

STEM Planner

OR 8-1

	Diversity (Who is being represented? How can I elevate the contributions of diverse individuals and groups?)	Equity (What are and have been the practical and equitable/ inequitable applications?)	Inclusion (What strategies am I using to meet the needs of my learners?)
Science (NGSS) 3-LS3-2 Heredity: Inheritance and Variation of Traits Use evidence to support the explanation that traits can be influenced by the environment. (Grades 3–5)	<ul style="list-style-type: none"> Harriet Creighton was a botanist and geneticist. She discovered “jumping genes” and was the first female solo scientist to be awarded the Nobel Prize in physiology. Dr. James E. Bowman was the first Black professor in the University of Chicago’s Biological Sciences Division. He studied inherited diseases. He spoke out against mandatory sickle cell screenings and believed they could be used to reinforce racist ideas. 	<ul style="list-style-type: none"> Skin color is determined by melanin, living in proximity to the equator, and inheritance from our ancestors, but this trait has been used as a reason to discriminate against people with dark skin. The peppered moth physically evolved during the industrial revolution due to human-created environmental changes such as pollution. 	<ul style="list-style-type: none"> Sorting and matching traits with pictures of different environments to support hands-on learning. Clearly defining vocabulary words for all students, but especially emerging bilingual students.
Technology (ISTE) Knowledge Constructor (3b) Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts, and make meaningful learning experiences for themselves and others. Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources. (K–12)	<ul style="list-style-type: none"> Tarana Burke created the MeToo campaign as a way to connect with other survivors of sexual assault. The movement was publicized on social media under the hashtag #MeToo. Alicia Garza, Patrisse Cullors, and Opal Tometi created the Black Lives Matter movement in response to the shooting of Trayvon Martin in 2013, and the persistence of police violence against Black people. Black Lives Matter is now a global network with over forty chapters worldwide. 	<ul style="list-style-type: none"> Analysis of “fake news” and media bias. There have been a number of stories in the media about their impact on our political elections, as well as divisions in our society. Can students discern factual news from fake news? What is the outcome of governments that restrict the use of media and are able to control what information is available to citizens? 	<ul style="list-style-type: none"> Offer opportunities to practice practical tech skills like typing (how to capitalize, indent, etc.). Just because students play games on computers doesn’t mean they know how to type or identify reliable online sources. Survey students to learn about what kinds of tech they have access to at home, and how these are used.
Engineering (NGSS) K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. (Grade 2)	<ul style="list-style-type: none"> At eight years old, Mexican child activist and scientist Xóchitl Guadalupe Cruz built a solar-powered water heater from recyclable materials in order to create better access to hot water for people who live in rural areas. Hans Jørgen Wiberg, a visually impaired Danish furniture craftsman, created an app to help other visually impaired people around the world. The Be My Eyes app connects blind and low-vision people with sighted volunteers or company representatives for visual assistance through a live video. 	<ul style="list-style-type: none"> More than twenty countries in Africa have committed to building a Great Green Wall of trees and vegetation across the continent in order to combat the spread of the Sahara Desert, climate change, drought, and food scarcity. 	<ul style="list-style-type: none"> Consider the socioeconomic backgrounds of your students when assigning projects. If students are given homework assignments or asked to participate in science fairs, are they expected to purchase materials themselves or are these provided? Grade projects and assignments with rubrics to encourage open-ended questions and creative strategies.
Mathematics (CCSS) CCSS.MATH.CONTENT.4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (Grade 4)	<ul style="list-style-type: none"> Sophie Germain was a French mathematician born in 1776 who made important contributions to number theory. Due to discrimination against women in math, she used the pseudonym “Leblanc” in order to share her work. Shiing-Shen Chern, a Chinese American mathematician and poet, was one of the most famous leaders in geometry. 	<ul style="list-style-type: none"> Observe the timetables of local public transportation methods and determine how the schedules may impact people without access to a personal vehicle. Discuss applications of financial literacy such as shopping budgets, monthly cost of living expenses, etc. 	<ul style="list-style-type: none"> Encourage diversity of thought by asking students, “Did anyone solve this problem a different way?” Offer options for how students can share their answers beyond calling on individual students to speak out, such as partner sharing, writing, or drawing their work.

FIGURE 8-2 Sample STEM Planner

From *Start Here, Start Now* by Liz Kleinrock.

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