Jabberwocky:
A Lake and Island Board Project

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Introduction:

This project is designed to use a Lake and Island Board in a meaningful way. The students are given a scenario. There is a planet that has 8 continents. On each continent is a country. They discover a twin planet that also has 8 continents. They decide to move to the new planet. How will they decide which country will move to which continent on the new planet? This involves the students in measuring the area, perimeter, and distances between the continents. Also, since we are representing countries and continents, we will include other statistics: climate and population. The students would be involved in problem solving and decision making as they try to come up with the best plan. The students will be in 8 groups to represent the 8 countries.

I have written this up as a day by day project. It is likely that most of the activities would take more than a day. The project would work well as a once a week project. The countries positions will change almost everyday. It would be a good idea to have a bulletin board to show which charts to collect all of the data. These should be made on chart paper and kept so they can be referred back to. Everyday the class should review what has happened so far. At the end of the class, there should be a discussion.

There are many possibilities with this scenario. There are possibilities for integration into other subject, especially Social Studies and Language Arts. I included some possibilities.

All the data that I have included are for my Lake and Island Board. But, this activity could be adapted to other Lake and Island boards.

How to make a Lake and Island board:
A Lake and Island board is made with two square pieces of bristol board approx 40 cm by 40cm. Each square will be a different colour. One square will have Islands and the other will have Lakes. The Island and Lakes will be cut out of the colour that is opposite to the backgroud. For example if you choose to use the colours green and blue for your Lake and Island Board, the **Green Islands** will be mounted on the blue background and the **Blue Lakes** will be mounted on the green backgound.
The Lake and Island patterns must be cut so that 2 cm blocks will evenly cover them. Be creative with your designs!!!! (hint: don't cut out each 2 cm block piece and glue on seperately. Trace out designs on the bristol board with blocks and then cut out as one whole piece). You can decide how many blocks you will use for each Lake and Island pattern. Once the Lakes and Islands have been glued on the two squares they can be laminated back to back.

Day One: Area

Present the scenario:

New Jabberwocky

Far, far, far, away, there is a planet called Jabberwocky and it has 8 continents. On each of these continents there is a country. These are called: Brillig, Toves, Gyre, Gimble, Wabe, Borogrove, Mome Rath and Jubjub. There are millions of people living on this planet. Unfortunately, they didn't take care of their planet. Their water is polluted and they are running out of trees. The planet is ruled by a King, who lives in Wabe. His name was King Lewis. He is beginning to worry.

One day, some Jabberwockian astronauts came to see the King. " We found another planet. It is almost exactly the same as our planet. It even has 8 continents.", they exclaimed. King Lewis immediately sent for his best cartographer, Carroll. " I want you to map the new planet.", the King said. Carroll was sent to the new planet and he made a map of New Jabberwocky. The King decided that the new planet would be perfect to live on. King Lewis decided that since there is 8 continents on each planet, each country will get it's own continent on the new planet. "How will we decide which country will move to which continent? ", Carroll asked. "Let's do it by area. Find the area of each of our continents on Jabberwocky. Rank the 8 countries from 1 - 8, largest to smallest. And then, find the area of each of the new continents. Rank them the same way. The largest country will get the largest continent, etc.", King Lewis declared.

Divide the class into 8 groups. These 8 groups represent the 8 countries. Each country will have it's own needs and these groups will try to make sure that their needs are met.

Task #1

Calculate the area of your continent on Jabberwocky. Record your data on a class chart. Calculate the area of one of the other continents on New Jabberwocky. Record these as well. When everyone has recorded their data, rank each set of continents: 1 p biggest, 8 p the smallest. Which country will get which continent on the new planet?

Data:

Rank	Area: Jabberwocky	New Jabberwocky
1. Brillig	124 cm2	S 117 cm2
2. Gyre	112 cm2	Z 90 cm2
3. Gimble	80cm2	T 84 cm2
4. Wabe	72 cm2	U 74 cm2
5. Jubjub	64 cm2	W 45 cm2
6. Mome Rath	60 cm2	X 40 cm2
7. Borogrove	56 cm2	V 36 cm2

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8.  Toves                       36 cm2                          Y  32 cm2
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Discussion:

Does this way work? Is it fair? Do you think there will be problems? Does your country get more or less land?

Task #2

Calculate the difference in land that your country would be getting.

Data:

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1.  Brillig - S =       7 cm2  less
2.  Gyre - Z =          22 cm2  less
3.  Gimble - T =        4 cm2  more
4.  Wabe - U =           2 cm2  more
5.  Jubjub - W =        19 cm2  less
6.  Mome Rath - X =     20 cm2  less
7.  Borogrove - V =     20 cm2 less
8.  Toves - Y =         4 cm2 less
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Extra Challenge:

What is the total land area of Jabberwocky? What is the total land area of New Jabberwocky? Are we getting more total land or less?

