**Purpose**

You’ve learned a great deal about adaptation and mitigation strategies, including decarbonization solutions. In this activity, you’ll explore an adaptation and mitigation solution for agriculture. This will help you understand that some solutions can overlap but also be at odds with each other, which will allow you to analyze the types of solutions that might be most useful in the fight against climate change.

## Process

1. Review the definitions for adaptation and mitigation that you encountered earlier in the course: ***Mitigation*** is how we reduce the emissions of greenhouse gases in the atmosphere, thereby slowing and limiting climate change. ***Adaptation*** is how we respond to climate change to reduce its impact on people, places, and ecosystems. Agriculture is one area where there is significant overlap between adaptation and mitigation solutions. The agricultural sector is responsible for 19% of total annual greenhouse gas emissions through deforestation, raising livestock, and emission-releasing fertilizers. At the same time, agriculture is one of the most important areas for the development of solutions in the face of a changing climate, as extreme weather, water access, and drought threaten the livelihoods and well-being of millions of small-scale farmers around the world.
2. Review the research question for this activity: How can an agricultural solution function as both an adaptation and mitigation strategy for addressing climate change?
3. Complete Part 1 of the Agriculture Solutions Research worksheet using course resources and the internet to research an agricultural adaptation and mitigation solution.
4. Your teacher may have you research and select your own solution or select one from the list below. You may need to do some research to define these terms.
* Agroforestry
* Climate-resilient crop varieties
* Improved fertilizers
* Improved livestock management
* Water resource management
* Renewable energy integration
* Cover cropping
* Conservation agriculture
1. Finally, complete Part 2 of the worksheet: Write an essay that answers the research question, How can an agricultural solution function as both an adaptation and mitigation strategy for addressing climate change? Your teacher will give you guidelines for your essay.

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***Part 1***

**Directions:** Complete the worksheet using course materials and information from the internet.

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| **Agricultural solution** |  |
| **Briefly describe the solution** |  |
| **How is this an adaptation solution?** |  |
| **How is this a mitigation solution?** |  |
| **How might the adaptation and mitigation aspects of this solution overlap?**  |  |
| **How might the adaptation and mitigation aspects of this solution work against each other?** |  |
| **What impact will this have on reducing emissions? Think about the impact of this solution at the local, regional, and international levels.** |  |
| **What impact will this have on communities around the world?** |  |
| **How equitable is this solution?** |  |
| **What is one strategy for making this solution more equitable in terms of adoption and/or implementation?** |  |

***Part 2***

**Directions:** Write a four- to five-paragraph essay that answers the research question: How can an agricultural solution simultaneously address climate change adaptation and mitigation to reduce emissions and improve human welfare?

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