



# 7 GIS Goes Around the World in 80 Days

By Barbaree Ash Duke

## Guiding Question

How does the accuracy of what we know about Earth's surface affect how we think about places? What are the considerations we take when choosing how we get from one place to another?

## Project Duration

Two to seven 45-minute class periods

## Grade Level

Grades 5-10 (ages 10-16)

## Learning Objectives

Students will be able to:

- research and take notes about a specific problem
- explore the relationship between maps and data
- use their research and maps to make an informed decision

## Subjects

- Math
- Science
- Geography
- Technology
- English Language Arts
- Social Studies



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**How does the accuracy of what we know about Earth's surface affect how we think about places? What are the considerations we take when choosing how we get from one place to another?**

## Overview

Inspired by Jules Verne's book, *Around the World in Eighty Days*, this activity utilizes Geographic Information Systems (GIS) technology to give students a global experience that crosses curricular boundaries. Using maps, images, and documents that are hyperlinked to the GIS map, students connect to Verne's text rather than seeing it as "an old dusty book." Students analyze old travel methods and current travel trends that will give them a personal experience with a variety of world locations and fuel their sense of inquiry and curiosity. In the culminating project students create their own purposeful journey around the world.

Note: Page numbers for passages from the book are based on this edition:

Verne, J. (1873). *Around the world in eighty days*. London, England: Puffin Books. 2004.

## Background

*Around the World in Eighty Days*, by Jules Verne, is a classic adventure tale that sends Phileas Fogg, a quirky but wealthy Londoner, and his French valet-turned-sidekick, Passepartout, on a journey to win a bet. The eccentric Mr. Fogg is challenged to circumnavigate

the globe in eighty days for a £20,000 wager (equal to £1,324,289, or more than \$2 million, today) set by his friends at the Reform Club. Although the tale was written in 1873, the journey has current appeal as the travellers face a myriad of obstacles along the way to reach their goal. In this geospatial experience students taste the decisions the men had to make, as well as the physical obstacles they faced, and it will leave them thinking about embarking on their own journey around the world.

## Connections to National Standards

### NATIONAL SCIENCE EDUCATION STANDARDS, GRADES 5-8:

- Standard A-1: Abilities necessary to do scientific inquiry
- Standard A-2: Understandings about scientific inquiry
- Standard G-1: Science as a human endeavor

### NATIONAL MATH STANDARDS, GRADES 6-8:

- Number and Operations, Standard 3: Compute fluently and make reasonable estimates
- Algebra, Standard 2: Represent and analyze mathematical situations and structures using algebraic symbols
- Measurement, Standard 1: Apply appropriate techniques, tools, and formulas to determine measurements
- Data Analysis and Probability, Standard 1: Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them

### NATIONAL GEOGRAPHY STANDARDS:

- Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information
- Standard 2: How to use mental maps to organize information about people, places, and environments
- Standard 3: How to analyze the spatial organization of people, places, and environments on Earth's surface
- Standard 4: The physical and human characteristics of places

- Standard 5: That people create regions to interpret Earth's complexity
- Standard 6: How culture and experience influence people's perception of places and regions
- Standard 17: How to apply geography to interpret the past

## Vocabulary

- **prime meridian**, *noun*—line of longitude at 0 degrees
- **equator**, *noun*—line of latitude around the center of the globe at 0 degrees
- **canal**, *noun*—an artificial waterway constructed to allow the passage of boats or ships inland or to convey water for irrigation
- **nautical mile**, *noun*—A unit used in measuring distances at sea, equal to approximately 1,852 m (2,025 yards.)
- **knots**, *noun*—a unit of speed equal to one nautical mile (1.852 km) per hour, approximately 1.151 mph

## Teaching Strategies

The introduction to this unit is flexible. Students need an introduction to the content of the maps and to the story that serves as inspiration for the activity. As an instructor, choose the best activity to meet the curricular goals for your students. Preparing the students for the “GIS Around the World in 80 Days” journey might include one or both of the following activities:

- Read *Around the World in Eighty Days*, by Jules Verne. Online versions as well as study guides are readily available. The Resources section contains links to these kinds of materials. Alternatively, this GIS activity could be the introduction for a novel study of Verne's famous journey.
- Watch a film version of “Around the World in Eighty Days.” Materials are available online to support meaningful educational experiences.

