

THV – New York Giant Traveling Map

- **Welcome!**
 - Nordica Holochuck, Hudson Estuary Specialist, New York Sea Grant nch8@cornell.edu
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- **Socks and Sticky Notes!**
- **Who are you and where is your favorite place in New York?**
 - Place an orange cone on the map to show the location of your school or other favorite place.
 - **What? Why? Wonder!**
- **What is the New York Giant Traveling Map?**
 - National Geographic/New York Geographic Alliance/Giant Traveling Map
<http://www.nygeographicalliance.org/>
<https://www.nationalgeographic.org/education/giant-traveling-maps/states/>
 - Request to borrow from New York Geographic Alliance
Tim McDonnell, tmcdonnell@monroecc.edu , (585) 292-2398
 - Inventory contents
 - Complete evaluation form
- **Grids**
 - Activity 1. Introduction to Grids
 - Activity 2b. Grid Relay
 - Where is your favorite place? Identify the grid letter and number or its coordinates.
 - Write the feature name and the grid coordinate (letter and number).
 - In teams, clear the map, one cone at a time.
- **Physical Feature Scavenger Hunt**
 - Activity Part 1. Map key
 - Activity Part 2. Physical features Scavenger Hunt
- **Cardinal Directions**
 - North, South, East, West
 - Navigator and Explorer
- **Teaching the Hudson Valley**
 - Source of the Hudson River
 - Walk the river, downstream
 - Hudson River Watershed boundary
 - And More!
- **THV Two-Step Thank you!**

SPATIAL THINKING



SPATIAL THINKING ABOUT MAPS: DEVELOPMENT OF CONCEPTS AND SKILLS ACROSS THE EARLY YEARS

Spatial thinking is arguably one of the most important ways of thinking for a child to develop as he or she grows. All individuals, to greater or lesser extents, use this type of thinking as they interact with the world around them. It is a unique way of thinking *about* the world and interacting *within* the world. Spatial thinking involves visualizing, interpreting, and reasoning using location, distance, direction, relationships, movement, and change in space. A student who has acquired robust spatial thinking skills is at an advantage in our increasingly global and technological society.

Providing quality instructional resources and activities for learning how to think spatially during the formative school years is critical. It is even more important that such resources and activities are not simply “flashy” software or fun and games, but instead are learning experiences designed with research on spatial concept development at their core. This report synthesizes spatial thinking research with respect to mapping concepts and skills as a first step toward making recommendations for improvements in instructional resources and activities used in Grades preK-5.

GRADES 2 THROUGH 4 (AGES 7 TO 9)

SPATIAL CONCEPTS	CONCEPTUAL UNDERSTANDING		CURRICULAR IMPLICATIONS
	<i>Students:</i>	<i>Students:</i>	
Identity and Location	Accurately locate places and landscape features on a map, but perform better with familiar locales rather than foreign locales	Inconsistently use landmarks to verify locations	<ul style="list-style-type: none"> • Expose students to a broader world beyond the familiar. Begin including birds'-eye views of maps, but a combination of pictorial and panoramic views • Encourage students to explore the world but at the continent and country level • Include maps that use grid systems with limited amounts of information • Provide active and hands-on activities that allow children to manipulate maps when possible • Introduce more complex spatial concepts, but provide explicit support in doing so as many concepts are not yet learned • Encourage students to produce their own maps and use maps and models that allow active exploration (e.g., 3-D topo maps, landscape models, "layers" found on a map)
	Demonstrate improvement with map alignment issues		
Distance and Direction	Transition from topological concepts of distance to metric measurements and scale	Still need guidance to transition to metric measurements	
	Readily use metric distances and scale by the end of Grade 4 Use landmarks and relative direction, but are ready to learn cardinal directions		
Symbols	Transition from iconic real-world symbols to abstract symbols	Still may make errors and need explicit guidance on what symbols mean	
Reference Frames	Can begin to understand grid systems (the coordinate system) and absolute location	Still need guidance with map features; they may become distracted by features that are not useful and may neglect useful features on maps	
Hierarchies	Do not yet have a well established concept of hierarchy (or nesting)	Should be introduced to the concept of hierarchy with close guidance	

Prior to the ages of 7-8, most children have limited mapping abilities because they have only mastered basic spatial concepts and language. More complex spatial concepts, such as metric distances and cardinal directions, begin to emerge in early elementary, but children may not be proficient until upper elementary (around 9 years old). Educators need to incorporate additional spatial terms beyond relative terms such as *near*, *far*, and *beside*, and geographic terms should be introduced.

