Data Visualization Best Practices Workshop Teacher Report

Name: James Burke

Area(s) of Teaching: Digital Literacy / Computer Science, Engineering Technology

Where You Teach: Somerset Berkley Regional High School

Please describe your activity goal:

Students will be able to use a 3D modeling program (Tinkercad) to produce a 3D model whose dimensions represent quantities in a dataset.

What is the intended visualization?

A representation of a geographic area with political sub-regions separated visually by some measure that is intended to be the subject of the discussion of the desired data.

Please provide the activity wordings presented to the students:

Tinkercad 3D has the capability for users to create blocks in the shape of states in the United States of America. Your task is to assemble New England using TinkerCad where the height of each state is going to be correlated to some statewide statistic. In this way, your 3D model will become an infographic comparing the New England States.

Your final step will be to export a view of your model and use Piktochart to annotate the image, providing a legend so that people will understand what the height of each state represents. The image of the states should take up half of your page. The other half of the page should contain an additional graphic highlighting an aspect of the data you thought was significant. For example, because Maine was the most productive state in making widgets, my infographic cited three additional facts about Maine's widget industry.

Please describe the nature of the activity (e.g. In class activity? Homework? Something else) and the rationale behind your choice.

This will be an in-class activity that requires several phases, each involving a whole class discussion to talk about choices and next steps.

- Students will choose their data; Discussion will follow to reflect on why they chose their different data and what they find interesting about their data.
- Students will create the TInkercad model; Discussion to follow on discoveries related to working with Tinkercad (e.g. were they able to drag the states to the right heigh? Did scale need to be adjusted?)
- Brief introduction of Principles and Practices of Infographics, and the Piktochart tool.
- Students determine their addition facts to highlight and assemble /annotate in Piktochart

Were students engaged?:

_____

_____

_____

What is/are the dataset(s) that will be used for the activity? How students will access the dataset(s)?

_____

_____

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What tool(s) are students going to use? How will students have access to the tool(s)?

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How you are going to grade the activity? (e.g. Rubric)

Accuracy of Measurements (Were students faithful to the data)

Clarity and completeness (Did students convey data clearly)

Metadata (Does the image stand on its own; does it document the source dataset, units, regions, etc.)

Do you think you will keep incorporating data visualization in the future?:

_____

_____

_____

Lab: New England Comparative Map
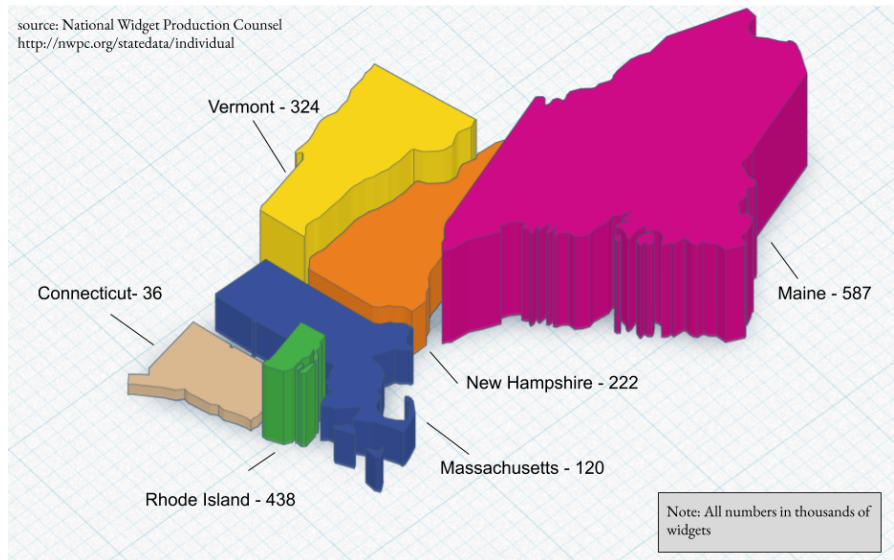
Learning Objective:

Students will practice creating a 3D infographic using a modeling environment to create such a map of New England.

Instructions:

Tinkercad 3D has the capability for users to create blocks in the shape of states in the United States of America. Your task is to assemble New England using TinkerCad where the height of each state is going to be correlated to some statewide statistic. In this way, your 3D model will become an infographic comparing the New England States.

Your final step will be to export a view of your model and use Google Drawing to annotate the image, providing a legend so that people will understand what the height of each state represents.

New England Fancy Widget Production By State

source: National Widget Production Counsel
http://nwpc.org/statedata/individual

Vermont - 324
Connecticut- 36
Rhode Island - 438
New Hampshire - 222
Massachusetts - 120
Maine - 587

Note: All numbers in thousands of widgets

Variation:

If you prefer it, you may choose a different six states to compare, but they must be contiguous (i.e. each state must be touching at least one other state in the group of six.)