The students should be able to follow the Student Instructions and work independently or with a partner. They will take a leisurely journey around the globe following Phileas Fogg's path.

## Extending the Learning

- Have students learn about the story of Nellie Bly, a pioneer female journalist known by her pen name. She duplicated Verne's journey in 72 days. <http://www.pbs.org/wgbh/amex/world/peopleevents/pande01.html>
- Examine the Google Earth View with annotations in English and French for each location of the journey. [http://www.gearthblog.com/blog/archives/2005/12/around\\_the\\_goog.html](http://www.gearthblog.com/blog/archives/2005/12/around_the_goog.html)

## Additional Resources

- Verne, J. (1873). *Around the world in eighty days*. (2004 ed.). London, England: Puffin Books. ISBN 978-0-14036-711-9
- Mont Cenis Tunnel, <http://www.todayinsci.com/Events/Tunnels/MontCenisTunnel-RockBoring.htm>
- Reform Club, <http://www.reformclub.com>
- Google Books by Jules Verne [http://books.google.com/books?rview=1&as\\_brr=3&q=jules+verne](http://books.google.com/books?rview=1&as_brr=3&q=jules+verne)
- David Rumsey Map Collection, <http://www.davidrumsey.com>

## Data Dictionary

*Additional information about each of the layers used in this project*

Data for these cities is from ESRI's world cities layer: Bombay, Brindisi, Calcutta, Hong Kong, Yokahama, London, Suez, New York City, and San Francisco.

- Railroads—United States railroads from National Atlas
- Geogrid—world geographic lines (ESRI)
- IntDateLine—International Date Line (ESRI)
- Lines of Latitude and Longitude—world latitude and longitude lines
- Rivers—world rivers (ESRI)
- Timezone—world time zones (ESRI)
- Countries—world countries (ESRI)
- Lakes—world large lakes (ESRI)

# GIS Goes Around the World in 80 Days

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How does the accuracy of what we know about Earth's surface affect how we think about places? What are the considerations we take when choosing how we get from one place to another?

Jules Verne's classic, *Around the World in Eighty Days*, will give you a global experience that crosses curricular boundaries. You will utilize maps, images, and documents that are hyperlinked to a GIS map to connect to Verne's text. During this activity you will analyze old travel methods and current travel trends to give you a personal experience with a variety of world locations and fuel your sense of inquiry and curiosity.

Use the student answer sheet to record answers for each question below.

## Part I: Get acquainted with the 1842 School Atlas

### GETTING STARTED

1. Launch My World GIS by double-clicking its icon on the Dock (Mac) or Start List (PC.)
2. Choose **File > Open Project...** navigate to the folder where the project is located, and select: **80daysTour.m3vz**.
3. Look at the map to orient yourself to the magnitude of the journey. Use the **Map View** drop-down menu (located on the upper right of the Map window) to move quickly from view to view. How many Tour stops do you see? How many **Time Zones** will they cross on their trip around the world? Will they travel south of the Equator or north of the Arctic Circle? Turn off the **Geo Grid** and **Time Zones** layers when you are done examining them.
4. To begin the journey, select the **England View** from the Map View drop-down menu, located on the upper-right corner of the Map window. The map will zoom to Great Britain, the origin of the 80 days journey.
5. Use this Map view to better understand the world that Phileas and Jules knew.
6. After you navigate to **England View**, click the **Link** Tool from the map tool icons. It looks like a pointing hand. A flag will appear labeling London on the map. Click the black dot at the base of the flag. Your mouse now turns into an arrow—instead of the pointing hand—when you move it over the new text. Click “London: 1842 School Atlas.” This is a map that Jules Verne might have used when he was a middle-school-aged student. How he understood the globe affects how the story is told. Get acquainted with the 1842 School Atlas. Close the window when you are done observing the map.

Answer the following questions about the Atlas on the student answer sheet.

**QUESTION 1.** What do you notice most about the London 1842 School Atlas map?

**QUESTION 2.** What differences do you see between this map and the ones in your textbooks?

**QUESTION 3.** Did you find anything on the map that shouldn't be there?

## Part II: Departure

Now you are ready to find more information about the first destination in our journey. *“Phileas Fogg having shut the door of his house at half-past eleven... reached the Reform Club, an imposing edifice in Pall Mall.”* (Verne, p. 13)

### DESTINATION 1: ENGLAND

1. You should still see the **England View**. Click the check box for the London layer to hide this layer. The dot at the base of the flag will now appear red. Click the red dot at the base of the flag, and select the “Tour Stops: Reform Club History” link to access the Reform Club Internet page. Close the Internet page window when you are done investigating.

