



Mapping the Life and Times of Phineas Gage

Curriculum Unit 21.03.02
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Introduction

Maps are all around us. They are in our phones, in our cars, in our homes. They are on streets in the form of street signs. They are in malls, in office buildings. They are in books, pamphlets, magazines and websites. They come in so many types, sizes, shapes and formats, that there is bound to be a map for everyone out there. They can be framed or unframed decorated or not and cover surfaces and places that are both fiction and nonfiction. Maps open so many doors for us, like a good book or a piece of art, as they seem to call out to us to bring in our own interpretations and stories with their content and intrigue.

It seems somehow ironic that we do not see maps used more often in our schools. There are maps hanging on many school walls, especially in social studies and science classes. The classroom globe, which used to be as common in classrooms as the chalkboard in the front of the room, can still be found in some classrooms or a teacher's supply closet. But even these relics that have always been a part of a classroom, today seem more like posters, or decorative pieces than interactive learning tools that they truly are. When is the last time you really taught with a map? How many of us simply point to a location on a map almost in passing as opposed to actually engaging in a map with children much like we do with works of art?

Maps are showing, not telling. There are many different types of maps that can be used when teaching in a Language Arts classroom I have used the traditional wall map to pinpoint settings in the Americas, Europe or Africa when approaching literature of fiction or non-fiction, I have used timelines in the retelling of Anne Frank's diary and the events of the Sixties leading up the beginning of *The Outsiders*. I have utilized Family trees to help students decipher the complicated connections between Greek Gods and Goddesses when studying Greek mythology. All of these techniques are utilizing different types of mapping that are useful in the classroom.

In this unit I will be utilizing maps in my classroom to help students comprehend a nonfiction text that explores the development of nineteenth century brain science through the story of Phineas Gage, a railroad worker who is almost killed in an explosives accident. Although relatively brief, the book introduces a number of science-related concepts that can be difficult to grasp. I believe that using maps in the reading will help bridge gaps that students might have in fully understanding the story and its ramifications to nineteenth century brain science.

Maps are perfect for any lesson in any classroom, and if you look hard enough you can find a way to use a map for any lesson you are teaching, in any subject and for any age group. Maps are a perfect classroom tool that can and should be utilized to help students get better understanding of material on their own learning level. They are a natural tool for differentiation. They can be simple or very complex, they can include illustrations, numbers, symbols and signs. They can be colorful or plain. They can be made of an endless number of materials and used to interpret endless subjects and topics. They can be created with a crayon and a piece of paper, or the most powerful satellites mankind has ever known, and everything in between.

Often understood to be works of art, maps can become visual representations of text and can lead students to understand and complete more traditional Language Arts tasks. A traditional map automatically becomes a visual representation of setting in literature. An illustrated timeline is a dynamic visual representation of a chronological study of a story. A brain or phrenological map becomes a visual representation of a very complex world of emotions that can lead to a better understanding of characterization.

Finally, utilizing maps in the classroom automatically differentiates instruction. We can all create a map. While some of us will create great masterpieces on canvas or digital formats, others prefer a piece of paper and a set of colored pencils or crayons, still others will create a map with clay or papier-mâché. Using maps as a tool for understanding literature allows students to reach the material on their own level and at their own pace.

My unit will begin with a brief introduction to maps and mapmaking. I will bring maps to the forefront of students' minds as I begin to share the vast variety of maps and their history that will allow students to see maps in different way as I will ask them to explore literature through maps. I will hook my seventh graders in a discussion and exploration of maps that will lead them from the past to more recent times, from the universe to Cavendish, Vermont, the site of Phineas Gage's accident. We will discuss the Transcontinental Railroad and how important the railways were to the expansion of this country. We will explore what maps mean to us and start with a map of our own neighborhoods.

Maps stimulate storytelling and writing, so I will invite my students to produce travel journals as we read. Studying and creating travel journals will also give my students a place to bridge the creative and the critical as they explore what makes a good travel journal and how the styles of different writers influence the telling of the story of travel. Finally, we will explore what kind of a storyteller, and what kind of travel writer, each student has become as they find their own voices and share their own skills as writers, travelers and fellow storytellers.

Rationale

John Fleishman's book, *Phineas Gage; A Gruesome but True Story about Brain Science* is The perfect text to use in order to demonstrate how useful maps can be in breaking down difficult texts. Although a relatively short nonfiction work, *Phineas Gage* is both a biography of railway worker who suffered a "horrible accident" as well as a study of nineteenth century science and, in particular, nineteenth century brain science. In 1848 Gage was a railroad worker in charge of a demolition crew who become famous when he was involved in an accident with explosives that should have killed him, but instead made him the most famous brain science patient of his time. There is a lot of science in the book: discussion of the four bodily humors, the development of medicines like penicillin, the discovery of cell and how cells function, the way the brain was once thought to

function and what we have learned about brain science. Fleishman weaves a host of complicated topics in and out of the biography of Gage, and as my unit will reveal, there are many places to use maps to help students to breakdown the text and get a better understanding of the many subjects introduced in the book.

