication, mutations, or new technology</p>



DESIGNER BABIES