Resources for students in Grades 2-4 should continue with spatial language but also begin to focus on helping students understand and practice basic spatial relationships. Students should construct maps collaboratively and use discussion to reason about their decision-making when choosing certain elements on maps, such as scale, grid systems, and symbols. Activities should use different types of maps of the same area so that students can discuss the similarities and differences of each type of map (for example, political versus topographical versus aerial) and their projective strengths and weaknesses. Students should observe their environment with adults asking questions about what they see; unique physical characteristics of the environment should be pointed out. Students begin to place themselves on the map and begin to make spatial connections. Because they are making the transition between realistic and abstract symbols, students may make mistakes when interpreting maps, so educators need to explicitly model how to read maps and show how symbols are developed and used.

EXAMPLES

See National Geographic Education's collection, [Map Skills for Elementary Students \(NatGeoEd.org/elementary-map-skills\)](http://NatGeoEd.org/elementary-map-skills).

MATERIALS THAT PROVIDE BIRDS'-EYE VIEWS OF MAPS:

- [Maps of Familiar Places](http://NatGeoEd.org/maps-of-familiar-places), a National Geographic Education collection (NatGeoEd.org/maps-of-familiar-places)
- [Adventures of Amelia the Pigeon](http://science.hq.nasa.gov/kids/imagers/Amelia/), NASA (science.hq.nasa.gov/kids/imagers/Amelia/)

MATERIALS THAT PROVIDE PICTORIAL AND PANORAMIC VIEWS OF MAPS:

- [Map Journeys](http://weedinvason.org/pdfs/Mapping/map_journeys.pdf), Oregon Natural Resources Education Program (weedinvason.org/pdfs/Mapping/map_journeys.pdf)

MATERIALS THAT PROVIDE ACTIVE AND HANDS-ON ACTIVITIES THAT ALLOW CHILDREN TO MANIPULATE MAPS:

- [Make a Topographic Map](http://spaceplace.nasa.gov/topomap-clay/en/), NASA (spaceplace.nasa.gov/topomap-clay/en/)

MATERIALS THAT INTRODUCE MORE COMPLEX SPATIAL CONCEPTS, WITH EXPLICIT SUPPORT:

- [A Latitude/Longitude Puzzle](http://NatGeoEd.org/lat-long-puzzle), a National Geographic Education activity (NatGeoEd.org/lat-long-puzzle)

MATERIALS THAT ENCOURAGE STUDENTS TO PRODUCE THEIR OWN MAPS AND USE MAPS AND MODELS THAT ALLOW ACTIVE EXPLORATION:

- [Analyzing a Community Map](http://NatGeoEd.org/analyze-community-map), a National Geographic Education activity (NatGeoEd.org/analyze-community-map)
- [Many Ways to Name a Place](http://NatGeoEd.org/many-ways-to-name), a National Geographic Education activity (NatGeoEd.org/many-ways-to-name)

GRADES 5 THROUGH 6 AND BEYOND (AGES 10 AND OLDER)

SPATIAL CONCEPTS	CONCEPTUAL UNDERSTANDING	POSSIBLE MISCONCEPTIONS	CURRICULAR IMPLICATIONS
	<i>Students:</i>	<i>Students:</i>	<i>Materials:</i>
Identity, Location, Distance, and Direction	Need to be primed to use all the resources available to determine locations. They should be encouraged to explain decisions in order to prompt their thinking about landmarks, distances, and directions.	May not readily use map scales, metric distances, and cardinal directions to help determine locations, but are able to do so with some guidance	<ul style="list-style-type: none"> Explore and compare different projections and viewing angles Use measured distances, cardinal directions, and abstract symbols with support including the introduction of longitude and latitude
Symbols	Use abstract symbols and understand symbols do not always “look like” the referent		<ul style="list-style-type: none"> Use multiple map formats (e.g., reference maps, thematic maps, digital maps) at multiple scales
Overlay and Complex Spatial Concepts	May incidentally understand the concept of overlay without formal instruction (about half of all Grade 6 students do so)	May not understand “layers” without direct instruction, support, and guidance	<ul style="list-style-type: none"> Introduce more complex spatial concepts, such as projection and overlay Allow students to begin to confidently navigate the world
	Can move on to complex spatial concepts such as distribution, patterns, overlays, and projection with support if mastery of the basic spatial concepts of location, distance, direction, boundaries, and regions is achieved		