Maps in this unit will serve as a more dynamic and multifaceted graphic organizer and learning tool that can be utilized in not only Language Arts classes, but in all classes as teachers experience how useful maps are in engaging and making complex text more readily available to students on so many levels. Through this unit I hope that teachers will gain a new appreciation for maps and the role that maps can and should play in our classrooms and learning. I also hope that students will gain not only a new appreciation for the maps that have always been and are still all around us, but they will also be introduced to a genre that many have rarely explored as we examine travel writing. Finally, I hope that students will gain an appreciation for the journey: not only Phineas Gage's journey, or a number of other journeys that we will discuss, but their own journey, a journey through life that we are constantly mapping and revising. It is always important to reflect on our journey and what better way to reflect than with the help of a good map.

Content Objectives

Maps are a form of information that can be presented and manipulated in both conscious and subconscious ways by the creators of the documents. Exploring and looking closely at a variety of maps will help users of maps become more critical readers of these documents which can be looked at and deciphered in so many ways. Those who control or produce maps wield much power and it behooves students and teachers to better prepare ourselves to interpret, understand and analyze maps much like we should so much of the data we are being bombarded with during this age of information. There are multiple objectives that I envision in this unit and in your units stemming from what I present here. Maps in this unit become a creative tool, a work of art, a way to interpret information when reading and my hopes are that students learn to appreciate and understand the depth and importance of maps through experimenting and utilizing them as a tool. I hope that teachers will realize that while the use of maps is similar to using other graphic organizers or note taking strategies that we regularly turn to in the classroom, the very nature of maps—their artistic qualities, their history and their diversity—will bring a new depth to the sometimes simplistic tools that we turn to in our classes. A chronological bulleted list of life events becomes an illustrated story line with visual and spatial representations that show a life story; a bubble like spider organizer listing the roots of a problem or conflict can become a colorful character brain map in which the causes and depth of the problems can be more readily seen through illustration, color, size and placement. Teachers are constantly reminded to differentiate instruction, to meet students at their individual levels and abilities; maps provide the perfect means to do just that.

For ten years of my teaching career in New Haven, I taught in an Arts Magnet School. I believe that all middle schools should be arts magnet schools. I feel this way because in an arts magnet school, everyone find their niche, their tools and their way to comfortably work through presented material that might otherwise be more difficult to decipher. Maps belong in this realm.

On a more practical classroom level, I would like this unit to achieve the following content objectives:

- Students will explore and discuss a variety of maps and map sources in groups as part of an initial

introduction to the unit

- Students will draw or create a variety of maps including, but not limited to maps of their community, maps of New England/the Americas, timelines depicting the life and times of Phineas Gage, self-portrait phrenological maps and others. Students will integrate the maps into their exploration of the life and times of Phineas Gage.
- Students will study travel writing as a genre, exploring both past and present writers as well as the purpose and types of travel writing.
- Students will utilize journals to write creative narratives around the journey depicted in *Phineas Gage: A Gruesome but True Tale of Brain Science* by John Fleischman.
- Students will explore and experiment with point of view in their journal writing and their map creations, identifying how point of view and scale in maps can change meanings.
- Students will utilize insights and questions raised through journal writing to pinpoint and explore topics for a research paper to be created after going through the unit.
- Students will use technology, including the internet, in order to research and explore maps and topics around the life and times of Phineas Gage.
- Students will work collaboratively on the creation of maps and journal entries and will present finished work in classroom discussions and presentations.
- Students will explore maps not only as tools for directions, but as works of art, graphic organizers, and objects of discussion.

The Text-*Phineas Gage*

New Haven seventh graders have been reading the text, *Phineas Gage: A Gruesome but True Story of Brain Science* by John Fleischman as part of a non-fiction unit for many years. As earlier mentioned, I chose this text because I have found different types of mapping to be very helpful in the teaching of literature and this book covers a lot of material that will be more readily digested through the use of maps. This relatively brief, but complex book on a historical figure who played a major role in the development of nineteenth-century brain science is the perfect candidate for this unit.

The tragic accident that forever bound Phineas Gage's life to the history of brain science also sent a three foot tamping iron projecting up through Phineas' cheek, behind his eye and out the top of his skull. Amazingly, Gage was not immediately killed in the accident and on the contrary, was able to sit up and communicate with others even though the three foot projectile had left him bloodied and disoriented with a hole in the top of his head. Needless to say, this book either immediately hooks seventh graders or grosses them out, or in most cases a little of both.