**QUESTION 4.** Why did the Reform Club begin?

**QUESTION 5.** What facts about the Reform Club's history make Mr. Fogg's information about the club believable?

**QUESTION 6.** Phileas Fogg regularly ate most of his meals at the club. According to the history of how the club was built, why does that make sense?

### DESTINATION 2: SUEZ

You now know some interesting information about the Reform Club. After making the bet, Phileas goes home and starts his journey immediately. He and Passepartout, his servant, start their journey as they leave London on October 2nd at 8:45 p.m. Transportation in 1872 was by foot, horse, horse-drawn carriage, train, or boat. We know that they sailed on the *Mongolia* out of Brindisi on October 5th at 5pm to Suez. They arrive in Suez on Wednesday, October 9th, at 11 a.m.

1. Use the drop-down menu to select the Map View, **Stop 2 View**.
2. Note the number of Time Zones that Phileas and Passepartout crossed and other important lines on the Geo Grid. Use the **Link** tool to learn more about the canal. To learn the names of important locations, make a layer active and then use the **Get Information** tool.

Answer the following questions about this map:

**QUESTION 7.** How did Phileas and Passepartout get from London to Brindisi, Italy? Examine the map and make your predictions. Hint: If you read the book, you might find some help there. This website <http://www.catskillarchive.com/rrextra/mrcenis.html> has information about mountain railroads.

Begin	End	Transportation
London		
	Brindisi	

### Geography Observations

**QUESTION 8.** What important geographic line do Phileas and Passepartout cross as they leave England?

**QUESTION 9.** What degree of longitude is that?

**QUESTION 10.** If you were sitting on that degree of longitude on the Equator, what would your coordinates be?

## Part III: Suez Canal

### DESTINATION 3

Phileas and Passepartout, with Detective Fix close behind, embark on a journey down the Suez Canal on the *Mongolia*.

1. Use the drop-down menu to select the Map View, **Stop 3 View**. Use the **Link** tool to connect to a website with more information, and examine the map and discuss why the Suez Canal is significant to world travel and trade.

Answer the following questions as you learn more about the canal.

**QUESTION 11.** Is the canal a naturally occurring water feature? Why or why not?

**QUESTION 12.** Based on the physical geography, why was this place chosen for a canal?

**QUESTION 13.** When was the first canal attempted?

**QUESTION 14.** Why did people need the canal?

**QUESTION 15.** When was the Suez Canal completed?

**QUESTION 16.** What major event in American history had just ended?

**QUESTION 17.** After travelling the Suez Canal and through the Red Sea, what geographic line do they cross before arriving in Aden?

2. Click the **Pointer** tool to hide the **Link** tool flag.

**QUESTION 18.** You can now see the countries in the canal region. How is the significance of the canal impacted by what you know of these countries?

### DESTINATION 4: ADEN

3. Next, select the **Stop 4 View Map** view. The country names are visible in this view. Discuss what you know about these places and how those places would impact the significance of the Suez Canal.

After leaving Suez, the *Mongolia* brings Phileas and Passepartout through the Red Sea to Aden, Yemen. Then they'll sail on to Bombay.

4. Next, go to the **Plates, Earthquakes, and Volcanoes** Map View.

5. When you are in the **Plates, Earthquakes and Volcanoes** Map View, click the **Open Analysis Window...** button to open the Analyze Window. You will use the analysis tools to find the **World Cities** at risk of a volcanic eruption.

In the Analyze Window

- Select...
- By Spatial Relationship...
- By Distance
- Select Records from: World Cities
- That Are
- Less Than: 10 miles
- From Records in: Volcanoes

Check the box to make your selection a new layer.

Name the Result: Cities near volcanoes, and Click OK. The Analyze window will close and you will be returned to your map. The new layer will be at the top of the Layer List.

6. Click the **Show Table of Active Layer** button to see which **World Cities** are near volcanoes.

**QUESTION 19.** Plate boundaries, volcanoes, and earthquakes are related to each other. Could these geological events affect our travels around the world? How?

