

# RUBRIC: GEOTECHNOLOGIES & GEOSPATIAL LITERACY

## NATIONAL GeoTech CENTER – KY ASSOC. of MAPPING PROFESSIONALS

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Live Performance at State Championship  
Team Event

Division Level(s): K-8, 9-12

More and more students are using software and Web sites that utilize Geo-technologies. Do you have students that can create a project around these tools and solve a problem? A student using Geographic Information Systems (GIS) or the Global Positioning System (GPS) can demonstrate a GIS/GPS event for the school or community; and can create, manipulate and analyze geospatial datasets to discover Earth-based facts to find a solution to a problem.

First and second place for both divisions will be recognized at the State Championship Awards.

### What the STLP Coordinator/Coach/Teacher should do:

- Share the rubric with students
- Determine which students should apply for this category
- Elementary and Middle School use of Google Earth, Open Street Map or ArcGIS Online (See ES/MS Rubric)
- High School ArcGIS or ArcGIS Online or an Open Source Software such as QGIS with analytical layers (see HS Rubric)
- Find a GeoMentor <http://edcommunity.esri.com/educational-roles/GeoMentors> in the field of GIS, GPS, Remote Sensing, STEM
- Go to <http://storymaps.arcgis.com/en/> and see what it's all about. There are hundreds of ideas here and instructions on how to create your own Story Map with your students.

### What the student should do:

- Review the rubric
- Research Geographic Information Systems (GIS), Global Positioning System (GPS), Remote Sensing, Story Maps,
- Find a GeoMentor <http://edcommunity.esri.com/educational-roles/GeoMentors> in the field of GIS, GPS, Remote Sensing

### Resources

- *General*
  - <http://stlp.education.ky.gov/wp-content/uploads/2013/07/Geospatial-Learning-Rubric.pdf>
  - <http://www.edutopia.org/naturemapping-data-collection>
- *GIS/geospatial and software*
  - <http://ilovegis.com/>
  - <http://www.esri.com/industries/education>
  - <http://connectEd.esri.com/>
  - <http://www.arcgis.com/home/>
- *Story telling with maps*
  - <http://storymaps.arcgis.com/en/>
  - <https://tourbuilder.withgoogle.com/>
  - <https://storymap.knightlab.com/>



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Cont. Resources

- Geomentoring
  - <http://www.kga.org>
  - <http://kampro.org>
  - <http://cumberlandurisa.org/>
  
- Apps for the Mobile Device
  - GPS Coordinates for Android  
(<https://play.google.com/store/apps/details?id=com.woozilli.gpscoordinates&hl=en>)
  - GPS Location for iPhone and iPad  
(<https://play.google.com/store/apps/details?id=com.woozilli.gpscoordinates&hl=en>)
  - Commander Compass Lite for iOS (<https://itunes.apple.com/us/app/commander-compass-lite/id340268949?mt=8>)
  
- School Articles
  - Geo-Cool: Exploring with geo-technologies  
[http://www.learningandleading-digital.com/learning\\_leading/20100910#pg30](http://www.learningandleading-digital.com/learning_leading/20100910#pg30)
  - Get Outside with GPS  
[http://www.learningandleading-digital.com/learning\\_leading/201102?pg=33#pg36](http://www.learningandleading-digital.com/learning_leading/201102?pg=33#pg36)

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## 9-12 Division Scoring Rubric

Rubric Categories	9-12 Division Geo-technology/Geospatial Literacy Criteria				Score
	0-1	2	3	4	
<b>Copyright</b>	Does not include information on copyrighted data	X	X	Intellectual property is respected; Copyright rules are followed for audio and text; Any text, audio or images are school appropriate.	___
<b>Cartography</b>	No Cartographic elements included. Abstract is not included.	Map isn't balanced, includes some map elements, symbols aren't effective for layers. Labels are missing where needed. Abstract is not included.	Map is balanced, includes <u>some</u> map elements, symbolization is effective for layers. <u>Labels are included</u> . Classification of features and or surfaces are complete. <u>No grammatical errors present</u> . Abstract is <u>included</u> .	Map is balanced, includes <u>all</u> map elements, symbolization is effective for layers. Labels are included <u>and harmonious where needed</u> . Classification of features and or surfaces <u>communicate intent effectively</u> . <u>No grammatical errors present</u> . Abstract is included and <u>shows evidence of the Geographic Inquiry Process</u> .	___
<b>Geospatial Processing</b>	Shows little data collection and organization to solve an issue. No <u>Geoprocessing tools used to analyze data</u> to solve an issue. Documentation not evident.	Shows data collection and organization. <u>Used Geo-processing tools (distance, proximity, overlays, joins and queries) to analyze data</u> to solve an issue. Documentation not evident.	Shows collection and organization of data that contains both <u>spatial and attribute data</u> . Used Geo-processing tools (distance, proximity, overlays, joins and queries) to analyze data to solve a <u>community</u> issue. Evidence of documentation.	<u>Shows extensive collection, organization and documentation of data</u> that contains both spatial and attribute data. Used Geo-processing tools (distance, proximity, overlays, joins and queries) to analyze data to solve a <u>complex</u> community issue.	___
<b>Geographic Coordinates</b>	Geographic coordinates were not acquired.	Geographic coordinates <u>were</u> acquired. Map shows location of data collected.	Geographic coordinates were acquired. <u>Methodology of collection is described (GPS, Mobile device, heads-up, or geocoding) in abstract or presentation</u> . Map shows location of data collected <u>and layers for establishing geographic context for project</u> .	Geographic coordinates were acquired. Methodology of collection is described (GPS, Mobile device, heads-up, or geocoding) in <u>abstract</u> and presentation. Map shows location of data collected and layers for establishing geographic context for project. <u>Overview maps are included where needed</u> .	___
<b>Visual Design Communication</b>	Includes documentation of project lifecycle <u>but does not include</u> the Geographic Inquiry process or published digital products.	Includes documentation of the project lifecycle and Geographic Inquiry process. But not published digital products.	Includes <u>detailed</u> documentation of the project lifecycle and Geographic Inquiry process. <u>Maps are published as a video/slideshow, Youtube, a Story Map on ArcGIS Online, or on the school/district website</u> .	Includes detailed documentation of the project lifecycle and Geographic Inquiry process. Maps are published as a video/slideshow on: YouTube, as Story Maps on ArcGIS Online, or on the school/district website. <u>Animations are used using 3D visualizations of data. Critical stages of the project are documented in audio or video format</u>	___