The book works well for my mapping unit because it lends itself to many kinds of maps and is also a story of a journey which will become more important later in the unit when we discuss travel writing. Students get their bearings as we discover and discuss the importance of railroads in the 1840s with maps of railroads in New England as well as the Transcontinental Railroad. As mentioned above, I will continue to utilize maps with a map of New England as a starter with my unit and then begin to follow Gage as we travel to New York, Boston, eventually around the horn of South America and to Chile for some time before proceeding up the South American coast and to San Francisco, California. Without incorporating multiple maps on Phineas's actual physical journey, students will not truly understand and appreciate the amount of time and space that our

hero covers during his brief notoriety.

Like any great character of literature or real life, Phineas also undergoes a deeper, complicated internal, mental journey. The explosion not only changes Phineas' life, but also changes Phineas' personality. He is a different person after the accident and this fact lends itself to the mapping of personality. In a discussion of nineteenth-century phrenology that is introduced in the book, students are able to make personal connections with the text as they map the personality traits Phineas displayed before and after his accident as well as the traits that make them who they are.

Another important way that this story can be mapped is the use of a timeline. The timeline that I use with this book has always become a really useful work of art, as students illustrate and decorate the timelines either online or with construction paper that follows the life and times of Phineas Gage.

Finally, much of this book is about brain science and a large portion of the book focuses on how the brain works. This section of the book cries out for a mapping of the body's nervous system, and the complex connection of webs of nerves and synapses can be explored through this text.

Introducing Maps

Where do you really begin with maps in a classroom? The good news is that you can basically count on the fact that all students have had some encounter with a map at most ages. The more challenging news is that there are so many maps from so many eras that once you begin exploring maps you fall into a black hole out of which you may find it hard to climb.

In *The Sovereign Map*, Christian Jacob points out that maps have been around for ages and have taken form in various media. Maps are created on all kinds of surfaces. They can be created on the body, or as mosaic maps, as maps on clay tablets, as maps on glass, parchment and other materials. Like many works of art, maps are often framed in a variety of decorative and informative artwork. Although they can be plain and undecorated, maps can be colorful, digital, illustrated and highlighted. Give students a copy of the Ptolemaic system of the universe and ask them "What do you see?" as you might with any piece of artwork in a museum and watch the magic of art and maps unfold and intertwine before your eyes.

As we follow the travels of Phineas Gage in this unit, telling students of Phineas' journey around Cape Horn of South America versus showing them the route on a map, brings depth and deeper understanding to the lesson. For this particular unit, after introducing an initial plethora of maps, there are several specific maps or types of maps that I will focus on to help us follow the trail of Phineas Gage:

- Basic Wall Map-Although it is a simple source, the pull down map that is on my wall in my classroom is one that I constantly refer to throughout the year. It is easy and convenient to use and helps students get their bearings. The old fashioned pull down maps has many layers, which prove to be useful for multiple lessons. There is a world map, a map of the United States, a map of South America, one of Africa and other regions of the world. The wall map in my room is actually a small collection of basic maps that can help students get their bearings when discussing certain aspects of literature or non-fiction.

- Maps of US rail system-Phineas Gage was a railroad worker and his job laying tracks in Vermont was an important turning point in American history. There are plenty of copies of map routes and the transcontinental railway that led to America's expansion to the West. Invite students to take a look at the Library of Congress collection, Railroad Maps, 1828-1900 (<https://www.loc.gov/collections/railroad-maps-1828-to-1900/about-this-collection/>). The digital collection has thousands of railroad related maps including an 1867 map entitled *Map showing the line of New Haven, Middletown and Boston Railroad and its connections*. Challenge students to find the Rutland Burlington line that runs right through Cavendish, VT, the site of Phineas' accident.
- Timelines-Students will create a timeline on the life of Phineas Gage as a part of the unit. This mapping exercise will help students to sift through and summarize the material being read. It also gives students a chance to be creative and decorate their work. When we think of timelines, we often think of the basic timeline, a straight arrow like line with bulleted stops and information much like markings on a ruler. But a quick look online gives teachers dozens of creative ideas to make timelines including a scroll timeline that opens like ancient scrolls, another timeline uses butcher paper to keep posted on a classroom wall and add to as the story progresses. Still other ideas are vertical, folding timelines, paper link timelines (for younger students) and storyboard timelines. I have used Padlet to make timelines with students both individually and as a class. There are other digital resources that teachers can use to make timelines including Popplet, Sutori and Time graphics. Google slides can also be used to make digital timelines.
- Globes-Like the timeless classroom wall map, the globe has been an object of great interest to scholars and students for ages. There is something about putting your hands on a globe, spinning the earth on its axis, randomly running your hands across the continents and the oceans that makes a globe a tactile tool that will appeal to some students more than a digital or paper map. Not only are globes more accurate than their one dimensional cousins, but they are by their nature interactive. Put a globe in your room and see how long it takes for a student to approach it and trace the imaginary routes and travels of all of our dreams. Ask student to trace the route of his voyage from the east coast around Cape Horn and up the coast of Chile. Raised relief globes allow users to run their fingers across mountain tops and feel the trenches of the ocean. A truly incredible digital globe is Google Earth. Students will surely enjoy exploring this digital globe as dive into the wide range of maps and globes available for them to discover.
- Atlases- From Mercator's first atlas to the modern day atlases that populate our homes and classrooms, the Atlas is a great introduction to maps and the placement of maps in a series or set. Students can be introduced to atlases by discussing the placement of the maps within the atlas. Discussions on the placements of maps in an atlas can stimulate students to visualize and analyze the structure of the world in ways that they might not have otherwise.
- Science-related maps- As the title of the text we are utilizing suggests, the story of Phineas Gage is not only a story of a person's journey to overcome a challenging brain injury, but the book is very much about brain science. Scientists have been mapping the human body, including the brain, for hundreds of years. There are a host of maps that can be explored in the study of Phineas Gage. From the nineteenth century science of mapping of personality traits on diagrams of the brain, known as Phrenology, to modern day mapping of the billions of neurons which race through our nervous system, migrating to specific areas of the brain where they position to make our body work, the story of Phineas Gage is a story about science. In his book, Fleishman gives us some maps on Phineas' accident with several

