

Student-Created Signage

CT Green LEAF Team



Overview: Students create signage or guides that can be used to label or explain gardens, habitats, exhibits or other green features around your school. This could fit in as a team themed unit that integrates all core subjects and specials.

Targeted Grades: 6-8

Additional Connections: K-12

NGSS Standard(s)	CT Social Studies Standards
<p>MS-ETS1-2. Evaluate competing design solutions</p> <p>MS-PS1-3. Information on synthetic materials and impact on society</p> <p>MS-LS2-1. Effects of resource availability on organisms & populations</p> <p>MS-LS2-4. Changes to physical or biological components of an ecosystem can affect populations.</p> <p>MS-LS1-5. Environmental & genetic factors influence the growth of organisms</p> <p>MS-ESS3-1. Uneven distribution of resources are a result of geoscience processes</p> <p>MS-ESS3-5. Evidence of factors that have caused rise in global temperatures</p> <p>MS-ESS3-4. Argument for how population and consumption impact Earth’s systems</p>	<p>GEO.6-7.2. Use maps, satellite images, photographs to explain changes in environmental characteristics</p> <p>GEO.6-7.8. Evaluate influences of human-induced environmental change on conflict & cooperation</p> <p>GEO.8.4. Explain relationships between environmental places & production of goods influence on trade</p>
Common Core Math Standard(s)	Common Core ELA Standard(s)
<p>6-7.RP.3 Use ratio and proportionality to solve real-world problems</p> <p>7.SP.1. Use random sampling to draw inferences about a population</p> <p>6-8.G. Solve real-life and mathematical problems involving angles, area and volume</p>	<p>RI.6-8.7. Integrate information from different media or formats</p> <p>W.6-8.2. Write informative/explanatory text</p> <p>W.6-8.5. Strengthen writing through editing and focusing on audience</p> <p>W.6-8.6. Produce and publish writing on the internet</p> <p>W.6-8.7. Conduct research</p> <p>SL.6-8.5. Include multimedia components/visuals in presentation</p>

The standards presented here are suggestions only; you may identify others! Please refer to your grade level at Next Generation Science Standards (<http://www.nextgenscience.org/search-standards>) and Common Core State Standards (<http://www.corestandards.org/>).

Materials: paper, art materials, recycled materials, fundraising support for creating large permanent signs

Suggested Procedure:

1. Tap into a local museum or education center for a tour that focuses on how they use signage. Have a conversation with class about how signage is used, created and considerations students should take when creating their own. Some considerations to take into account could include: who's the audience, height of the display, reading level of signage, would funding be needed, use of pictures, graphs or graphics, colors etc.
2. Take a tour around your school, garden or nature trail to find areas where you may want to add signage. Students could create a map or list of suggested areas.(GEO.6-7.2)
3. Have students pick one area or a few features that they will work on this year. You may not want to get all signage done at once, but leave some to be done by students the following years.
4. Invite experts such as the school facilities manager, a landscaper, a dendrologist, librarian etc. to help with identification and research of what type of information the signage for a green feature, plant or exhibit should have (RI.6-8.7).
5. Have students work in groups to do research and identify important information. Check out additional resources below for ideas and tips (W.6-8.7).
6. Students could create designs and prototypes of their signage. They should consider using an engineering design process along the way (MS-ETS1-2).
7. Once signage has been created and displayed, students could hold an opening ceremony for the school and community explaining that feature and its display.

Curricular Connections: This project is suggested to be done as a full team themed unit. There are curricular connections for all core subjects and specials.

- **Science:** This could be related to any science standard depending on what the signage is for. Students will need to do research, determine the elements and create a design. Some suggested standards include but are not limited to:
 - **MS-PS1-3.** Gather and make sense information to describe that synthetic materials come from natural resources and impact on society. Ex: Use of natural gas or oil vs. solar power in schools.
 - **MS-LS2-1.** Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. Ex: The need for planting a butterfly garden
 - **MS-LS2-4.** Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem can affect populations. Ex: Use data to explain the need for a preserved woodland area on school grounds.
 - **MS-LS1-5.** Construct a scientific explanation based on evidence for how environmental & genetic factors influence the growth of organisms. Ex: Explore why more flood tolerant plants would be planted in a rain garden vs. less tolerant plants.