**QUESTION 20.** How many cities are within 10 miles of a volcano?

## Part IV: India and Beyond

### DESTINATION 5: INDIA

Let's keep moving! The clock is ticking on our 80-day limit and we've got more of the globe to traverse. After arriving in Bombay, plans have changed. Phileas and Passepartout have to rely on local transportation. Elephants provide the leg power to get them from Bombay to Calcutta via Kholby and Allahabad. *"At two o'clock the guide entered a thick forest which extended several miles; he preferred to travel under cover of the woods."* (Verne, p. 79)

1. Select the **India** Map View. This view shows generalized Climate Classes. Zoom in to find the sections of India where they travelled (Note: the Tour stops have been changed to Purple Stars). Take note of the Climate Classes and consider how travelling through that area would affect Phileas and Passepartout's travel. Was it hot? Humid?
2. Select the **Stop 5 View** Map View. This view zooms the map in to India. Near the northeastern border of India there's a major river. Make the **Rivers** layer the active layer and then use the **Get Information** tool to identify the name of the river.
3. Phileas and Passepartout travel the valley of this river in their journey. Use the **Get Information** tool to identify five **World Cities** that might have been part of their journey along the river.

**QUESTION 21.** The river in northern India near where they travel is the \_\_\_\_\_ River. Which world cities might have been destinations for them today along a similar route?

Phileas must make a decision in Calcutta. Should he go by land or by sea to reach Hong Kong?

4. From the Destination 5 view, select the **Measurement** tool to measure a route from Calcutta to Hong Kong. Complete your own investigation using the map and what you understand about traveling in 1872 to decide the best route. Calcutta is in Southern India, and Hong Kong is in South East China. The destination markers are red squares. Select the **Measurement** tool from the tools above the map. With this tool you can click each point on your path, and the distance will add up as the path is drawn on the map (The distance is shown on the bottom left of the My World window.) To complete your measurement, double-click the last point.

**QUESTION 22.** How many miles is it from Calcutta to Hong Kong by land?

**QUESTION 23.** How many miles is it from Calcutta to Hong Kong by sea?

**QUESTION 24.** Do the math. What's the difference in distance between the routes?

**QUESTION 25.** Phileas decides to go by sea. The destination in Singapore is close to what geographic line on the globe?

### DESTINATION 6—STORM TO HONG KONG

*"The weather was bad during the latter days of the voyage. The wind, obstinately remaining in the northwest, blew a gale, and retarded the steamer. The 'Rangoon' rolled heavily, and the passengers became impatient of the long, monstrous waves which the wind raised before their path."* (Verne, p. 128)

6. Select the **Storm to Hong Kong** Map View. Examine the **Surface Currents** and **Global Wind Patterns** shown on the map as red-, blue- and black-colored arrows. Can you figure out why the trip was so rough for the passengers on the *Rangoon*?

**QUESTION 26.** Can you figure out why the trip was so rough for the passengers on the *Rangoon*? According to the text from the book, from what direction was the gale?

**QUESTION 27.** In what direction does the wind usually blow between Singapore and Hong Kong?

**QUESTION 28.** What is the direction of the surface currents on the journey between Singapore and Hong Kong?

**QUESTION 29.** How would you explain the difficult journey on the boat?

### DESTINATION 7: YOKOHAMA

*"The Carnatic, setting sail from Hong Kong at half-past six on the 7th of November, directed her course at full steam towards Japan.... At dawn on the 13th the Carnatic entered the port of Yokohama."* (Verne, pp. 165, 169)

Phileas and Passepartout are virtually half way around the world now! You will need to use the zoom tool and measurement tool again.