illustrations mapping the angle and route of the tamping iron through Phineas' skull. The author also provides a map of the human body when discussing the theory of four humors, the medical theory that asserted four bodily fluids (blood, phlegm, black and yellow bile) determined the physiological makeup of humans. Maps and images of the theory are plentiful on the internet as are images of the Phrenological head that was a part of medical theory during Phineas' time. Part of Phineas' journey is psychological. His personality actually changed dramatically after the three foot iron damaged his frontal lobe. When discussing Phineas' psychological changes and during our discussion of Phrenology, I invite students to map their own "Phrenological selves" in an attempt to reflect on their own personality and what characteristics they can identify as their own. Fleishman also includes a large number of maps of the brain. Brain mapping has come a long way since Phineas' time. On their website, The Center for Brain Training asserts that brain mapping "is one of the most vital diagnostic tools available in the field of neurofeedback for use with people who have brain based conditions."

(<https://www.centerforbrain.com/services/eeg-brain-mapping/>) Finally, any discussion of brain science must include a discussion of the billions of neurons that interact through our brain and nervous system. As advances in technology increase so too does our ability to see and map the brain. Have students check out the USC's Humanconnectome Project (humanconnectomeproject.org) and browse the gallery for numerous detailed images as neurologists become more skilled at mapping the brain.

- Digital Maps- There are dozens of digital mapping sources online that students and teachers can utilize to explore and create maps. Start with Google Earth and Google maps, most likely somewhat familiar to your students, but which still provide a lot to explore. Jamboard allows students to insert and manipulate maps. National Geographic Mapping Resources, Mapmaker, Scribble Map, Story Map and GeoGuessr are just a few of the many resources available for exploring and creating maps online.
- Personal favorites-I will surely punctuate this part of the unit with some of my favorite maps from my years as a traveler. From the AAA triptiks which allowed me to navigate from CT to TN from the backseat of my parents car every summer, to a map of Taiwan where I traveled extensively, utilizing local maps for both recreational and practical purpose to navigate around the island, and finally to an illustrated map of Germany's Fairy Tale Road on which I followed the footsteps of the Brothers Grimm several years ago. All of us have favorite maps and stories about maps to share with our students and by doing so we are making connections and bonds that are an integral part of any healthy classroom atmosphere. After sharing your favorites, invite students to come up with a map that they find interesting or has touched their lives in some way.

Travel Writing

Travel writing is the third aspect of this unit that includes mapping and journaling. I will spend some time introducing students to travel writing. Again, where you begin with your unit depends largely on what age group and subject matter you want to explore. Some of the earliest travelers such as Genghis Khan, Marco Polo, Christopher Columbus, Ferdinand Magellan, and Lewis and Clark utilized both maps and written descriptions to document their journeys through uncharted territories.

Again, where do you begin with your introduction to travel writing? What sort of travel journals will students utilize? Will they use the semi-hard cover marble notebooks students have traditionally journaled in in my

classroom or will they utilize the digital journals that we discovered during the pandemic? Others may want to create their own journals, out of material that they see fit. Either way, students should be given much choice in the creation of the journals which will really take on a more personal value the more they are able to make them their own. Students will then be asked to choose a perspective to write from in their travel writing. Brainstorm the possibilities with students as you begin this part of the unit. Will they join Phineas on his journey as a friend or family member? Perhaps they will write from the perspective of a doctor, a nurse a social worker, a colleague. Will they travel as a creature, such as a mouse hiding in a crate of dynamite, or a bird following Phineas from above? Perhaps they will take on the perspective of Phineas himself or perhaps they will write from the perspective of another character all together. Again, the possibilities are endless and giving students' their own choice is always key to any successful lesson.

