

Abstract

Technology Education

Bridges Curriculum

Different types of bridges

Students will identify different types of bridges. Students will explain the different design principles between suspension and arch bridges. Students will design, draw, build, and test a truss bridge

Sketch Up added

Current Event Curriculum

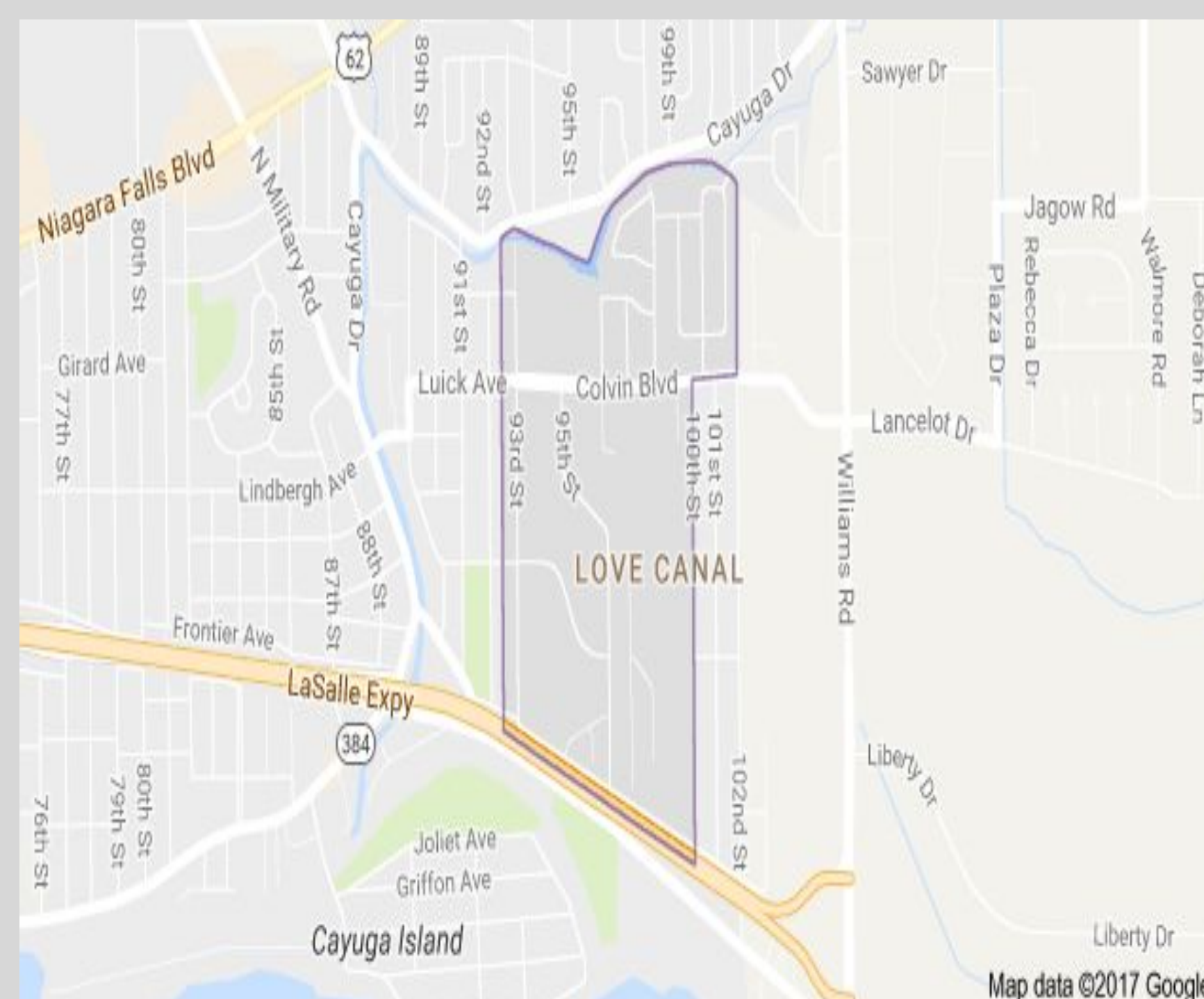
Students complete 2 current events per marking period for a total of eight for the year.

