

7 Ideas for Teaching Social Studies with STEM

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STEM by definition is a collaborative way of bringing subjects together to introduce students to higher-order thinking. So it shouldn't be isolated to the science or specials classes. Bring STEM into your social studies lessons with the ideas and tips below.

Want to learn more on this topic and earn professional development credits? Attend our session on incorporating Social Studies and STEM at the [Whole Teacher EclecticCon 2020](#) virtual conference happening July 27-31, 2020. Find out all the details [here](#)



Set the stage with a STEM hook

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1. Set the stage with a STEM hook.

You know that kids are naturally curious. Pique their interest with a science demo that draws them into a deeper understanding and memorable experience with your social studies concept. For example, I did dry ice experiments ([found here](#)) with my students when talking about Antarctica. We discuss the 3 states of matter as we watched the dry ice sublimate underwater and also talked about the cold climate of Antarctica and how scientists, researchers, and other people who live there have to adapt to the environment to protect themselves. You can find the whole lesson that also includes an engineering design challenge to build an insulating shelter [here](#). You can also tie in government by discussing how Antarctica is governed by a treaty instead of being owned by one nation. Discuss potential problems and how your students think the continent should be run.

Maybe you will be talking about landforms and how volcanoes affect people and history. Start the class off with a classic baking soda and vinegar volcanic eruption out of a bottle! Find science experiments that can be simple displays to intrigue your students and whet their pallet for your social studies lesson.



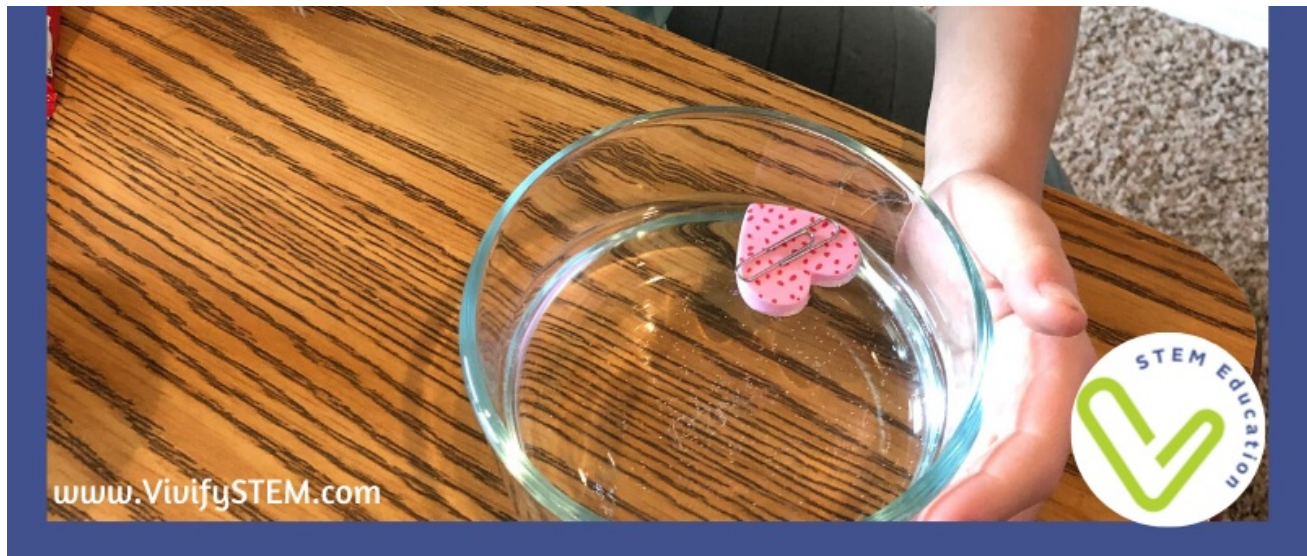
2. Break the ice with STEM.

Involve foundational STEM skills such as teamwork, critical thinking, and perseverance when setting up for your social studies lesson. Consider doing what we call icebreaker challenges to strengthen these skills. For example, the pipeline challenge uses paper, PVC pipes, or cardboard tubes to make a pipeline. The goal is for each student to have a section of the pipeline and they must work together with the entire class to get a ball to continuously roll in the pipeline from one end of the room to the other. The ball can only roll and cannot be transported by students' movement (no holding the ball in their section of the pipeline while they walk). Use this activity to talk about transportation and the

advancement of the railroad or to open discussions about the migration of people groups. Discuss the significance of an assembly line in speeding up processes and how everything must be timed perfectly and working together to be successful. For more ideas on these types of activities that you could tie into your social studies lessons, see our [post on icebreakers](#) or check out our huge [bundle of 50 icebreakers](#)