I will begin with my own travels and my own writing. I find that students are intrigued by my journeys across Asia and Germany. But if you have not gone on such a journey, how do you introduce this concept to students? I suggest briefly exploring the writings of Marco Polo, Lewis and Clark or modern day writers such as Paul Theroux or others.

There are many resources worth sharing with students when discussing travel writing:

- Travel Guides- There are dozens of travel guide books available for the modern traveler that mix travel writing and maps in a convenient tome worth looking at. Many students are probably not aware that travel writing is really its own genre with dozens of publishers, books and titles covering many destinations in the world. Books such the DK series or the Lonely Planet Guides become traveler bibles for expats traveling the globe. As we begin our discussion on travel writing, I will introduce some of these titles to students and point out the practicality of such writing in modern times.
- Popular Travel Writing- There are dozens of popular travel writers circling the globe writing fiction and non-fiction. Sharing this genre, the titles and snippets of travel writing of authors such as Paul Theroux and Colin Thubron will serve students well as they prepare to become travel writers themselves. I find the travels of Marco Polo fascinating. He traveled over 25,000 miles from Venice to Asia and back and documented his writing much like modern travel writers continue to do today. I will introduce Marco Polo to students as an exemplary travel writer, utilizing his own words, maps of his journey and the PBS movie "In the footsteps of Marco Polo" to hook students on travel writing.
- Travel Blogs-Travel blogs really are an incredible resource that is just a modern, digital version of Marco Polo's journey across Europe and Asia. There are thousands of travel blogs on the internet that teachers and students can utilize to experience another form of travel writing. Teachers should do their homework in regards to which blogs will be useful for students in the unit, but be forewarned, the incredible photography, stories and number of blogs out there will have you sitting in front of your computer for a while, virtually traveling the world with some very interesting hosts. Start by checking out Maptia.com get a look at some of the best blogs out there.

Journaling

At the center of this unit is the students' journals. As we read Phineas Gage and follow both his internal journey as well as his actual physical journey, the journal becomes a place for a reflective documentation of the book as well as a creative outlet where the exploration of maps and text can be recorded and intertwined. At the same time, more practical aspects of a language arts class should also be explored through journal writing. The juggling of text, maps, the concept of travel writing and responding to literature all come together to become the end product of the unit, the travel journal based on the reading.

I will also use my own personal travels and experience following maps and writing about distant lands. One of my favorite articles was entitled *Searching for Koxinga*, in which I attempted to retell the story of Koxinga, a Japanese born explorer who invaded Tainan, Taiwan in the seventeenth century. I will tell the students my story with the article and some photos I can share with students.

During the pandemic, my students have gotten used to writing in digital journals, which they decorate and make their own much like the journals we regularly write in during a normal school year. Students can log in as a fellow traveler as we follow Phineas from New England to New York, from Boston to Santiago and then onto California. Students can sketch maps of the trans-continental railroad, the rocky coast of New England and the dangerous sea route around Cape Horn and up the coast of South America. Students will fill in the blanks in what we don't know about Phineas' life away from the US as they imagine the trip across the oceans, from the Atlantic to the Pacific, and from the East Coast onto the coast of California in their journals.

The journal will also serve as a stepping off point for students for a non-fiction research paper that students will write as part of New Haven Public Schools 7th grade curriculum. My hopes are that as students work through their journals, mapping and following Phineas Gage, they will find topics of interest that later will be the subjects of research papers which they will write (not included in this unit).

Possible journal prompts (in general order of occurrence throughout the unit):

- Draw a map of our school neighborhood.
- Write an entry introducing your journal character.
- Describe Phineas' accident from your character's point of view, draw a map of the route from the accident to the doctor's office.
- Write an entry describing Phineas' journey from New Hampshire to Boston with Dr. Cavendish.
- Create a map following Phineas' journey (by boat) from New England to Chile, write three entries describing the dangerous journey.
- Draw the Stage Coach route that Phineas followed from Valparaiso to Santiago.
- Create a journal entry and map describing Phineas' voyage from South America to San Francisco, CA.
- Create a map tracing the route Phineas' skull took after being exhumed and transported to Harvard Medical School.
- Draw a map comparing Harvard and Yale in the year that Phineas' skull arrived at its current resting place: Harvard Medical School.
- Write a final reflection on Phineas' journey.
- Create your Phrenological self-portrait with a description of what makes you who you are.

Local Resources

Nothing brings life to a classroom like an outside resource or field trip. Planning a field trip or reaching out to the community for speakers who can come into the classroom and share with students is something that all teachers should try to incorporate into their lessons whenever possible. One of our favorite activities when reading Phineas Gage has always been a field trip to The Cushing Center at Yale's Harvey Cushing/John Hay Whitney Medical Library (yale.edu/cushingcenter) where a collection of over 400 brains donated by patients of the famed brain surgeon Harvey Cushing are housed with thousands of articles, specimens and memorabilia related to brain science and brain tumors. This is a fabulous field trip that students engage in yearly as they explore the area on a scavenger hunt that screams Phineas Gage and brain science. Although you may not have this exact facility in your district, search local universities and libraries for resources such as the Cushing Center or visit the center online with your class.