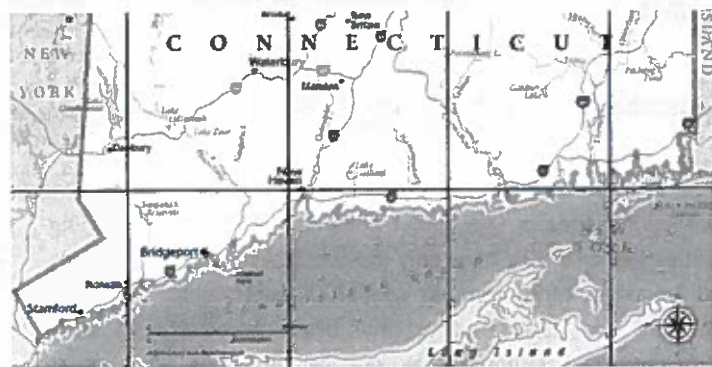
In these grades, elementary-age and preadolescent children are developing the ability to reason logically and make concrete connections to their world. They are able to solve realistic problems, classify objects by a variety of characteristics, and use maps with different symbol systems. These symbol systems may include color and abstractions, different projections, and different themes. During these grades, students become less egocentric, are able to understand one another's perspectives, and are inquisitive about people and places around the world.

Resources for students in Grades 5-6 should review basic spatial language but focus mainly on advancing students' knowledge of spatial understanding. Students should complete tasks in which they compare and contrast two different representations or maps and explain their own understanding of the relationship between the two. However, educators should not make assumptions about students' spatial reasoning and understanding of spatial representations.



(Photograph by Auremar/Shutterstock)

For example, students may not necessarily use map scales and cardinal directions without prompting, so explicit instruction and support will be needed. Educators should anticipate substantial student-to-student variation in accuracy and complexity of reasoning.



(Map by National Geographic Education)

EXAMPLES

See National Geographic Education's collection, [Map Skills for Elementary Students \(NatGeoEd.org/elementary-map-skills\)](https://www.natgeo.org/elementary-map-skills).

MATERIALS THAT INCLUDE DIFFERENT PROJECTIONS AND VIEWING ANGLES:

