

## Climate Change Education in Newton Public Schools

There are many opportunities within the existing K-12 Newton Public Schools curriculum for educators to include information related to climate change. A few examples of these curriculum connections are listed below. By fostering these connections NPS will provide students with a platform for gaining the necessary knowledge to become the idea generators and problem solvers on this vital issue and will also give students the ability to put their knowledge of civics into action.

Grade	Subject	MA Frameworks	Classroom activity
K	Science	K-ESS2-1 Use and share quantitative observations of local weather conditions to describe patterns over time	Students record their local weather for a month and discuss the difference between weather and climate. As a class they make a bar graph showing their recorded temperatures. They then compare this to a bar graph of global temperatures over the past 50 years for the same month they recorded and discuss why global temperatures have steadily been rising.
1	ELA	RI.1.4 Identify words and phrases in stories or poems that suggest feelings or appeal to the senses	Students watch a brief video (e.g. <a href="https://www.youtube.com/watch?v=Sv7OHfpIRfU">https://www.youtube.com/watch?v=Sv7OHfpIRfU</a> ) introducing them to the what climate change is all about. They then read poems about climate change written by kids and identify words from those poems that suggest feelings or appeal to the senses. They finish by writing and illustrating a poem about global warming using sensory and/or feeling words.
2	History and Social Science	2.T5 Distinguish a renewable resource from a non-renewable resource.	Student create a poster categorizing different forms of energy as renewable vs non-renewable. They learn about how renewable energy sources can power homes, businesses, and transportation. They then build a windmill that can lift a paper cup or a solar oven that can melt a marshmallow.
3	Science	3-ESS3-1 Evaluate the merit of a design solution that reduces the damage caused by weather	Students study the connection between climate change and the effects of extreme weather (e.g. flooding in downtown Boston or wildfires in Australia). They build a model for a structure or other type of solution to reduce the damage caused by one type of extreme weather.
4	ELA	RI 4.2 Determine the main idea of a text and explain how it is supported by key details; summarize a text	Students read news articles and biographies about environmentalists and then create a “living museum” in which students take on the identities of these people.
4	Math	4.MD Represent and interpret data	Students analyze various graphs related to climate change and combine these into a data handbook of their creation with synopses of what the graphs illustrate.

5	ELA	W 5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information	Students conduct an energy survey in their home, school, or community to find out how energy is being wasted. They then write a persuasive essay to appropriate stakeholders on how to be more energy efficient.
6	Math	6.RP.T3 Use ratio and rate reasoning to solve real-world and mathematical problems	Students calculate the carbon footprint of their daily activities. They then modify 1 or more of these activities to reduce its carbon footprint and make tables using equivalent ratios for carbon output reduction.
7	Math	7.SP Use random sampling to draw inferences about a population.	Students create and administer a survey to community members to determine the sustainability choices individuals make in the areas of transportation, food, and home energy use. Students extrapolate the findings of their surveys to assess which climate action areas are most widely attended to and which need more action.
8	History and Social Science	8.T4 Describe how a democracy provides opportunities for citizens to participate in the political process through elections, political parties, and interest groups	Students research and analyze the various stakeholders responsible for state or federal climate policy. They interview an elected official from each political party and someone from at least one environmental advocacy organization. They choose one branch of the political system to try to influence around climate change.
8	Science	8.MS-ESS3-5 Examine and interpret data to describe the role that human activities have played in causing the rise in global temperatures over the past century	Students conduct a Greenhouse Effect Lab to demonstrate how burning fossil fuels creates greenhouse gasses. They analyze data from multiple sources to assess the impact of human activities on climate change. They then create a newscast detailing the findings from their analysis and ways individuals and businesses can decrease their carbon footprint.
HS	Science	HS-ETS1-1 Analyze a major global challenge to specify a design problem that can be improved	Students conduct in-depth research on one human activity that contributes to climate change. They compare how various countries have addressed this issue and consider the barriers to implementing these measures on a more global scale. They then develop one possible solution to this global challenge and present their ideas at a global solutions expo.
HS	History and Social Science	USI.T6 Make connections among the important consequences of the Industrial Revolution	Students analyze the environmental impact of the Industrial Revolution and its contributions to global warming. They then consider modern-day Green Industrial Revolution practices that try to minimize greenhouse gas emissions. They create an online brochure that can be shared publicly with ways the public and private sectors can support a Green Industrial Revolution.