NAME: _____ DATE: _____

## Maps vs. Globes

Maps and globes are both important tools for finding your way around or learning about the world. But they are very different; and each one has advantages and disadvantages. In this activity, you will learn about globes and different kinds of maps, and the unique advantages and disadvantages of using each.

## Globes

If you want the most accurate representation of the earth, you need a globe. The reason for this is simple: the earth is a sphere. Therefore, the most accurate representation of a sphere is another sphere. Since a globe is a sphere, it recreates the surface of the earth with relatively little distortion. Globes, however, are not perfect. For one thing, they are not a practical tool for travel. One could not carry a globe in one's pocket while hiking, or easily carry a globe in a car for navigation purposes. Nor would one want to travel with a globe, because all gloves are world maps. They are useless for street navigation. They are also useless for exploring local details like the size of a city or the location of suburbs.

## Maps and Distortion

In all the areas where globes are weak (portability, small details), maps are strong. A map is a flat representation of the earth's surface. Modern maps are typically printed on paper and can be bound in a book or folded up for easy storage and carrying. These days, however, most maps are digital and are displayed on a phone, GPS device, computer, or tablet. More importantly, a map need not always represent the entire world. A map might represent an entire continent, a country, a state, a city, or even just the layout of a small apartment. Electronic maps have the added advantage of representing all of these environments at once by allowing users to zoom in or zoom out.

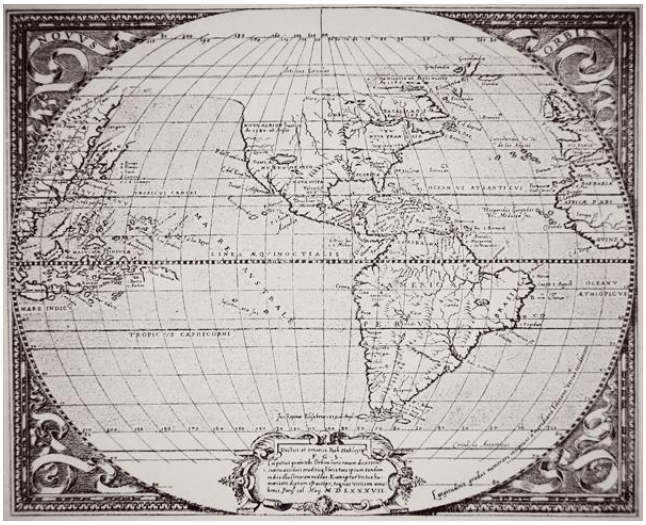
Despite all these apparent advantages, there are drawbacks to using a flat map. But because a map is a flat representation of a spherical object, no map is ever truly accurate. To test this assumption, try wrapping a flat piece of paper around a basketball. If you do, you will notice that the paper doesn't lie flat. Instead, it folds and crumples along the edges. This folding represents the areas where flat maps often distort the surface of the earth. Naturally, maps of a globe are far more distorted than maps of, say, one's living room. But all maps are distorted in one way or another, and cartographers (map makers) have to choose what they want to distort and what they want to keep accurate. These different types of maps are called projections, because the round surface of a globe is projected onto a flat shape.

## Conformal Maps

A conformal map is one where the shapes from the globe conform, or look the same, on the map. Directions are also correct. The distortion in a conformal map is in the sizes of land masses and the distances between them. Look at the map below:


## Equal Area Maps

An equal area map keeps all the sizes of land masses accurate in relation to each other. This way, a small continent does not get stretched to look like it is larger than it really is. But to do this, the map distorts the shapes and distances between land masses. Equal area maps are good for showing the "big picture" of the world. Explore the equal area map below:



## Equidistant Maps

An equidistant map is one that shows accurate distances between places. Most equidistant maps are of small areas, like a city or a small state. This is because the smaller the area that is being mapped, the less distortion it will have. You can demonstrate this by taking a small piece of an orange peel and flattening it out next to a larger piece. Which piece splits more when you flatten them both out?


This is an equidistant map of London in 1633. It shows accurate details of streets and rivers, and accurate distances between them. Equidistant maps can show human landmarks, like this one, or they can focus on natural details like elevation or vegetation levels in an area.

## Instructions

Use the grid below to list the advantages and disadvantages of globes and of each type of map you have studied. Then, answer the questions.

| Globe |
| --- |
| **Advantages**:<br><br>**Disadvantages**: |
| **Conformal Map** |
| **Advantages**:<br><br>**Disadvantages**: |
| **Equal Area Map** |
| **Advantages**:<br><br>**Disadvantages**: |
| **Equidistant Map** |
| **Advantages**:<br><br>**Disadvantages**: |

**Question 1**

You are moving to a new country. What kind of map or globe would you want the most to learn about your new home, and why?

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## Question 2

Describe a situation where a globe is a better tool than any of the maps you have studied. Explain why the globe is better for this situation than each of the map types.

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