Another exceptional resource available to us in New Haven is the Yale Beinecke Rare Book and Manuscript Library. Along with thousands of rare and priceless books and manuscripts, the library also holds thousands of rare maps and atlases. And while the library is normally open only to Yale students and faculty, the online site does make much of the material available for public browsing. (<https://beinecke.library.yale.edu/>)

Activities

The following activities are meant to give readers an idea of how I plan to implement this unit in my 7th grade classroom. I have tried to illustrate activities that will be both pivotal in the unit as well as easily adaptable to your needs as a classroom teacher with your own students and your own given subjects

Lesson 1-What is a Map?

My first days of implementing this unit will focus on the reintroduction of maps and mapping to students. I know with my students, the extent that they will have used or thought much about maps will be linked to either Google Map directions or projects in their Social Studies class. I want to reintroduce maps to students to help them realize that maps really are still a part of our lives.

Initially, the class will start with some discussion questions around maps. I will give students time to work in small groups and answer a few questions about maps. One note taker will be assigned to record responses from the group as they take time to respond to some basic questions. What is a map? When is the last time you used a map? How many different kinds of maps can you identify?

Students will take five to ten minutes to discuss the questions before they come back together to have a class discussion on the current state of maps in seventh grade. I will ask students to identify maps in the room. In my classroom there is a pull down wall map, an emergency exit map (for fire drills and code reds) and a small globe on my desk. I will ask students to identify what the maps are good for and help them recognize that maps have many functions.

Next, I will share some images of older maps with students and utilize a technique introduced to me and

several other teachers through the Yale British Art Museum. The technique entitled the MOMA method encourages students to look at artwork and make observations that help all of the students come to some interpretation that all can find useful. It is a fairly straightforward and useful technique that begins with allowing students to take a few minutes to silently view the object. After a few minutes of silent observation, the teacher asks simply “What do you see?” And the students make visual observations of the artwork. The teacher reiterates what is said and if students have any commentary on what they see the teacher follows up with a simple, “What makes you say that?” This simple technique of observation and sharing allows students to make valid observations and starts them onto a path of simple interpretation. I will begin the lesson with an old, but complicated map from our course, the Hereford *mappa mundi*. Housed in Hereford Cathedral, this unique medieval map is like no other map in the world. Invite students to explore the map at the interactive 3D Hereford site (themapamundi.co.uk). Students will be able to identify animals and myths, cities and countries as they explore the map. After observing and discussing that map, I will go to the other extreme with a NASA map of the Milky Way. The interactive map, located on the NASA website and made in partnership with ESA (the European Space agency) shows the far reaches of the galaxy and beyond.

After utilizing these two book ends, I plan to set up a sequence of different types of maps for students to observe. We will look briefly at ancient maps, subway maps, timelines, Google Earth and, again using the simple method of observation mentioned above, begin to realize the depth and scope of maps in today’s world.

Finally we will close the session with an activity I call “map it.” In this activity students will be working in groups. I will have an assortment of locations written down on cards for each group. Among the locations will be, *the school grounds, my bedroom, a favorite place, my bus route home* and others. I will put five minutes on the clock, drop the place card down in the center of each group’s table and allow them to quietly get to work. Once students have finished, I will ask them to share with the other groups. For example five students from group one who were mapping “My closet” will get up and share with the rest of the class, challenging other groups to guess the location of the map. Once map locations have been identified, students will be invited to share the details of their maps with the rest of the class. The homework, which concludes the day’s lesson is to draw a map of the students’ neighborhoods.

Lesson 2- Maps as Stories

In this activity I am attempting to help students make the link between maps and the stories that they can represent. Much like the day or two I took to reintroduce maps to students I would like to explore for a day or two how we use maps to tell or compliment stories. An amazing place to start with this part of the unit is with the journey of Marco Polo.

I will continue with the day’s activity by seeing what students know about Marco Polo. With my seventh graders I suspect that I can call out “Marco” and will receive the swimming pool classic response “Polo” from much of the class, but without some prompting I suspect the conversation will end there. That is when I will show the students a few images of Polo, pull down my wall map to introduce his journey and begin to share with students one of the greatest travel writing feats ever undertaken. Marco Polo’s journey, like so many journeys that we all take throughout life, was an exciting and colorful one in which he reported on geographical challenges and unique cultures that many of us to this day have not been exposed.