- **MS-ESS3-1.** Construct a scientific explanation based on evidence for how the uneven distribution of Earth’s mineral, energy and groundwater resources are a result of past and current geoscience processes. Ex: Explore the non-renewable resources that make plastic water bottles to promote the use of reusable ones.
- **MS-ESS3-5.** Ask questions to clarify evidence of factors that have caused rise in global temperatures over the past century. Ex: Investigate carbon dioxide emissions role in the rise of temperatures to promote no idling zones, and using alternative methods to get to school.
- **MS-ESS3-4.** Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth’s systems. Ex: Use data to explain the purpose and impact of recycling and composting at school.
- **MS-ETS1-2.** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. Students could work in groups/pairs to create designs for their signage. Groups might follow an engineering design process similar to the one below:
 1. Define the problem: Where is there a need? Who is the audience?
 2. Conduct background research: Student could use experts, libraries, or the internet to learn about each feature.
 3. Brainstorm solutions: Groups define best methods of displaying the information.
 4. Build a prototype: Each group should build their own prototype being sure to keep all design factors in mind. Students should narrow in on what information is needed to get the point across.
 5. Test and review: Students should test their product, using community members or different grade levels. Students could vote on which design they like best.
 6. Redesign: Based on research feedback, students should make any modifications and redesign their product as needed.
- **Math:** Students could add facts to the signage such as how a feature is reducing CO₂ or is saving a certain amount of water. They could use ratios and proportionality to describe the amount. For example: A school has installed low flow fixtures which have helped to save the school enough water to fill an Olympic sized swimming pool with 660,430 gallons of milk (6-7.RP.3). Students may also need to or calculate area volume (6-8.G). Students can also add statistics based on sampling of a population onto their signage. Students could survey a variety of grade levels and determine which grade level is best served by their signage (7.SP.1).
- **ELA:** Student-created signage offers opportunity for incorporating ELA standards. Students will need to conduct research or integrate information from different sources such as a news article, interviews or web research (RI.6-8.7 & W.6-8.7). Students will have the opportunity to write about their topics for the signage, learn to edit and ensure their signage is aimed towards the appropriate audience (W.6-8.2 & W.6-8.5). Students could use different multimedia when designing their product such as Photoshop, PowerPoint, and

Publisher etc. (SL.6-8.5). Alternatively, students could create a “green features webpage” for the school that could serve a larger audience (W.6-8.6).

- **Social Studies:** Students can explore through research how the green feature or native species has played a role locally, throughout history, or around the world. Students could use maps, satellite images, photographs to examine and explain relationships between places and environmental characteristics (GEO.6-7.2). Students could explore the influences that long-term, human-induced environmental change has on conflict and cooperation between populations (GEO.6-7.8). Students could investigate how world trade has played a role in the production of goods the relationship that has with the environment (GEO.8.4).
- **Art:** Students could create the design and layout of the signage. Art classes could contribute in multiple methods depending on their level. Students could create labels, use photography, and create drawings and paintings to add visuals to the signage. Students could also create 3D models or sculptures to accompany signage.
- **Cultural & Community:** Student work could be extended to the community by creating a website that showcases the green features of the school. Students could also make their signage or online pages bilingual to extend to a larger audience, and to meet the needs of the school’s population. Students can invite community members to the school, to show off their work.

Additional Resources:

- This article is about using signage in a school to teach lessons on green information for both students and visitors. Check it out for additional ideas and pictures.
Berman, Scott. (2015) Everywhere a Sign. *School Planning & Management: Spaces4Learning*. <<https://webspm.com/articles/2015/11/01/sustainability-signage.aspx>>
- Discovery Elementary School in Arlington, VA is a net zero energy building with a unique learning environment for students. Each level of the school is themed around environmental learning with graphics and signage for students. Learn more at:
<http://www.vmdo.com/discovery-elementary-school-signage-and-wayfinding.html>
- For tips on creating learning-focused displays for both the classroom and school, check out this PDF from the Teacher Magazine (2012):
http://www.greatlearning.com/docs/uploads/news/Good_Teacher_Magazine_May_2012_Learning_Focused_Displays.pdf



The sign shown above was created by the students at Barnard Environmental Studies School in New Haven, CT, one of Connecticut's Green Ribbon Honorees. The sign is at the entrance to their schoolyard habitat.

These suggestions are examples only, and may require adaptation. Check your grade-specific standards to determine whether or not the suggestions provided meet your individual curricular needs.

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