7. Select the Map View, **Yokohama**. Answer the following questions.

**QUESTION 30.** How long have Phileas and Passepartout been traveling? \_\_\_\_\_ days

**QUESTION 31.** How many days do they have left to win the bet? \_\_\_\_\_ days

**QUESTION 32.** Into how many hours does that translate? \_\_\_\_\_ hours

**QUESTION 33.** Use your measurement tool to discover how many more miles they have in their journey. \_\_\_\_\_ miles

**QUESTION 34.** How many miles per hour do they need to move forward to make their goal? Show your work. (*Hint: Remember your distance formula.*)

### DESTINATION 8: CALIFORNIA

Welcome to California! *“From ocean to ocean’—so say the Americans; and these four words compose the general designation of the ‘great trunk line’ which crosses the entire width of the United States.... New York and San Francisco are thus united by an uninterrupted metal ribbon, which measures no less than three thousand seven hundred and eighty-six miles.”* (Verne, p. 201)

8. Select the Map View, **California**. Use this map to examine railroads in the USA.
9. Begin by looking at the choices that Phileas had. Click the **Link** tool to select it. Click the red dot located in the state of California; this is the city of San Francisco. Select the 1875 Railroad Map link. Wait a moment while an image loads.
10. Zoom in and carefully examine the linked map in the David Rumsey map collection. Imagine a route from San Francisco, to Salt Lake City, to Chicago, to New York. Then compare what railroad choices you would have today. The present day (2005) railroads are shown on the **California** Map View. Which route would you choose?

**QUESTION 35.** What do you notice about the 1875 map?

**QUESTION 36.** What does the map tell you about rail travel in the late 19th century?

Question 37. If you made this journey by rail today, would you choose a different route? Which cities would your rail trip include? (*Hint: Turn on World Cities in your map view.*)

### DESTINATION 9: NEW YORK TO LIVERPOOL

*“An hour after the Henrietta passed the lighthouse which marks the entrance of the Hudson, turned the point of Sandy Hook, and put out to sea....’between eleven and twelve knots’.”* (Verne, pp. 265, 266)

11. Select the Map View, **New York to Liverpool**.
12. Use the **Link** tool to open the link near New York City, Knots to Miles.

**QUESTION 38.** Knots to Miles

1 Knot = \_\_\_\_ nautical miles per hour

1 Knot = \_\_\_\_ miles per hour

According to the New York to Liverpool map view, is the *Henrietta* traveling with or against the current?

13. How long will it really take to get from New York to Liverpool? Use the **Measurement** tool and your knowledge of the speed they traveled to make the calculation. Look at the surface currents and choose a route that would take advantage of a current (Note: The currents have arrows showing their direction of movement).

**QUESTION 39.** New York to Liverpool

There are \_\_\_\_\_ miles from New York to Liverpool.

If the *Henrietta* travels at a speed of 12 knots, then how long will the journey to Liverpool take?

\_\_\_\_\_ days \_\_\_\_\_ hours

A modern cruise ship travels at about 20 knots.

How long will it take a modern cruise ship to get from New York to Liverpool? \_\_\_\_\_ days \_\_\_\_\_ hours

Show your work.

You made it! What an amazing journey!

Have you started thinking about where you might go if you went around the world? Phileas Fogg bet 20,000 pounds on his venture.

**PLAN YOUR OWN ADVENTURE****Essay Assignment:**

It's time for you to create your own world tour. A national charity is funding a student around the world adventure. You must present an essay and necessary maps to apply for the fully funded trip. Be sure to include all of the information requested as well as any other information that might persuade the committee to choose you.

Include the following:

- Why would you want to make a journey?
- What is the mission of your tour?
- Where would you go?
- Why would you choose those locations?
- What equipment would you need?
- What possible obstacles would you expect?
- How can GIS help you during your journey?

Name \_\_\_\_\_ Date \_\_\_\_\_

## GIS Goes around the World in 80 Days

Use the Student Instructions pages to launch My World GIS and complete the activity. Fill in your answers on these pages.

### Part I: Get acquainted with the 1842 School Atlas

1. What do you notice most about the London 1842 School Atlas map? \_\_\_\_\_

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2. What differences do you see between this map and the ones in your textbooks? \_\_\_\_\_

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3. Did you find anything on the map that should not be there? \_\_\_\_\_

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### Part II: Departure

#### DESTINATION 1: ENGLAND

Close the School Atlas window, and return to the Student Instructions document.