Data:

Jabberwocky = 604 cm2, New Jabberwocky = 518 cm2 Difference of 86 cm2. **Less land**

Day Two: Population

New Problem:

Some countries on Jabberwocky are overpopulated. Some have lots of room. Should the countries population have an effect on the size of the continent it will move to on New Jabberwocky?

Task #3

Population Density:

The following numbers represent how many people would live in each square kilometre if the population was spread out evenly.

Find the population of your country by multiplying the number of people by the area of your country. This represents how many millions of people live in your country.

1.	Brillig:	2 people per km2
2.	Gyre:	8 people per km2
3.	Gimble:	11 people per km2
4.	Wabe:	13 people per km2
5.	Jubjub:	9 people per km2
6.	Mome Rath:	6 people per km2
7.	Borogrove:	3 people per km2
8.	Toves:	6 people per km2

Task #4

Record and rank the countries by population, 1 p biggest, 8 p the smallest.

Extra Challenge:

Make a map or graph representing the population density of your country.

Data:

Population:	Jabberwocky		New Jabberwocky
Rank			
1. Wabe	936	Million	S
2. Gyre	896	Million	Z
3. Gimble	880	Million	T
4. Jubjub	576	Million	U
5. Mome Rath	360	Million	W
6. Brillig	248	Million	X
7. Borogrove	168	Million	V
8. Toves	108	Million	Y

Discussion:

Should the country with the largest population get the biggest continent? Why or why not? Since there is more people in some countries, should they have more power in the decision making?

Day Three: Perimeter/shoreline

New Problem:

Gimble and Borogrove both complain. They only know how to fish. They both rely on fishing and need the most shoreline.

Task #5

Find the perimeter of your countries continent on Jabberwocky. Record your data on a class chart. Rank them from 1 p the longest shoreline to 8 p the shortest shoreline. Do the same with the continents on New Jabberwocky.

Data:

Perimeter: Rank	Jabberwocky		New Jabberwocky	
1. Gyre	64 cm		S	64 cm
2. Brillig	64 cm		U	50 cm
3. Gimble	48 cm		Z	42 cm
4. Borogrove	44 cm		T	40 cm
5. Wabe	40 cm		W	36 cm
6. Mome Rath	40 cm		X	28 cm
7. Jubjub	32 cm		Y	27 cm
8. Toves	24 cm		V	24 cm

Discussion:

Should we decide which country gets which continent by area population or by perimeter? Should Gimble and Borogrove be allowed to have the 2 continents with the biggest shoreline and the rest of the countries go by corresponding area? Is this fair? How many of the other countries would have had to change? Does it matter which continent you have?

How should we decide? Vote?

Day Four: Climate

New problem:

The two planets are very similar. The climate is affected by where that continent is on the planet. The very northern continents are very cold. The planets at the equator are hot. The continents in the south are warm. How will this effect the move? The people who live in the south are used to hot weather. Is it fair to expect them to live on a

cold continent?

Task #6

Record whether your country on Jabberwocky is in a cold, warm or hot climate. Record whether you new continent will be the same or different. Make a note of which continents would be the best for your country so far. Here is the info you need, temperatures are for the **average in July:**

	Jabberwocky:	New Jabberwocky:
		Matches Continent:
Cold:		
Gyre	0 oC	S
Toves	-16 oC	T
Borogrove	-16 oC	U
Gimble	-8 oC	
Hot:		
Jubjub	30 oC	V and W
Warm:		
Brillig	20 oC	X
Wabe	23 oC	Y
Mome Rath	21 oC	Z

Culture Challenge:

Find a country in our world that has a climate similar to your country's. What do they wear? Design an what clothes you think the people would wear in your country on Jabberwocky.

Discussion:

What could be some of the problems if we don't take into account the climate? What would some of the difference be between countries that are hot, cold and warm? How should we decide which country will move to which continent?

Day Five: Distances

New Problem:

Gyre, Toves and Borogrove all rely on each other for protection and food. They would like to be as close together as possible. Also, a personal request from King Lewis. Brillig and Wabe are always fighting. He would like their new continents to be as far away as possible.

Task #7:

Measure the distances between your continent and all the others on New Jabberwocky. Choose which 2 continents are the closest to yours and which one is the farthest from yours.

Language Arts Challenge:

Write an almanac entry of all the information you know about your country in Jabberwocky so far. This will help with decision making later. All the entries will be put together in a class almanac.

Discussion:

Will this problem have much of an impact? So far, how many times has your country changed positions? So far, which continent seems to be the best for you?