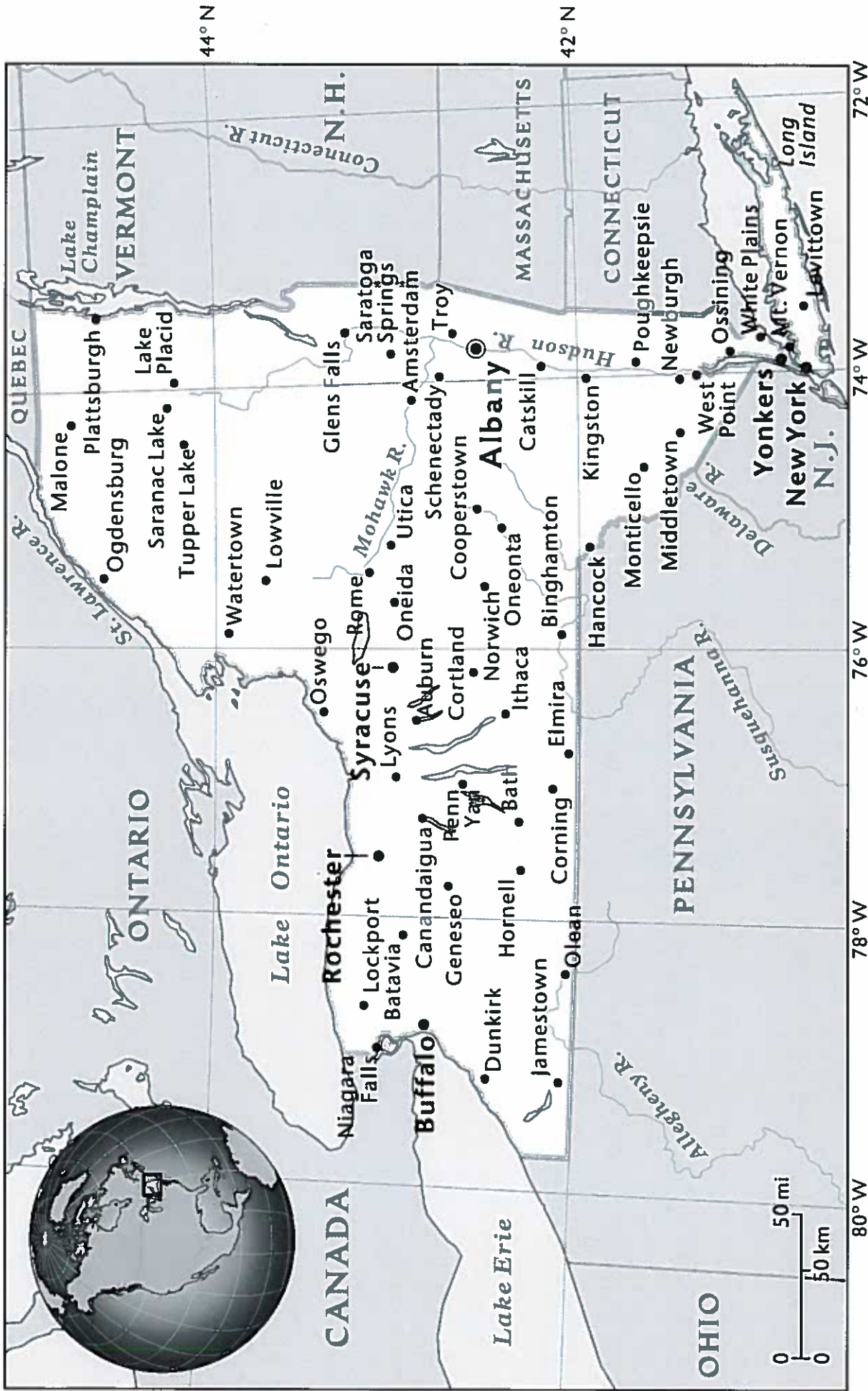
- **Selecting a Map Projection**, a National Geographic video ([NatGeoEd.org/selecting-map-projection](https://www.natgeo.org/selecting-map-projection))

MATERIALS THAT USE MEASURED DISTANCES, CARDINAL DIRECTIONS, AND ABSTRACT SYMBOLS WITH SUPPORT:

- **Latitude, Longitude, and Temperature**, a National Geographic Education activity ([NatGeoEd.org/lat-long-temp](https://www.natgeo.org/lat-long-temp))
- **Adventure Island**, a National Geographic Education game ([NatGeoEd.org/adventure-island](https://www.natgeo.org/adventure-island))

MATERIALS THAT USE MULTIPLE MAP FORMATS AT MULTIPLE SCALES:

- **Mapping Your State**, a National Geographic Education activity ([NatGeoEd.org/mapping-your-state](https://www.natgeo.org/mapping-your-state))
- **Population and Resource Distribution from Annenberg Learner's Social Studies in Action**