“Phileas Fogg having shut the door of his house at half-past eleven... reached the Reform Club, an imposing edifice in Pall Mall.” (Verne, p. 13)

4. Why did the Reform Club begin? \_\_\_\_\_

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*Trivia: Jules Verne was a meticulous researcher. He kept index cards on a myriad of facts and figures that found their way into his novels, giving them great plausibility in a time when ideas such as going into space seemed far beyond human reach. Mr. Fogg’s journey takes place in 1872.*

Name \_\_\_\_\_ Date \_\_\_\_\_

## GIS Goes around the World in 80 Days

5. What facts about the Reform Club's history make Mr. Fogg's information about the club believable?

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6. Phileas Fogg regularly ate most of his meals at the club. According to the history of how the club was built, why does that make sense? \_\_\_\_\_

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### DESTINATION 2: SUEZ

7. How did they get from London to Brindisi, Italy? Examine the map and make your predictions. Hint: If you read the book, you might find some help there. Look for helpful information on this website: <http://www.catskillarchive.com/rrextra/mrcenis.html>

Begin	End	Transportation
London		
	Brindisi	

### Geography Observation

8. What important geographic line do Phileas and Passepartout cross as they leave England?

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9. What degree of longitude is that line? \_\_\_\_\_

10. If you were sitting on that degree of longitude on the Equator, what would your coordinates be?

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Name \_\_\_\_\_ Date \_\_\_\_\_

## GIS Goes around the World in 80 Days

### Part III: Suez Canal

Phileas and Passepartout left London on October 2nd at 8:45 p.m. They sailed on the *Mongolia* out of Brindisi on October 5th at 5 p.m. to Suez. They arrive in Suez on Wednesday, October 9th at 11 a.m.

#### DESTINATION 3: SUEZ CANAL

11. Is the canal a naturally occurring water feature? Why or why not?  
\_\_\_\_\_
12. Based on the physical geography, why was this place chosen for a canal? \_\_\_\_\_  
\_\_\_\_\_
13. When was the first canal attempted? \_\_\_\_\_
14. Why did people need the canal? \_\_\_\_\_  
\_\_\_\_\_
15. When was the Suez Canal completed? \_\_\_\_\_
16. What major event in American History had just ended? \_\_\_\_\_
17. After travelling the Suez Canal and through the Red Sea, what geographic line do they cross before arriving in Aden? \_\_\_\_\_
18. You can now see the countries in the canal region. How is the significance of the canal impacted by what you know of these countries? \_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

## GIS Goes around the World in 80 Days

### DESTINATION 4: ADEN

19. Plate boundaries, volcanoes, and earthquakes are related to each other. Could these geological events affect our travels around the world? \_\_\_\_\_

Why? \_\_\_\_\_

20. How many cities are within 10 miles of a volcano? \_\_\_\_\_

### Part IV: India and Beyond

#### DESTINATION 5: INDIA

21. The river in northern India that they travel near is the \_\_\_\_\_ River.

What world cities might have been destinations for them today along a similar route?

\_\_\_\_\_

Phileas must make a decision in Calcutta. Should he go by land or by sea to reach Hong Kong? From the Destination 5 view, use the Measurement tool and what you understand about traveling in 1872 to decide the best route.

22. How many miles is it from Calcutta to Hong Kong by land? \_\_\_\_\_

23. How many miles is it from Calcutta to Hong Kong by sea? \_\_\_\_\_

24. Do the math. What's the difference in distance between the routes? \_\_\_\_\_

25. Phileas decides to go by sea. The destination in Singapore is close to what geographic line on the globe? \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

## GIS Goes around the World in 80 Days

### DESTINATION 6: STORM TO HONG KONG

#### Oceanography Observation

26. Can you figure out why the trip was so rough for the passengers on the Rangoon?  
According to the text from the book, from what direction was the gale? \_\_\_\_\_
27. In what direction does the wind usually blow between Singapore and Hong Kong?  
\_\_\_\_\_
28. What is the direction of the surface currents on the journey between Singapore and Hong Kong?  
\_\_\_\_\_  
\_\_\_\_\_
29. How would you explain the difficult journey on the boat? \_\_\_\_\_  
\_\_\_\_\_

### DESTINATION 7: YOKOHAMA

30. How long have Phileas and Passepartout been traveling? \_\_\_\_\_
31. How many days do they have left to win the bet? \_\_\_\_\_ days
32. Into how many hours does that translate? \_\_\_\_\_ hours
33. Use your measurement tool to discover how many more miles they have in their journey.  
\_\_\_\_\_
34. How many miles per hour do they need to move forward to make their goal? Show your work.  
(Hint: Remember your distance formula.)  
\_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

## GIS Goes around the World in 80 Days

### DESTINATION 8: CALIFORNIA

35. What do you notice about the 1875 map? \_\_\_\_\_

\_\_\_\_\_

36. What does the map tell you about rail travel in the latter 19th century? \_\_\_\_\_

\_\_\_\_\_

37. If you made this journey by rail today, would you choose a different route? Which cities would your rail trip include? (*Hint: Turn on World Cities in your map view.*)

\_\_\_\_\_

\_\_\_\_\_

### DESTINATION 9: NEW YORK TO LIVERPOOL

38. Knots to Miles

1 Knot = \_\_\_\_\_ nautical miles per hour

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There are \_\_\_\_\_ miles from New York to Liverpool.