GIS Component added

Students will be required to include location of current event on a story map. Also a research project on Love Canal

Introduction

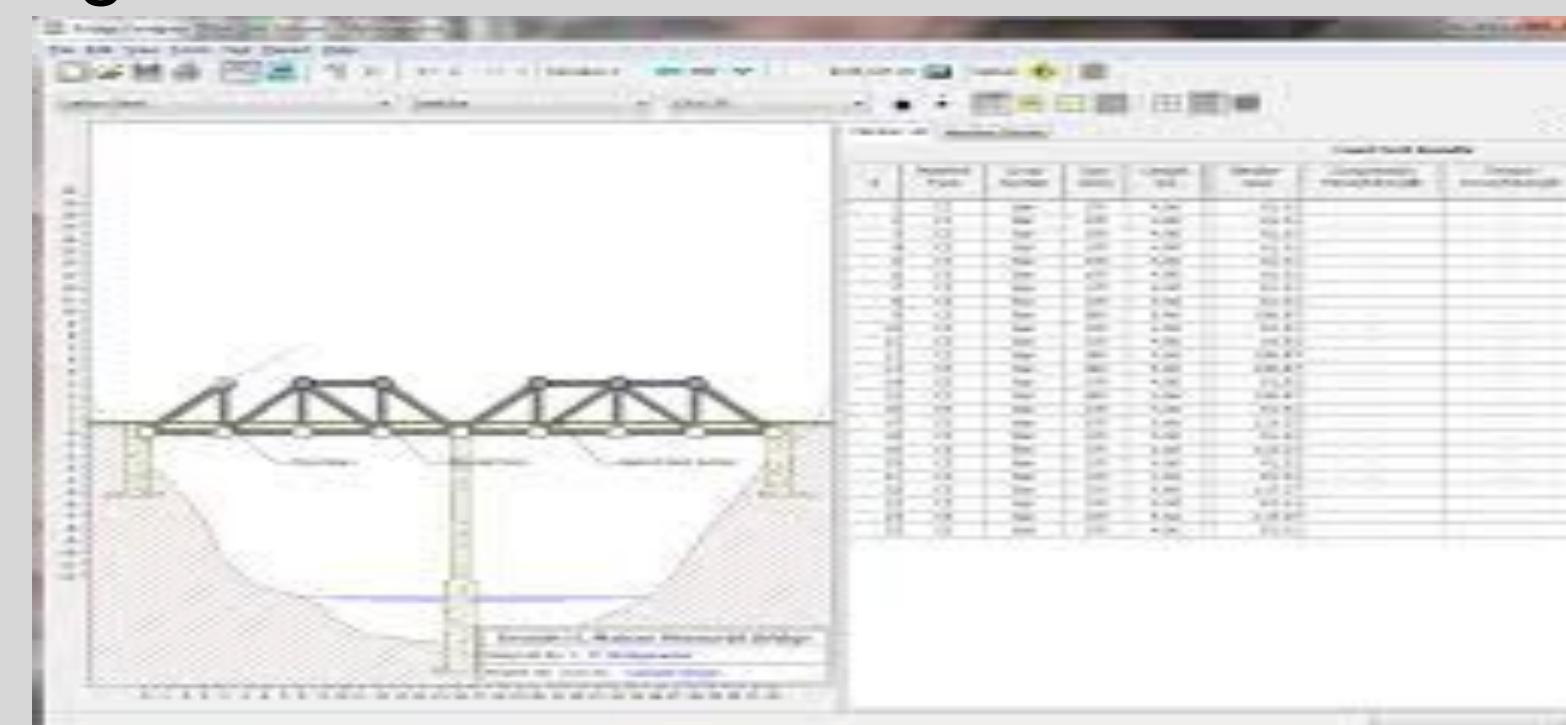
- Student will view my story map on bridges and identify names of bridges, type of bridge.
- Students will go onto google earth and explore
- Data base usage as part of current events research
- Introduction to GIS
- Love Canal research



Experimental

West Point Bridge Builder

Using the internet site students will manipulate different variables to design a truss bridge within given constraints



Sketch Up

Students will work on creating a three dimensional drawing of an truss bridge



Teaching Implementation / Student Learning and Terminology

Story Maps

Students will create their own story map of different locations from their current events