<b>Community Impact</b>	Project strives to solve an issue. Project demonstrates a knowledge of the issue. Findings and are presented	Project strives to solve an issue. Project demonstrates a knowledge of the issue. Findings, <u>actions and next steps based on analysis and conclusions</u> are presented	Project <u>solves an issue in the community</u> . Project demonstrates a <u>thorough knowledge of the community issue and the relevant impact</u> . <u>Community experts are involved</u> . Findings, actions and next steps based on analysis and conclusions are presented.	Project <u>solves</u> a relevant issue in the community. Project demonstrates a thorough knowledge of the community issue and the relevant impact. Community experts are involved <u>from project conception</u> . Findings, actions and next steps based on analysis and conclusions are presented <u>to the community</u> .	_____
<b>Spatial Thinking &amp; Problem Solving</b>	Project does not show how to use basic thematic mapping offered in a GIS to solve a community issue.	Project shows how to use basic thematic mapping offered in a GIS to solve a community issue. Solutions are presented spatially.	Project shows how to use basic thematic mapping <u>and geo-processing tools</u> offered in a GIS to solve a community issue. Solutions are presented spatially and <u>are relevant to the basic Geographic question to be answered</u> . <u>Spatial and attribute queries are used to answer main questions in the problem</u> .	Project shows how they used <u>complex</u> thematic mapping and geo-processing tools offered in a GIS to solve a community issue. Solutions are presented spatially and are relevant to the basic Geographic question to be answered. <u>GIS tasks and functions are described in detail</u> . Spatial and attribute queries are used to answer main questions in the problem.	_____
<b>Team Work</b>	Team work is not evident in all aspects of the project.	Team work is evident in most aspects of the project.	Team work is evident in all aspects of the project. <u>Some team members respond to questions</u> . <u>Some members have a thorough knowledge of the project</u> .	Team work is evident in all aspects of the project. <u>All team members participate in the presentation</u> . All team members respond to questions. All the members have a thorough knowledge of the project.	_____
				<b>Total Score</b> ___/32	_____

**CONTINUE TO NEXT PAGE FOR K-8 Division Rubric**



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## K-8 Division Scoring Rubric

Rubric Categories	K-8 Division Geo-technology/Geospatial Literacy Criteria				Score
	0-1	2	3	4	
<b>Geospatial Processing</b>	Shows little data collection and organization.	Shows some data collection and organization.	Shows collection and organization of data that contains both <u>spatial and attribute data</u> .	Shows collection, organization and documentation of data that contains both spatial and attribute data <u>that relate directly to the subject</u> .	___
<b>Geographic Coordinates</b>	Geographic coordinates <u>were not</u> acquired.	Geographic coordinates <u>were</u> acquired. Map shows location of data collected.	Geographic coordinates were acquired. <u>Methodology of collection is described (i.e. GPS, Mobile device, heads-up, or geocoding) in presentation.</u> Map shows location of data collected.	Geographic coordinates were acquired. Methodology of collection is described (i.e. GPS, Mobile device, heads-up, or geocoding) in presentation. Map shows location of data collected and layers for establishing geographic context for project.	___
<b>Visual Design Communication</b>	Documentation includes project lifecycle but does not include the Geographic Inquiry process or published digital products.	Documentation includes the project lifecycle and Geographic <u>Inquiry process</u> . <u>But not published digital products</u> .	Includes <u>detailed</u> documentation of the project lifecycle and Geographic Inquiry process. <u>Maps are published as a video/slideshow</u> .	Includes detailed documentation of the project lifecycle and Geographic Inquiry process. <u>Maps are published as a video/slideshow, Youtube, Story Map on ArcGIS Online, or on the school/district website.</u>	___
<b>Community Impact</b>	Project strives to solve an issue. Project demonstrates some knowledge of the issue. Findings and are presented	Project strives to solve an issue. Project demonstrates a knowledge of the issue. Findings, <u>actions and next steps based on analysis and conclusions</u> are presented	Project <u>solves an issue in the community</u> . Project demonstrates a <u>thorough</u> knowledge of the community issue and the <u>relevant impact</u> . <u>Community experts are involved</u> . Findings, actions and next steps based on analysis and conclusions are presented.	Project solves a <u>relevant issue</u> in the community. Project demonstrates a thorough knowledge of the community issue and the relevant impact. Community experts are involved <u>from project conception</u> . Findings, actions and next steps based on analysis and conclusions are presented <u>to the community</u> .	___
<b>Team Work</b>	Team work is not evident in all aspects of the project.	Team work is <u>evident</u> in most aspects of the project.	Team work is evident in all aspects of the project. <u>Some team members respond to questions</u> . <u>Some members have a thorough knowledge of the project</u> .	Team work is evident in all aspects of the project. <u>All team members participate in the presentation</u> . All team members respond to questions. All the members have a thorough knowledge of the project.	___
				<b>Total Score</b> ___/20	___