If the *Henrietta* travels 12 knots, then how long will the journey to Liverpool take?

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How long will it take a modern cruise ship to get from New York to Liverpool?

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Show your work.

Name \_\_\_\_\_ Date \_\_\_\_\_

# GIS Goes around the World in 80 Days

## Plan your own adventure

Essay Assignment:

It's time for you to create your own world tour. A national charity is funding a student adventure around the world. You must present an essay and necessary maps to apply for the fully funded trip. Be sure to include all of the information requested as well as any other information that might persuade the committee to choose you.

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- How can GIS help you in your journey?



Name \_\_\_\_\_ Date \_\_\_\_\_

# GIS Goes around the World in 80 Days

Use the Student Instructions pages to launch My World GIS and complete the activity. Fill in your answers on these pages.

## Part I: Get acquainted with the 1842 School Atlas

1. What do you notice most about the London 1842 School Atlas map? Answers will vary.

\_\_\_\_\_  
\_\_\_\_\_

2. What differences do you see between this map and the ones in your textbooks? Answers will vary.

\_\_\_\_\_  
\_\_\_\_\_

3. Did you find anything on the map that should not be there? Answers will vary.

\_\_\_\_\_  
\_\_\_\_\_

## Part II: Departure

### DESTINATION 1: ENGLAND

Close the School Atlas window and return to the Student Instructions document.

“Phileas Fogg having shut the door of his house at half-past eleven... reached the Reform Club, an imposing edifice in Pall Mall.” (Verne, p. 13)

4. Why did the Reform Club begin? As well as being a social club for Reformers, the Club acted as the nerve center and headquarters of the fledgling Liberal Party.

*Trivia: Jules Verne was a meticulous researcher. He kept index cards on a myriad of facts and figures that found their way into his novels, giving them great plausibility in a time when ideas such as going into space seemed far beyond human reach. Mr. Fogg’s journey takes place in 1872.*

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## GIS Goes around the World in 80 Days

5. What facts about the Reform Club's history make Mr. Fogg's information about the club believable?

104 Pall Mall, a social club, news exchanged, plots hatched

6. Phileas Fogg regularly ate most of his meals at the club. According to the history of how the club was built, why does that make sense? Special attention was paid to the kitchens, which were

designed to the specifications of the brilliant and charismatic chef Alexis Soyer.

### DESTINATION 2: SUEZ

7. How did they get from London to Brindisi, Italy? Examine the map and make your predictions. Hint: If you read the book, you might find some help there. Look for helpful information on this website: <http://www.catskillarchive.com/rrextra/mrcenis.html>

Begin	End	Transportation
London	LeHavre	Boat
LeHavre	Paris	Answers vary
Paris	Turin	Train
Turin	Brindisi	Train

### Geography Observation

8. What important geographic line do Phileas and Passepartout cross as they leave England?

Prime Meridian

9. What degree of longitude is that line? 0

10. If you were sitting on that degree of longitude on the Equator, what would your coordinates be?

0,0

Name \_\_\_\_\_ Date \_\_\_\_\_

## GIS Goes around the World in 80 Days

### Part III: Suez Canal

Phileas and Passepartout left London on October 2nd at 8:45 p.m. They sailed on the *Mongolia* out of Brindisi on October 5th at 5 p.m. to Suez. They arrive in Suez on Wednesday, October 9th at 11 a.m.