Part of the reason I want to start with Marco Polo is that Polo’s incredible journey across Asia spanned

thousands of miles, several countries and scores of different cultures. Marco Polo was one of the world's first successful travel writers, which is what I want my students to imagine becoming in this unit. There is a lot of material to use regarding Polo's journey as well. In this part of the unit I will begin introducing the book to students by looking at my wall map to introduce Polo's route, reading some sections of the book to students to let them get a feel for the work, and sharing the Public Television documentary *In the Footsteps of Marco Polo* with students. This incredible film, produced in the early 90s, follows two travelers from Queens New York, who set out to retrace the 25,000 mile journey from Venice across Central Asia, to China, and back. It is a beautiful film in which the travelers not only try to follow Polo's route accurately, but actually emulate his mode of travel and attempt to visit the exact sites that Polo wrote about in his book. For seventh grade I will utilize clips from the roughly ninety minute film, but depending on the age group you are working with and what your unit entails, you may want to use more or less of the film. Either way, I highly suggest you watch the entire film.

As I share quotes from Polo's book, I will invite students to imagine what it was like to travel with Polo on such an incredible journey, and will let student know that at the end of this section of the unit I will ask them to create a journal entry as if they are on the journey with Polo.

I also suggest, depending on what age you are working with, that you read Italo Calvino's classic *Invisible Cities* which is a fictional depiction of the conversations that may have occurred between Marco Polo and Kublai Khan, the Mongolian Emperor who laid claim to so much of the land that Polo was able to travel. There are a thousand different ways to incorporate this book into this part of the unit, and can also provide some creative background for you and your students.

Finally, here I will ask students to perform a task that will be the foundation for our reading and documenting of the life and times of Phineas Gage; I will ask students to become travelers themselves and write a journal entry alongside Marco Polo himself. This is the sort of writing that we will be doing as we read Phineas Gage, so here with Marco Polo, I will attempt the same. Students must first take on a character, or point of view to write from. Perhaps they will be a fellow traveler, a camel, a grain of sand or Marco Polo himself. What observations can they make about one of the cities or geographic formations, a desert, the mountains, an ocean ride, the huge lying Buddha? Again, this is practice for students as they prepare to accompany Phineas Gage on his journey. Encourage students to illustrate the journal entries with pictures and maps. Have students share out their journals as a class before moving onto Phineas Gage.

Lesson 3- Following Phineas Gage

In this lesson we will begin utilizing our background knowledge on maps and travel writing to follow in the footsteps of Phineas Gage. A note for teachers utilizing the unit: here is where your modifications and tweaking of material will probably be most useful. This unit could just as easily be called *Mapping the Life and Times of Sacajawea* or *Mapping the Life and times of Elie Wiesel*, of Tommy the Train, of Walt Whitman or a number of others.

After a brief introduction to life in the US in 1846 (the year of Gage's accident) including a map of the United States, we will begin reading Phineas Gage as a class and creating our journals which will help us to map the life and times of our hero.

Much as we practiced during our Marco Polo exploration, I will challenge students to take on a persona during

their journal writing. The life changing accident that sends Gage into a very different life adventure occurs during the first few pages of the book. He is a bloody mess and his life, brain and personality have changed in the blink of an eye. I take time here to make sure students really understand what has just happened and how miraculous it must have been to witness this freak accident.

And so my official first assignment in the Phineas Gage Journals is to decide what persona students will be and describe (or summarize) the accident and the brief aftermath in which Phineas is loaded into an ox cart and brought to the doctor's office in the nearby town.

I will brainstorm possible personae that students can take on, reminding them that they should be thoughtful about figuring this out as they will continue to develop the persona throughout Phineas's journey. I will point out that their character is basically summarizing what we have just read through their unique point of view, and I will also ask students to add a map to their entry as will be the case in most of our journal entries in this unit.

Before letting students get to work we will review some of the maps that we have discussed as we frontloaded this unit. The possibilities in this first journal entry are as endless as they have been throughout this unit. A more basic approach may be to create a map of Vermont, highlighting Cavendish, the town where the accident took place. Another approach may be to map the path of the tamping iron as it entered and exited Phineas' head, still another more creative map might be a mind map, which could show Phineas' thoughts before the accident, or the persona's characteristics. By including these three elements of journal writing and summarizing, creative writing and mapping, students will understand the approach we will be taking with our journal writing as we move forward through the unit. As always, invite students to share their work in small groups or pairs.

Conclusion

Rediscovering maps through this seminar has been a wonderful reminder of the usefulness of a genre that while in many ways seems so overlooked, but at the same time touches all of us in one way or another. Maps will continue to shape my teaching and presentation of material in my classroom. As previously mentioned, I feel that this unit can be adapted to work in several subject matters and at several grade levels. Whether you are a social studies teacher following the trail of Lewis and Clark through a reading of *Undaunted Courage*, or a Kindergarten teacher exploring reading through *Thomas the Tank Engine*, a good start for your unit is exploring maps to some extent. The possibilities as to how deeply you want to dive into the subject are limitless.