Connect Social
Studies and STEM
*Interact with Maps
& Make a Compass*



3. Interact with maps.

Enliven your social studies lessons by creating a tool to explore maps beyond staring at a page in a book or poster on the wall. When learning about maps or geography, I first have my students make their own compass. To create a compass, follow these instructions:

Supplies:

- a small bowl of water
- something that floats (a piece of foam, cork, or plastic)
- paperclip
- magnet

Place your small floating object on the surface of the water, making sure it is small enough to rotate freely in the center of the bowl. Using your magnet, rub the paperclip in one direction across it about 50 times. It is very important that you only rub it across the magnet in one direction and not back and forth. Without touching anything else, carefully place the paperclip onto the floating object. Now watch it spin until the paperclip orients itself North & South. Cool right? Mark which end of the paperclip points north.

Once your students have a working compass, assign student teams different mystery locations on a map or throughout your room. Provide them clues to where their mystery locations are by giving them a map and telling them how

they relate to different cities using the cardinal directions and a distance. You can do this in your classroom by putting sticky notes with real or made-up names scattered throughout the room and have them navigate using their compass. The clues would read something like, “You are south of Dallas, Texas” and “You are West of Shreveport, Louisiana.” Teach them about the history of orienteering and the compass!

4. Create before you compare and contrast.

Use the engineering design process to recreate instruments, homes, or tools from the different people groups or time periods throughout history. This helps students relate to what they are comparing and understand the depth of differences and similarities.

It is important to note that engineering design challenges must accomplish one or both of the following: The design must solve a problem, or make something better. Engineering design challenges follow the engineering design process and are not just a craft project. If this effort is beyond the scope of your classroom, consider making the projects a collaborative endeavor between various departments. STEM is all about subject integration, so ask the science, math, and technology teachers to work together in teaching and conducting these activities. Need more help tying in a STEM challenge? See the next point below!

Toolkit for Social Studies

STEM Activities

Connecting Social Studies & STEM

What is your lesson about?

Behavior/ Culture / Government

Is there a significant symbol or physical attribute?

Yes: Can you recreate it? → Conduct a challenge that creates a prototype of the invention.

No: Is there a significant person with these characteristics? → See "person" for ideas.

Is there a significant place with this behavior or culture? → See "place" for ideas.

Is there a significant event with this behavior or culture? → See "Time Period/ Event" for ideas.

Can you demonstrate the engineering or science behind its creation, circulation, or transmission? → Do it! / Retell the event or describe the time period with a technology project.

Use a Stage 1 STEM activity to reinforce the positive aspects of this behavior.

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STEM EDUCATION

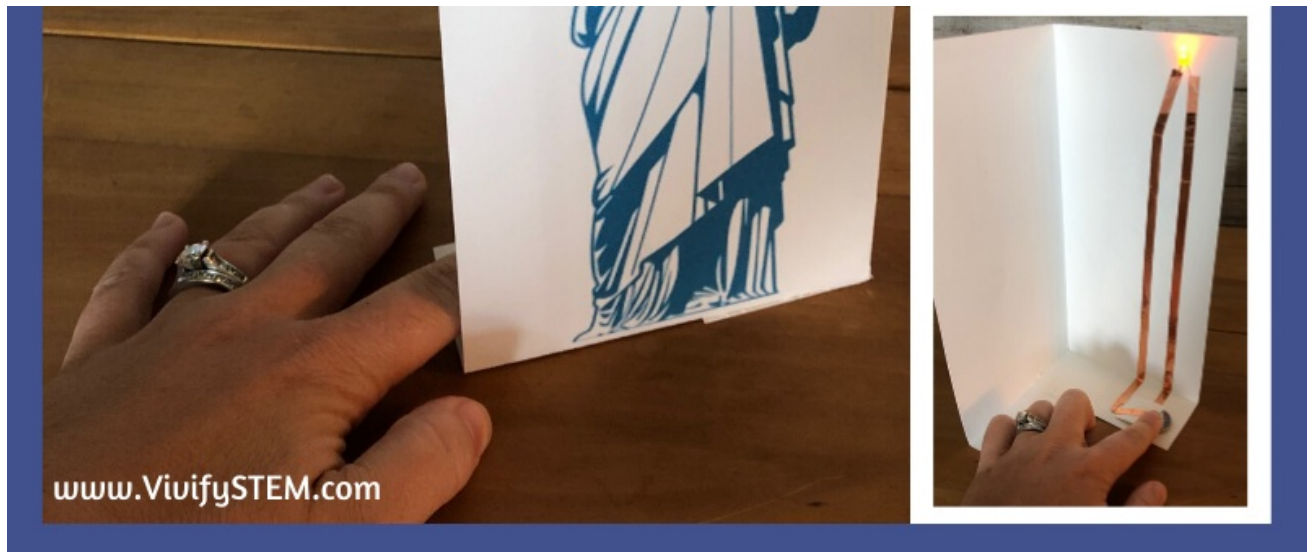
5. Connect with a design challenge.