Day Six: The Plan

Task #8

Look at all the data your group has collected. As a group, make a plan for where each country should go on New Jabberwocky. Make sure you know why you made the plan the way you did. Make a map of New Jabberwocky. The map should be done on a piece of graph paper and should be to scale of the Lake and Island Board map. (the Lake and Island Board is 40 cm by 40 cm)

Day Seven: Chart day

Task # 9

In preparation for Debate day, each group will be assigned a chart to make. These should be visual charts and made so everyone can see them. You could make a pie chart, bar graph, line graph, pictogram etc, depending on what data you are dealing with. Information that should be charted:

1. Area of Jabberwocky
2. Area of New Jabberwocky
3. Shoreline of Jabberwocky
4. Shoreline of New Jabberwocky
5. Population of each country
6. Climate of Jabberwocky
7. Climate of New Jabberwocky
8. Distances between the continents on New Jabberwocky

Day Eight: Debate day

1. Each group should meet and discuss what their country's needs are. They should decide which continent would be the best for them. They should choose the best three continents.
2. As a class, you should decide how each country will present it's case.
3. As a class, you should decide how decisions should be made.
4. Debate and Discussion: Each country presents it's case. Or you could go by continent. Which country would be best for that continent. This part could be done in any way.
5. Make decisions. Vote? A lottery? How will you decide?
6. The plan is finalized and presented on the bulletin board.

Day Nine: Flag Day

Task #10

1. Give your new country a name.
2. Design a flag. Teachers: you can give specific instructions:
    - must be a tessellation
    - must have at least one line of symmetry
    - must use three geometric shapes
    - must use the shape of your new continent

   OR it can be a free assignment
3. Collect all the information about your new continent.
4. Draw a picture of your new continent. Be creative, add mountains, cities, and rivers, etc.
5. All the maps and information will be put into a class atlas

Day Ten: Celebration

Wrap up: hand in all assignments. Talk about the project. Have a party!

Evaluation

The students should keep a log book with all of the information that they need and some notes on how they problem solved and how the group worked together.

Log Book Guide Questions

- Describe the Problem
- What steps did you take to answer today's problem?
- Describe how your group worked together today: Contributions, difficulties, interesting ideas, attitudes, etc.)
- How did you contribute today?
- What do I know about my country so far?
- Which continent would be the best for my country so far?
- WHY?
- What did we talk about in the class discussion?
- What do you think about the situation so far?

Other finished products such as stories, illustrations, maps and graphs, could be included in a portfolio. The log and the portfolio can be handed in at the end. A group evaluation can be made up from the log book and the teachers own observations.

New Jabberwocky
A Lake and Island Board Story

Far, far, far away, there is a planet called Jabberwocky and it has 8 continents. On each of these continents there is a country. These are called: Brillig, Toves, Gyre, Gimble, Wabe, Borogrove, Mome Roth, and Jubjub. There are millions of people living on this planet. Unfortunately, they didn't take care of their planet. Their water is polluted and they are running our of trees. The planet is ruled by a King, who lives in Wabe. His name is King Lewis. He is beginning to worry.

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King Lewis immediately sent for his best cartographer, Carroll. " I want you to map the new planet.", the King said.

Carroll was sent to the new planet and he made a map of New Jabberwocky. The King decided that the new planet would be perfect to live on. King Lewis decided that since there is 8 continents on each planet, each country will get it's own continent on the new planet.

"How will we decide which country will move to which continent?" Carroll asked.

1 "Let's do it by area. Find the area of each of our continents on Jabberwocky. Rank the 8 countries from 1-8, largest to smallest. And then, find the area of each of the new continents. Rank them the same way. The largest country will get the largest continents, etc.", King Lewis declared.

A week later, King Lewis announced the plan to all of Jabberwocky. Soon, the people of Gimble sent the King a telegram:

"Our people only now how to fish. We need the biggest shoreline."

The King called for Carroll again. **2** His new assignment was to find all of the perimeters of all of the continents and rank them in order, for both planets. When Carroll was done working on that, the King had a new problem. Brillig and Wabe were

always at war. King Lewis wanted them to be as far apart as possible. **3** Carroll had to find the 2 continents that are farthest apart.

The King had a personal request. He wanted his country, New Wabe, to face the most islands. **4** Carroll had to find the continent that faces the most other continents. Meanwhile, Toves, Borogrove and Gyre, requested that they be as close to each other as possible. The really depended on each other for food, materials and protection. **5** Now Carroll had to find the 3 continents that are the closest together on the new planet.

How would you put each country on each new continent? Why? Make note of all the tasks:

1.

2.

3.

4.

5.

6) Draw a Map on graph paper of new Jabberwocky. Label each of the new countries: New Brillig, New Toves, New Gyre, New Gimble, New Wabe, New Borogrove, New Mome Rath and New Jubjub.

7) Write an ending to the story that explains why you chose the plan you did.