#### DESTINATION 3: SUEZ CANAL

11. Is the canal a naturally occurring water feature? Why or why not?  
No. The canal was man made.
12. Based on the physical geography, why was this place chosen for a canal? Answers will vary
13. When was the first canal attempted? 13th century BC
14. Why did people need the canal? Answers should relate to commerce and economics
15. When was the Suez Canal completed? November 17, 1869
16. What major event in American History had just ended? The Civil War ended in 1865.
17. After travelling the Suez Canal and through the Red Sea, what geographic line do they cross before arriving in Aden? Tropic of Cancer
18. You can now see the countries in the canal region. How is the significance of the canal impacted by what you know of these countries? Answers will vary

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## GIS Goes around the World in 80 Days

### DESTINATION 4: ADEN

19. Plate boundaries, volcanoes, and earthquakes are related to each other. Could these geological events affect our travels around the world? yes/no

Why? Answers will vary

20. How many cities are within 10 miles of a volcano? There are 13 cities selected.

## Part IV. India and Beyond

### DESTINATION 5: INDIA

21. The river in northern India that they travel near is the Ganges River.

What world cities might have been destinations for them today along a similar route?

Answers might include Kanpur, Patna, Benares, Lucknow, Bangladesh

Phileas must make a decision in Calcutta. Should he go by land or by sea to reach Hong Kong? From the Destination 5 view, use the Measurement tool and what you understand about traveling in 1872 to decide the best route.

22. How many miles is it from Calcutta to Hong Kong by land? 1647.78 miles

23. How many miles is it from Calcutta to Hong Kong by sea? 3543.16 miles

24. Do the math. What's the difference in distance between the routes? 1895.38 miles

25. Phileas decides to go by sea. The destination in Singapore is close to what geographic line on the globe? Equator

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## GIS Goes around the World in 80 Days

### DESTINATION 6: STORM TO HONG KONG

#### Oceanography Observation

26. Can you figure out why the trip was so rough for the passengers on the Rangoon?  
According to the text from the book, from what direction was the gale? Northwest
27. In what direction does the wind usually blow between Singapore and Hong Kong?  
Northeast
28. What is the direction of the surface currents on the journey between Singapore and Hong Kong?  
Near Hong Kong they're east to west then northeast. Near Singapore they're west to east in a cycle.
29. How would you explain the difficult journey on the boat? Winds and surface currents are fighting against each other, then the wind comes in from a different direction and causes a rocky ride.

### DESTINATION 7: YOKOHAMA

30. How long have Phileas and Passepartout been traveling? 41 days 9 hours or 42 days
31. How many days do they have left to win the bet? 38 days
32. Into how many hours does that translate? 912 hours
33. Use your measurement tool to discover how many more miles they have in their journey.  
approximately 11,558
34. How many miles per hour do they need to move forward to make their goal? Show your work.  
(Hint: Remember your distance formula.)  
 $11558 = r \cdot 912$      $11558/912$      $12.67=r$     12.67 miles per hour

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## GIS Goes around the World in 80 Days

### DESTINATION 8: CALIFORNIA

35. What do you notice about the 1875 map? Answers will vary.

36. What does the map tell you about rail travel in the latter 19th century? Answers will vary, but should include lack of rail options that transverse the entire country.

37. If you made this journey by rail today, would you choose a different route? Which cities would your rail trip include? (*Hint: Turn on World Cities in your map view.*)

### DESTINATION 9: NEW YORK TO LIVERPOOL

#### 38. Knots to Miles

1 Knot = 1 nautical miles per hour

1 Knot = 1.15 miles per hour

According to the New York to Liverpool map view, is the *Henrietta* traveling with or against the current? With the current

#### 39. New York to Liverpool

There are 3321.34 miles from New York to Liverpool.

If the *Henrietta* travels 12 knots, then how long will the journey to Liverpool take?

4 days 0 hours

A modern cruise ship travels about 20 knots.

How long will it take a modern cruise ship to get from New York to Liverpool?

2 days 9 hours

Show your work.

Name \_\_\_\_\_

Date \_\_\_\_\_

# GIS Goes around the World in 80 Days

## Plan your own adventure

Essay Assignment:

It's time for you to create your own world tour. A national charity is funding a student adventure around the world. You must present an essay and necessary maps to apply for the fully funded trip. Be sure to include all of the information requested as well as any other information that might persuade the committee to choose you.

Include the following:

- Why would you want to make a journey?
- What is the mission of your tour?
- Where would you go?
- Why would you choose those locations?
- What equipment would you need?
- What possible obstacles would you expect?
- How can GIS help you in your journey?