Sources:

IndexMundi.com is one good source of information that is individual to each state.
https://www.indexmundi.com/facts/united-states/quick-facts

Other decent sources:
https://www.infoplease.com/us/states
https://datausa.io/

You may use whatever source you like. Remember: you're looking for numbers for each state.

Criteria for Success

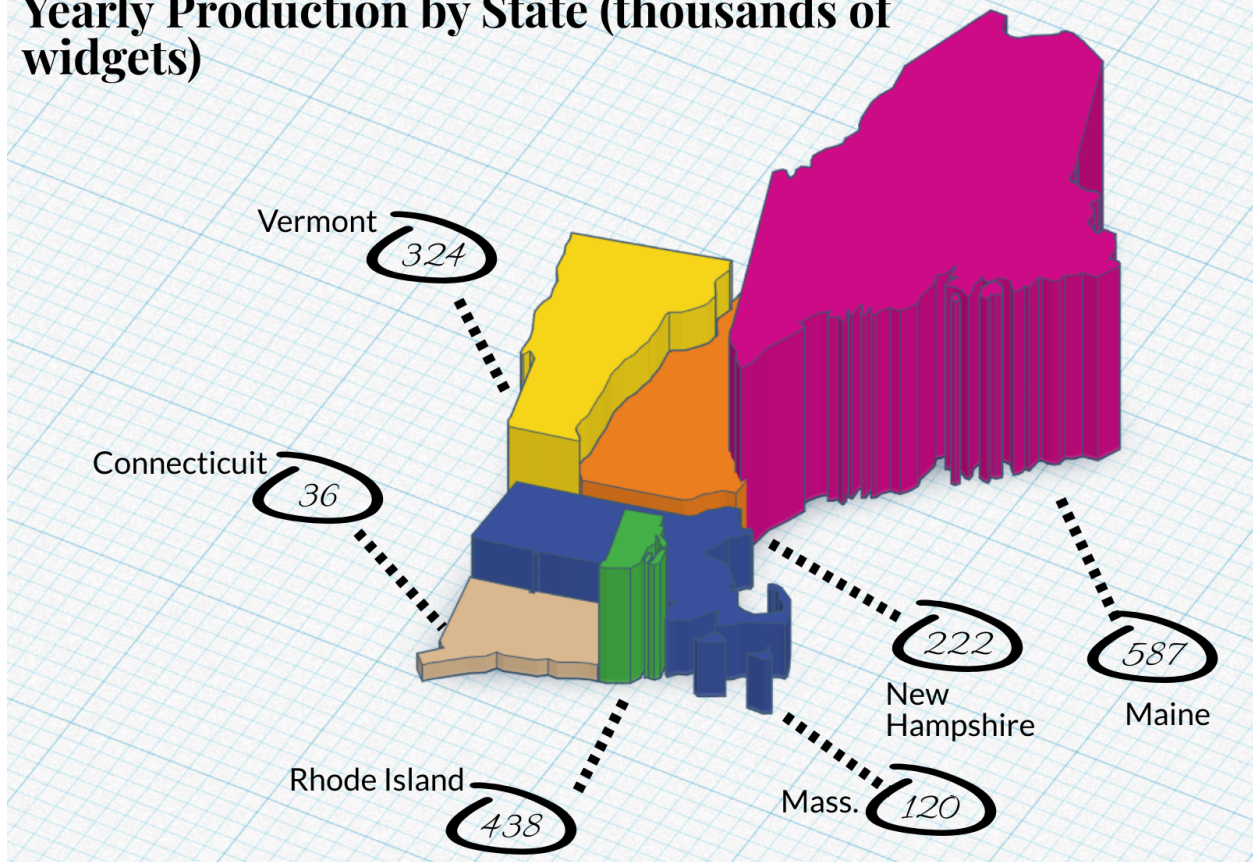Check that each of these things is true before you submit.
- Your numbers are accurate to your source.
- You cite your source in your image.
- The view of the 3D model you choose allows the viewer to get a sense of the relative height of each state.
- You scale the heights appropriately as necessary, to give the best contrast of the state numbers, balancing that with visual/aesthetic considerations (how pleasing it looks).
- You provide a title for your infographic that informs the reader what statistic your diagram is showing.
- You provide the exact numbers as a part of your infographic, indicating which numbers correspond to which state (There are different ways to do this. Choose one that works best for you).
- Size the states appropriately and make certain they fit together like the actual states fit together.

Submit

- Your finished image exported as a PNG file (or other compatible format such as JPG or GIF).
- A link to your Tinkercad project (You must make the project public for this to work).

APPENDIX B UPDATED ASSIGNMENT

New England Fancy Widget Yearly Production by State (thousands of widgets)

Vermont **324**

Connecticuit **36**

Rhode Island **438**

Mass. **120**

New Hampshire **222**

Maine **587**

Maine

- ✔ Most widgets per year, per capita

- ✔ Longest history of widget-making (est. 1897)

- ✔ State-regulated quality-control