**ESS Final Project 2019 Understanding a Research Topic & Developing Research Questions**

**Essential Question:** ​How have humans impacted Earth’s systems and what can be done to limit future impacts?

**Standard HS-ESS3-4:** Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

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| **My Research Topic:** |  |
| **What I Think I Know About how this topic connects to the system/sphere it is listed in:** |  |
| **What I Think I Know About the “Science” of this Topic:** |  |
| **What I Think I Know About some Issues/Problems Connected to this Topic:** |  |
| **What I Think I Know about Possible Technological Solutions or Ideas for Solutions on this Topic:** |  |
| **What Questions Do I Need to Know more about?**  **What Questions Do I have or need to research?**  **Do I understand all the “Science” behind this topic?** |  |
| **What are possible KEYWORDS I could use when beginning to research this topic?** |  |

**Creating Initial Research Questions to Learn More About a Topic**

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| **Closed** | **Closed Examples** | **Open** | **Open Examples** |
| **\*Fact-based questions: Who, what, when**  **\*Require a short answer**  **\*Easy to answer** | What fossil fuels are the most widely used?  When did fossil fuel use become widespread?  What effect does fossil fuel use have on the environment? | **\*Idea-based questions: Why, how, how come**  **\*Require a longer answer**  **\*Research from multiple sources is required to answer** | How do new energy technologies compare to fossil fuels in their impact on the environment?  How would the regulation of fossil fuels benefit the environment in the long run?  Why are new energy technologies so slow to take the place of fossil fuels? |

**Directions:**  From your ideas above creating some closed and open research questions to start to guide your research.

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| **My Closed Examples:** | **My Open Examples:** |
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**Draft of Initial Final Project Research Question:**

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