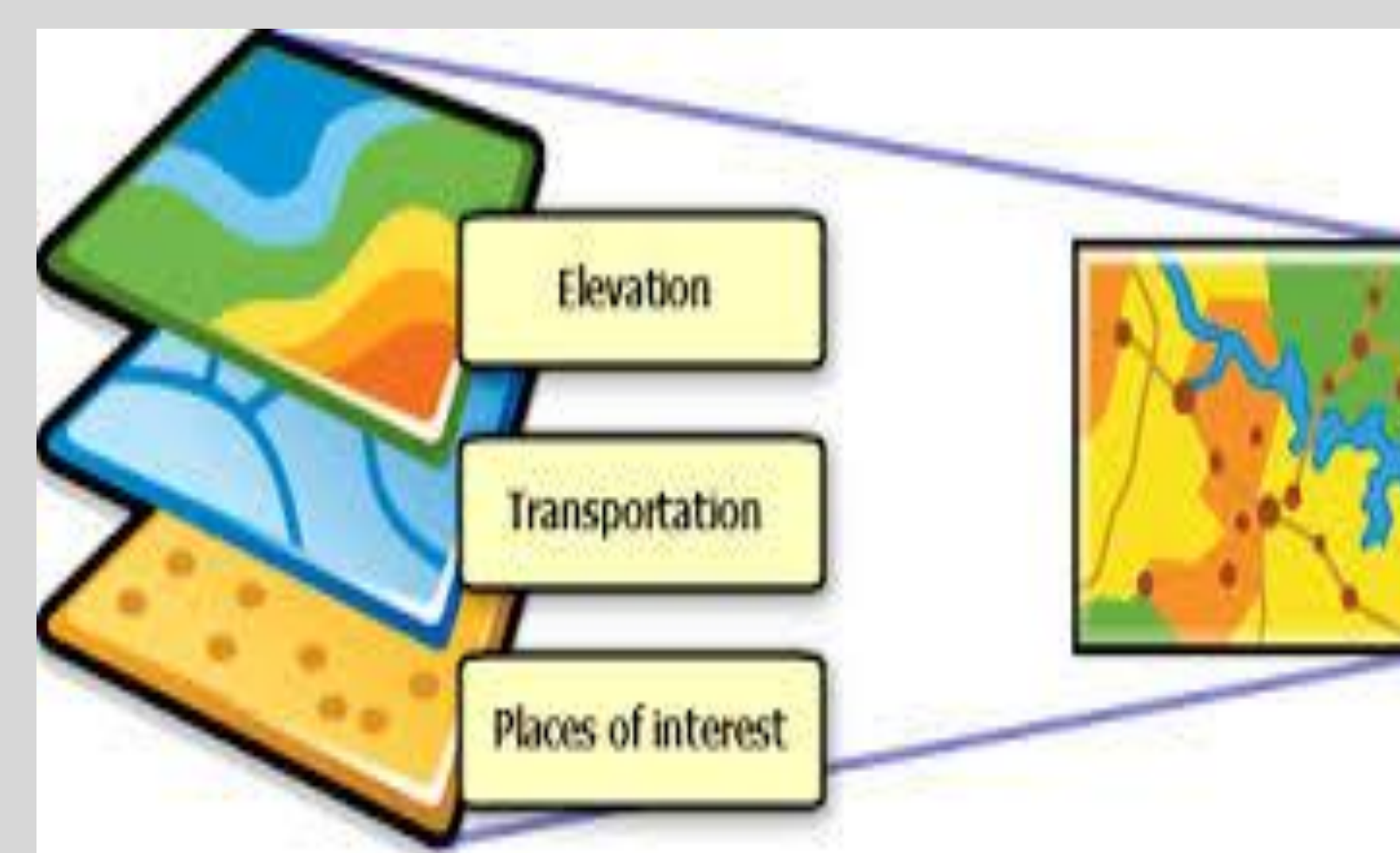
Collection of data on love canal

What is GIS?