Incorporating a design challenge helps students not just identify significant people and things, but to also identify *WITH* them. And hopefully feel moved to use their problem-solving skills to help care for others in this world.

You may be thinking, how do I come up with design challenges?!? We've made that easy for you with a toolkit. Grab our free flow-chart located in our [free resource library](#)! To get the password, just [subscribe](#) to our newsletter, confirm your subscription in our email, and receive your emailed password and your freedom to access all of our free resources!

This flow-chart will help you brainstorm and design engineering STEM challenges to connect to any social studies topic. For example, when you are discussing government, you will start on the “behavior, culture or government chart”. Maybe you want to talk about the United States Government. The flow-chart asks “Is there a significant symbol or physical attribute?” Sure, the Statue of Liberty. The flow-chart asks, “Can you recreate it?” Sure, let’s make a STEM challenge to make a prototype of the Statue of Liberty. Remember that an engineering design challenge solves a problem or makes something better. If we made a small Statue of Liberty, we could add constraints to require that it needs to stand up on its own and have a torch that lights up! We can incorporate electricity and circuits by making this a paper circuit Statue of Liberty that lights up. Use copper tape, a coin cell battery, and an LED to make a torch that lights up then make your statue such that it stands up while supporting its light. You can find full instructions on this activity [here](#)





Speaking of copper tape, explain to your students how the Statue of Liberty was a gift from the French and that it is made out of copper. The copper used to be a shiny brown color like a penny but over time the copper reacted with the air to turn green. You can also do a science demo to turn pennies green similar to the Statue of Liberty by adding vinegar and salt to some old pennies and letting them set out for a few hours. The science: Turning a penny green does not eat holes into the penny. When you add vinegar and salt, it dissolves the top copper-oxide layer of the penny. This causes the copper atoms to mix with oxygen in the air and chlorine in the salt. This creates a blue-green substance layer called patina.

You may get to a lesson where a design challenge does not fit into the scope of the topic like an event or time period without a prominent person, industry, or innovation. Consider having your students use technology to retell or describe the topic.

- Do a green screen reading of historical works of literature
- Make a musical instrument and play cultural or historically significant songs.
- Use stop motion animation to act out an important event or celebration
- Include Virtual Reality tours of military museums or the international space station.

Books for Social Studies

STEM Activities





6. Read historical invention books.

Connect to historical inventions by reading books about the amazing engineers, scientists, and entrepreneurs in our past that have impacted our lives with their perseverance and problem-solving skills. Talk about the inventions and the characteristics of the inventors. You can even create prototypes of the inventions with an engineering design challenge. Look at a map also and pinpoint where the invention originated. Here is a list of our favorite history of inventions books to check out:

- [The Story of Inventions](#)
- [Mr. Ferris and His Wheel](#)
- [The Boo-Boos That Changed the World](#)
- [Gary and the Great Inventors](#)
- [The Crayon Man: The True Story of the Invention of Crayola Crayons](#)
- [Woosh!: Lonnie Johnson's Super-Soaking stream of Inventions](#)
- [Girls Think of Everything: Stories of Ingenious Inventions by Women](#)
- [How the Cookie Crumbled: The True \(and Not-So-True\) Stories of the Invention of the Chocolate Chip Cookie](#)

- Pop!: The Invention of Bubble Gum
- Have You Thanked an Inventor Today?
- Find more STEM books here: bit.ly/Vivifystembooks

7. Connect to real-world resources.

Aside from researching different topics and recreating designs, reach out to the professional experts to complement your social studies lessons.

- Look for national societies related to the topic you are teaching on. They may have free resources, activities, or demonstrations that can aid in the engagement of your lessons.
- Get guest speakers to come in and talk to your students about their jobs or organizations as they relate to what you are learning. Emphasize how STEM careers aid in helping society and our planet. Talk about organizations such as Engineers Without Borders that go beyond their jobs to help people with their engineering skills by providing access to clean water in remote villages. If your students are able to meet with the professionals in person or digitally, help them ask them meaningful questions about the challenges of their career, the things they learn from school in their job, and how they help others with what they know. Check out our [free guide with interview questions](#) for your students to ask STEM professionals.

Hope this helps boost engagement with your social studies lesson! Let us know what other ideas you have of incorporating social studies and STEM in the comments.