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| Teacher: | Subject/Grade: Science, middle school |
| Objective/Standard: Teach students what global warming is and the science behind it. | Materials: Poster board and/or computers |
| Length of Lesson: 1 hour and 30 minutes | Goal: By the end of the lesson students will understand what global warming is, its effects on the Earth and the causes for it and will get a better idea of ways we can mitigate the global warming. |

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| Engage: *Video/ present problem/ questions to hook students*   * [*https://climate.nasa.gov/images-of-change/?id=759#759-flooding-near-sydney-australia*](https://climate.nasa.gov/images-of-change/?id=759#759-flooding-near-sydney-australia) * *Teacher will show students these before and after pictures of many of earth’s ecosystems that show the effects of global warming.* |
| Explore:  *Ask question to gather student knowledge- hands on activity students can do to activate prior knowledge and begIN to connect to new learning*   * *Start class discussion revolving around the Climate change NASA pictures*   + *Ask students what changes they see with each picture ( changes like deforestation, increased flooding, wildfires, etc)*   + *Ask students why they think these different changes are happening?*   + *Why is it affecting different areas of the world differently?*   + *Is there one cause for all these different changes?*   + *Are these changes concerning?* |
| Explain: *Meat of the lesson- where you teach what you want them to learn*  *This should include activities for students/ Vocabulary*  *-Vocabulary:*  *- Global warming:* a gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, chlorofluorocarbons, and other pollutants.  *-*Greenhouse gases: A greenhouse gas is a gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect  -Greenhouse effect: the trapping of the sun's warmth in a planet's lower atmosphere, due to the greater transparency of the atmosphere to visible radiation from the sun than to infrared radiation emitted from the planet's surface.  - Explain effects of global warming:  - Mudslides, ocean rising, melting glaciers, flooding, drought, deforestation, and changes in plant production.  - Main causes of global warming:  - burning fossil fuels, deforestation, farming ( livestock produce methane)  - Explain how the earth’s atmosphere is changing and elaborate on how this change is what is driving climate change |
| Elaborate: *Connect to real world- where or how will they see this concept in life*   * *Ask students essential questions and questions that revolve around what they themselves can do to reduce global warming*   + *What human activities are causing the atmosphere to warm?*   + *What can you do in your daily life to reduce the effects of global warming? ( drive less, recycle more)*   + *What can we as a society do to reduce the effects of global warming?*   + *What's the evidence that Earth's atmosphere is changing?*     - *Invest in energy- efficient appliances, invest in renewable energy, protect ecosystems, regulate the meat industry, employ sustainable, agricultural practices*   + *Why are the effects of global warming so concerning?* |
| Evaluate: *How will you assess that they learned it- project- quiz- daily question to gather that they are making progress.*   * *Students will complete a final project in which they will create a presentation addressed to a targeted audience ( could be the United States government, the United nations, farmers, businesses, your school, your neighbors, your parents) about ways they can reduce greenhouse gas emissions and mitigate the effects of climate change* * *The students can use a poster board or make a digital presentation through google slides or Powerpoint to develop the presentation* |

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