Annotated Bibliography

Calvino, Italo. *Invisible Cities*. This fascinating piece of fiction by one of Italy's most beloved writers, depicts a fictional conversation between Marco Polo and Kublai Khan that explores the questions of discovery, conquest, exploitation and intrigue that can surround the of mapping the world.

Garfield, Simon. *On the Map: A Mind Expanding Exploration of the Way the World Looks*. New York: Gotham Books, 2013. A fascinating study of how much maps have become an intricate part of our world. Chapter twenty-two, *Mapping the Brain*, includes findings on brain studies and case studies that parallel the Phineas Gage reading.

Jacob, Christian. *The Sovereign Map: Theoretical Approaches in Cartography throughout History*. Chicago: University of Chicago Press, 2006. This comprehensive look at maps and mapping introduces not only a history of maps, but also examines the intricacies of maps and the way that we as individuals and as a society interact with maps.

Jennings, Ken. *Maphead. Charting the Wide, Weird World of Geography Wonks*. New York: Scribner, 2011. Jeopardy champion and map enthusiast, Ken Jennings examines some interesting and fun anecdotes around our culture of maps and mapping.

Monmonier, Mark. *How to Lie with Maps*. Chicago; University of Chicago Press, 1991. An interesting study of how maps, simply by their nature (and sometimes intentionally or not) are open to various interpretations that can be deceiving.

Polo, Marco. *The Travels of Marco Polo*. New York: Penguin Classics, 1958. This travel journal written by the legendary traveler, is a must in discussion of the history of travel writing.

Resources for the Classroom

Barber, Peter. *The Map Book*. New York, Walker and Company, 2005. This rich collection of photos of maps begins includes hundreds of maps dating from 1500 BC to modern times.

Belliveau, Denis & Francis O'Donnell. *In the Footsteps of Marco Polo*. New York: Rowman & Littlefield Publishers, Inc., 2008. This large, colorful book is a companion to the 2008 PBS film on a pair of young men from New York, one an artist and one a photographer, who set out to retrace the footsteps of Marco Polo's 25,000 mile trek across Asia.

Berthon, Simon, Andrew Robinson, Patrick Stewart. *The Shape of the World: The Mapping and Discovery of Earth*. New York: Rand McNally, 1991. From the oldest surviving map of the world to the history of mapping around the world, this beautifully illustrated book is a companion to the six part PBS series on maps and discovery.

Fleischman, John. *Phineas Gage; A Gruesome but True Story about Brain Science*. Boston: Houghton Mifflin Company, 2002. The main text for this unit, the story of Phineas Gage is the story of the life of a nineteenth-century railroad worker whose life is turned on end after an accident with explosives.

Lewis-Jones, Huw, editor. *The Writer's Map: An Atlas of Imaginary Lands*. Chicago: University of Chicago Press, 2018. This colorful and unique atlas examines maps depicting journeys of some of the world's most favorite literature including *Robinson Crusoe*, *Winnie the Pooh* and John Steinbeck's *Travels with Charley* and many others.

Children's Resources

Balkan, Gabriella. *The 50 States; Explore the USA with 50 Fact-Filled Maps*. London; Wide eyed Editions, 2016. This colorful and creative book has pages of infographics and facts that will inspire students to be more

creative with their own maps. There is an activity book that can accompany the book.

Mizielinska, Aleksandra. *Maps*. Somerville, MA: Candlewick Press, 2013. This richly illustrated book utilizes maps to introduce facts about cultures from around the world to young readers.

Mizielinska, Aleksandra. *Maps Activity Book*. Somerville, MA: Candlewick Press, 2015.

Wright, Ian. *Brilliant Maps for Curious Minds; 100 New Ways to See the World*. London; Granta Books, 2019. This thought provoking atlas creatively interprets maps in a number of categories including People and Populations, Crime and Punishment, National Identity and more.

Smithsonian Children's Illustrated Atlas New York; DK Publishing, 2016. My students love the DK series so this illustrated Atlas will be a nice addition to any classroom library.

Implementing the Common Core Standards

CCSS.ELA-LITERACY.RI.7.2 Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text. *Students are asked to do this several times in their journal assignments.*

CCSS.ELA-LITERACY.RI.7.5 Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas. *Students are asked to reflect on how Fleishman structures his book in a manner that interweaves biography, science and history.*

CCSS.ELA-LITERACY.RI.7.10 By the end of the year, read and comprehend literary nonfiction in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range. *The reading of the text does require the mapping/scaffolding of the complex sections of the book.*

CCSS.ELA-LITERACY.W.7.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. *The students chosen persona retells the story of Phineas Gage and the development of brain science through words and maps.*

CCSS.ELA-LITERACY.W.7.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. *The creative nature of journal writing in this unit will cover this standard.*

CCSS.ELA-LITERACY.W.7.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. *Students are keeping a journal over an extended period of time.*

CCSS.ELA-LITERACY.SL.7.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly. *Throughout the unit, students are asked to share and engage each other in their ideas.*

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