How to create a base map using arcgis.com

Developing different layers associated to contaminates in love canal

Analyzing results



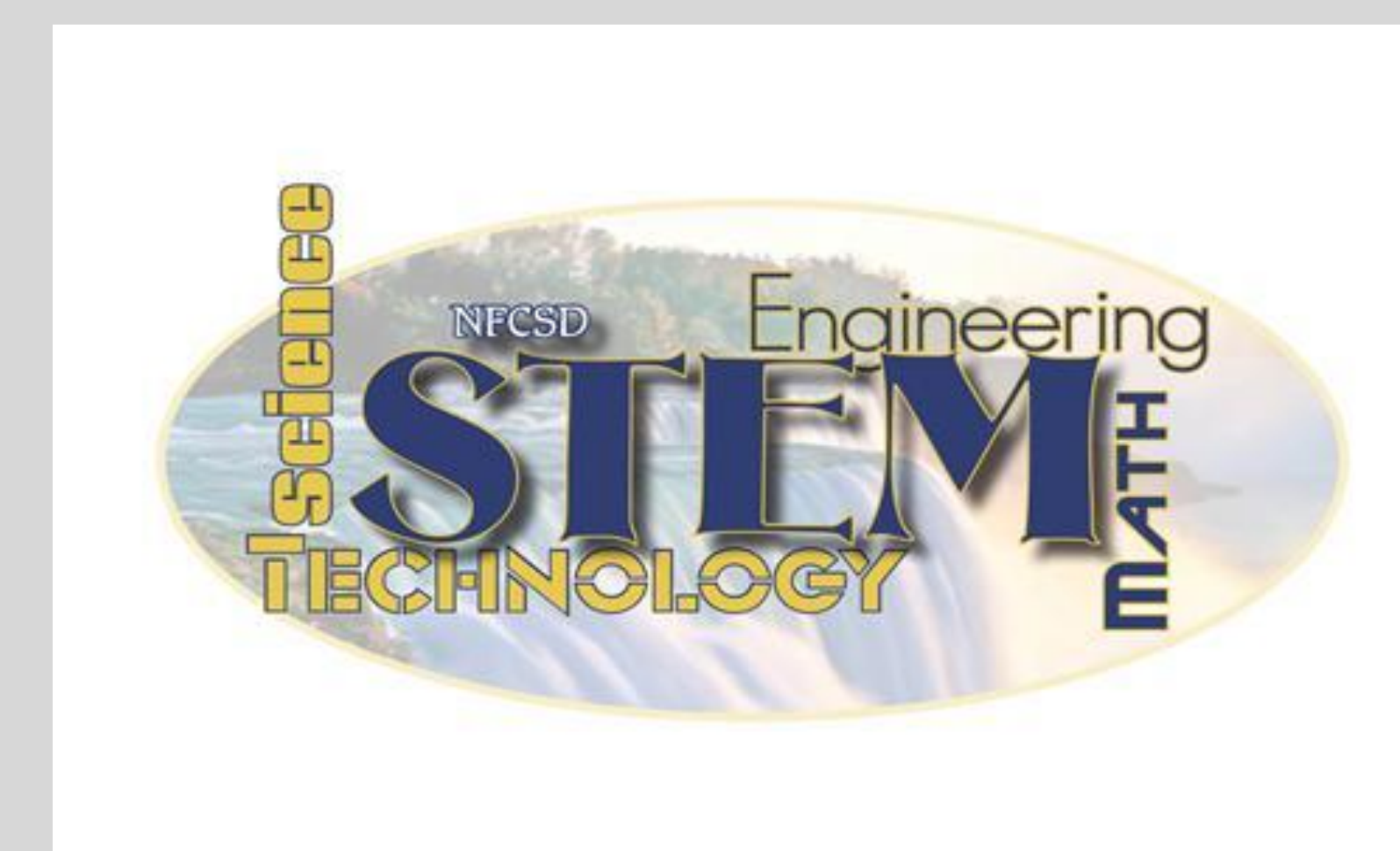
Results and Discussion

Test bridges

Students will compete in Tec Wars and determine the structural efficiency of their bridge by diving the force required to produce a failure divided by the mass of the bridge.

Graph results of data

Student lead discussion on the designing aspect of three dimensional modeling and its connection to STEM.



Results and Discussion: Interpolation Results

Story Maps

Students will share their current events with the class.

Student lead discussions on Love Canal and environmental impacts to the surrounding area.

