## How Far Is It Really? - Distance on Maps and Globes

Background: It is impossible to make a map of the ball-shaped earth on flat paper without cutting or stretching something. As a result, maps cannot show distances and directions accurately. To make a good mental map of the world, you need a globe.
This map uses letters to show Detroit (D) and nine other important cities.


1. The famous beach city of Rio de Janeiro is about 5000 miles away from Detroit. Hong Kong, an important old port city in China, is about 8000 miles from Detroit. Make a guess about the distance to each of the other seven cities on the list. Write your guess on the first line after each city name on the table below.
2. Use a string and a globe to make a rough estimate of distance to the other cities. Write that estimate on the second line after each city name.
3. Go to the website www.distancefromto.net. Type "Detroit" in the "From" box, another city in the "To" box, click "airline distance," and click "Measure." Write the actual distance measurement on the third line after each city name.
4. The website uses gray to show a straight line on the map, and a red line to show the actual airline route. Describe them briefly on the last line of the table.

|  | GUESS | STRING | WEBSITE | ROUTES |
| :---: | :---: | :---: | :---: | :---: |
| C Capetown, South Africa |  |  |  |  |
| H Hong Kong, China | 8000 | 8000 | 7841 | very far apart |
| M Mecca, Saudi Arabia |  |  |  |  |
| N Norilsk, Russia |  |  |  |  |
| P Perth, Australia |  |  |  |  |
| $\mathbf{R}$ Rio de Janeiro, Brazil | -5000 | 5000 | 5180 | almost the same |
| S Sydney, Australia |  |  |  |  |
| T Tokyo, Japan |  |  |  |  |
| W Wellington, New Zealand |  |  |  |  |