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New York

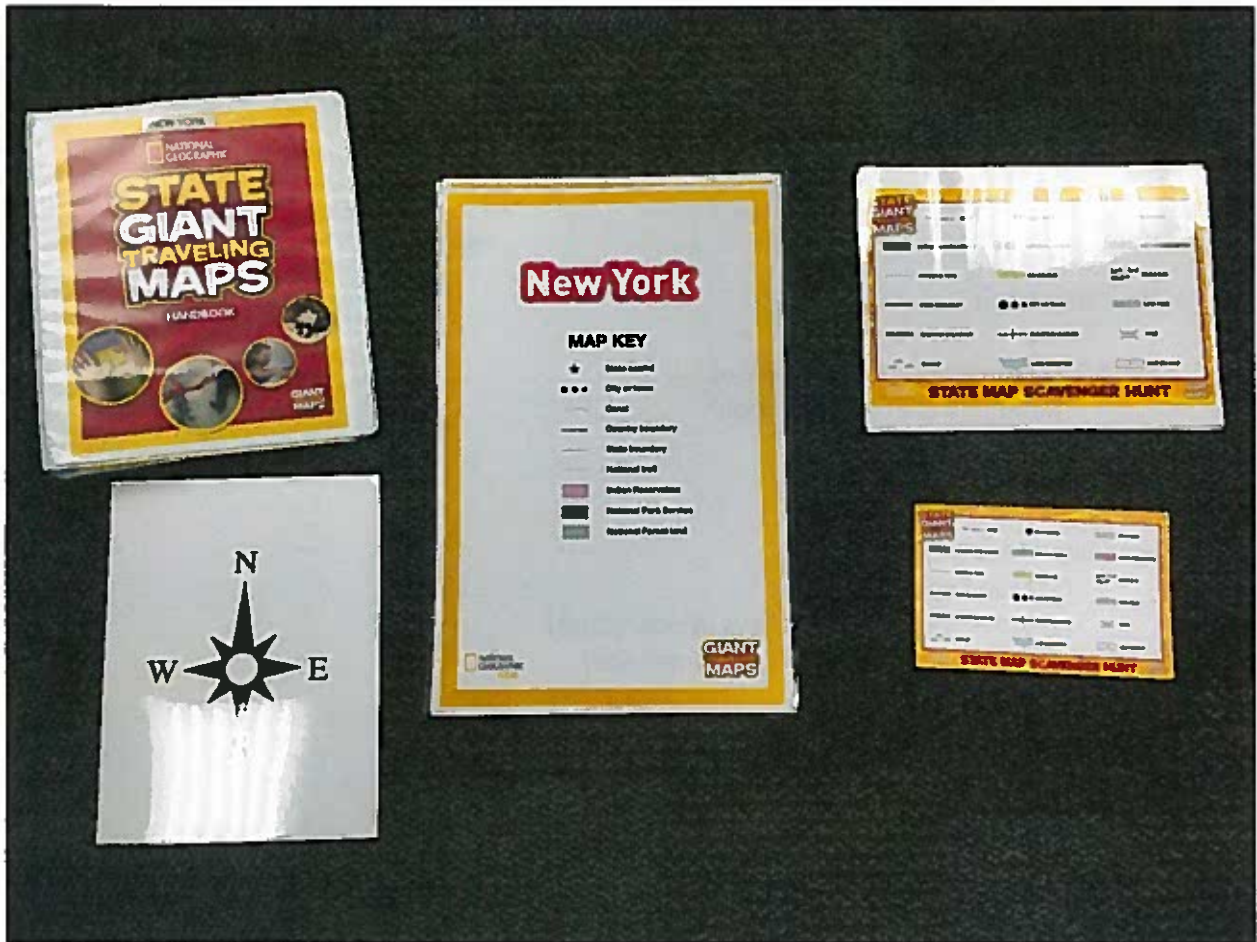
New York Giant Traveling Map

Inventory Checklist

<u>Item</u>	<u>Notes</u>
_____ New York Giant Traveling Map	
_____ State Giant Traveling Maps Handbook National Initiative Handbook Lesson Handbook New York Lessons	
_____ Laminated Map Keys	
_____ (5) Map Keys (Large size)	
_____ (4) Scavenger Hunt Map Keys (Medium size)	
_____ (8) Scavenger Hunt Map Keys (Small size)	
_____ (1) Compass Rose	
_____ Lanyards	
_____ (10) Blue	
_____ (9) Green	
_____ (10) Red	
_____ (9) Yellow	
_____ Orange cones (15)	
_____ Plastic yellow chain	
_____ Ball of twine	
_____ Skein of blue yarn	
_____ (90) bingo chips, translucent color	
_____ (2) Place name index card sets (1 laminated, 1 paper)	
_____ Coordinates index card set	

Name

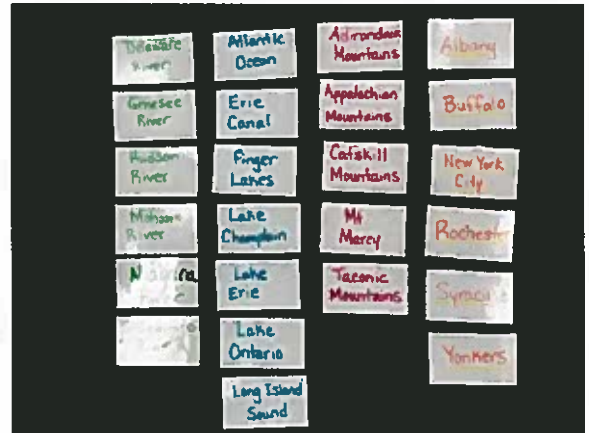
Date



Handbook and Laminated Map Keys



Interactive Materials



Place Name Cards

New York Geographic Alliance
New York Giant Traveling Map Teacher Survey

Complete online:

<https://www.surveymonkey.com/r/GTMstateTeacherSurvey>

Giant Traveling Map state Teacher Survey

Lessons Used

* 1. How many classes did you use the map with? (where a class refers to a unique group of students)

- One
- Two
- Three
- Four or more

* 2. How many different lessons did you do on the map?

- One
- Two
- Three
- Four or more

* 3. Did you use any of the following lessons created by National Geographic? (please select all that apply).

- | | | |
|--|--|---|
| <input type="checkbox"/> Cardinal Directions | <input type="checkbox"/> Physical Features | <input type="checkbox"/> What, Why, Wonder! |
| <input type="checkbox"/> Map Scale and Measurement | <input type="checkbox"/> Introduction to GIS | <input type="checkbox"/> None of these |
| <input type="checkbox"/> Grids | <input type="checkbox"/> Introduction to GIS | |

* 4. Did you use any of the other lessons which were included in the binder of resources?

- Yes
- No

* 5. Did you create your own lesson(s)?

- Yes
- No

6. If yes, please describe the lesson(s):

For the next few questions please think about what your students learned from using the state Giant Traveling Map

* 7. What was the greatest learning outcome for your students as a result of working with the state GTM?

* 8. What geography-based skills did your students learn as a result of working with the state GTM? (please select all that apply).

- | | |
|---|---|
| <input type="checkbox"/> Geography Vocabulary (compass rose, map scale, etc) | <input type="checkbox"/> Location of cities within your State |
| <input type="checkbox"/> Scale | <input type="checkbox"/> Locations of State Landmarks |
| <input type="checkbox"/> Cardinal directions | <input type="checkbox"/> State Topography |
| <input type="checkbox"/> The grid system | <input type="checkbox"/> Use of a map key |
| <input type="checkbox"/> Measurement | |
| <input type="checkbox"/> Other (please specify) | |

9. How (if at all) did you integrate the state GTM into your curriculum?

10. Please describe which CCSS skills were practiced as part of your state GTM experience?

* 11. Please describe how you feel the state GTM experience helped meet your students learning needs?

For the next few questions please think about the materials you received with the state Giant Traveling Map.

* 12. The materials in the Traveling Map kit were _____.

- Insufficient
- In need of repair
- Satisfactory
- Perfect

13. What additional resources would you like to see included with the map?

14. Is there anything else your State Alliance can do to help you use the map?

* 15. What grade/s do you teach? (please select all that apply).

- | | | |
|---|-------------------------------|--|
| <input type="checkbox"/> Pre-K | <input type="checkbox"/> 5th | <input type="checkbox"/> 11th |
| <input type="checkbox"/> K | <input type="checkbox"/> 6th | <input type="checkbox"/> 12 |
| <input type="checkbox"/> 1st | <input type="checkbox"/> 7th | <input type="checkbox"/> Curriculum Advisor |
| <input type="checkbox"/> 2nd | <input type="checkbox"/> 8th | <input type="checkbox"/> Alliance Support Team |
| <input type="checkbox"/> 3rd | <input type="checkbox"/> 9th | |
| <input type="checkbox"/> 4th | <input type="checkbox"/> 10th | |
| <input type="checkbox"/> Other (please specify) | | |

16. What is your engagement with the state GTM Initiative?

*** 17. Please select your region, based on the state map you used to teach.**

- Northeast (CT, DE, NH, MA, MD, ME, NJ, NY, PA, RI, VT, DC)
- Midwest (IL, IN, OH, MI, MN, ND, SD, WI)
- Southeast (AL, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV)
- Mountain (CO, ID, MT, NV, UT, WY)
- Southwest (AZ, NM, TX)
- Central (OK, NE, KS, IA, AR, MO)
- Pacific (AK, CA, HI, OR, WA)

*** 18. Were you at the National Geographic Summer Institute?**

- Yes
- No

19. Please share anything else you want the National Geographic team to know about the SGTM.