Student lead discussion on the applications of GIS in other STEM related fields

Teacher lead discussion career opportunities



Results and Discussion

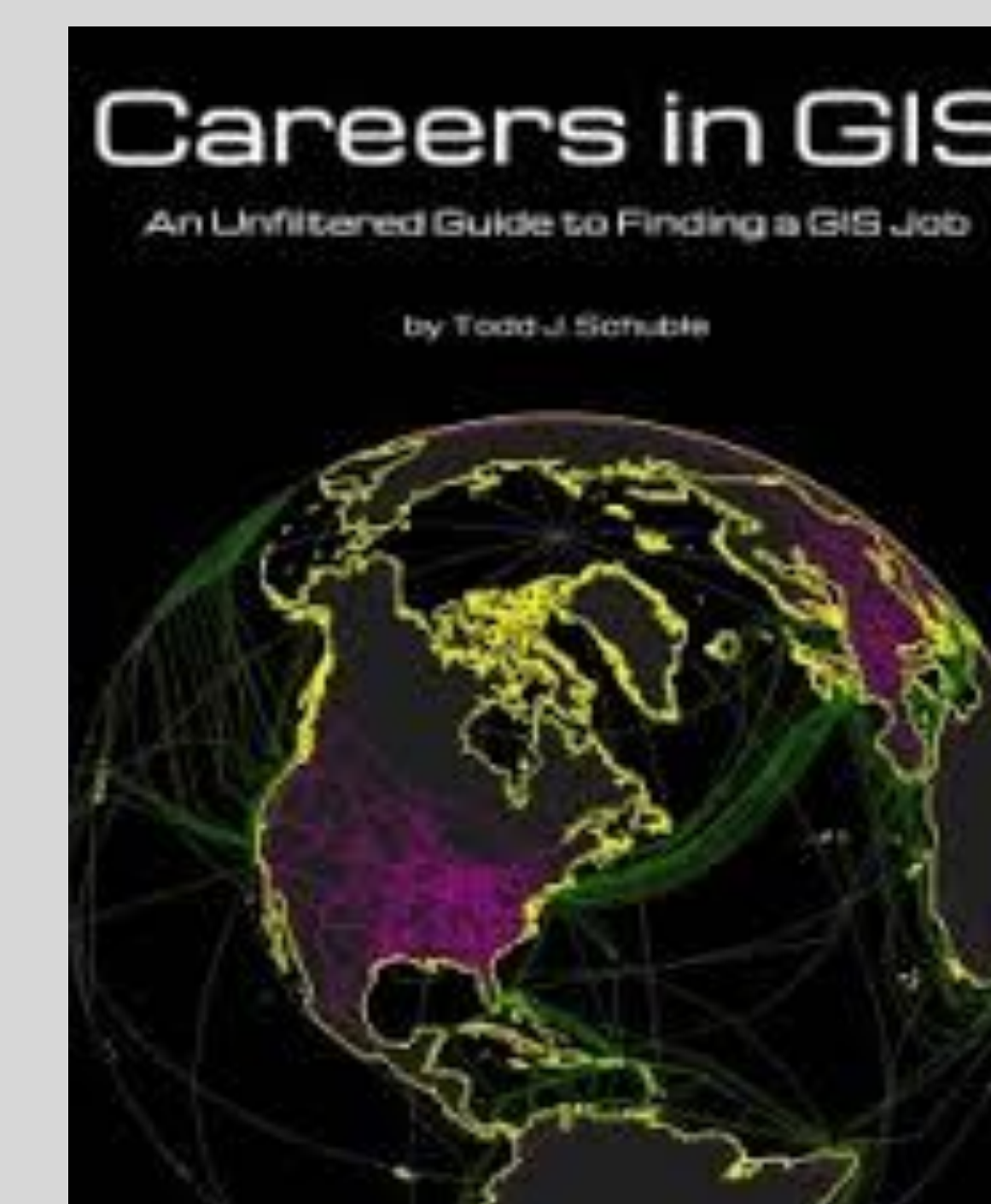
Reflections and Connections

Students daily journal entries on what they have learned in class that day and make a connection or application to real world situations or problems.

Student lead-Sharing of reflections and connections

Teacher lead –Career development in STEM related field such as GIS

End of year students will share their story map based upon their research of current events.



Conclusions

Integration of Google Earth, ArcGIS, and Sketch Up into various components of Technology Education curriculum and STEM initiative

References

1. Arcgis.com
2. Google images.com
3. West Point Bridge Builder.com

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