

# FEMALE TRAILBLAZERS

In Land, Space, Water, and Ideas

Resource Toolkit

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## ABOUT THE TOOLKIT

**Grade:** 4

**Topic/Theme:**

**Unit 2: The Nature of Exploration**

Female explorers of land, space, water and ideas.

**Objectives:**

Primary:

4.2.1 Examine the stories of various explorers of land, water, space, and ideas.

Secondary:

4.2.2 Analyze factors that motivate exploration

4.2.3 Evaluate the impact of exploration over time

## ARTS-BASED LESSON PLAN

**Lesson Title:** Women's restrictive fashion

**Grade Level:** Grade 4

**Lesson Topic:** Describing and modelling women's restrictive fashion

**Objectives:** Students will observe, research and describe the historical significance of the restrictive clothing of female explorers and the consequence of such clothing on women. Students will use their research to draw, create, or make a model of the clothing.

4.2.1 Examine the stories of various explorers of land, water, space and ideas.

4.2.2 Analyze the factors that motivate exploration

4.2.3 Evaluate the impact of exploration over time

This unit will examine the motivational factors of women exploring these fields and this activity will point out that fashion was a part of a barrier to women willing to contribute in these fields.

### **Materials:**

Pictures of women in history that contributed to exploration through land, space, water or through ideas.

**A** - Poster paper and markers **B** - coloured paper, glue, scissors paper doll models and tape.

**C** - modelling clay and dolls **D** - felt and glue.

### **Procedure:**

In previous lessons students will have learned about women's contributions to exploration and advancement. They will have read articles, discussed, and presented different women in history and become familiar with the topics.

Introduction as a class: Show students a video, pictures, or, if possible, show the actual clothing women wore historically. The film *The Contributions of Female Explorers* by Courtney Stephens would work well here. Guide the class in discussing how it would be difficult for women to do certain jobs in each type of clothing. Ask: How does it make things more difficult for these women? What did the men wear at the time? Compare the clothing styles of men and women and how they changed over the years. Ask: Did the changes in fashion help women? Were women expected to interact and participate equally with men at this point in time?

If time permits have students dress up in restrictive clothing, (winter jacket, snow pants, hat, gloves and boots) and ask them to do simple classroom activities (sharpen pencil, open books, write or colour) in order to demonstrate how bulky clothing can be restrictive.

In groups: In small groups or pairs, students will then choose either a female explorer discussed in class or a female explorer of importance to them and history, (cleared by the teacher) and they will research the clothing this individual wore.

In their groups or pairs, students will discuss how this clothing was restrictive and how it was a complication in their activity of exploration.

Students will then decide how they want to model the clothing. Some possibilities include: making a drawing using markers and poster paper; making a paper doll using paper and making paper clothing for the flat paper dolls; using modelling clay over a doll; making a felt model using felt and glue, similar to the paper doll models.

\* If students are in need of support or class is short of time, a paper doll model or drawing may be used with a choice of printed examples of clothing to cut, or trace and choose from.

Closure: Have students either write a short paragraph or make a brief presentation to the class to explain why they chose who they did and describe the clothing, how it was restrictive to the women and their goals, and how it could be altered to make exploring easier.

#### **Extension Ideas:**

If the teacher chose to have students draw a 2d design of the clothing, use the drawings as a template and try and recreate a 3d model using modelling clay, papier maché, felt or fabric.

Winter option: Make snow-women explorers and get permission to use food coloured spray water bottles to add colour to the snow-women's clothing.

Continuity and change: Design and draw clothing that would be ideal for different exploratory jobs. Compare and contrast the original designs with the historical clothing.

Present models to peers or other classes demonstrating an understanding of the fashion at the time, politics of the world and why the fashion was restrictive to women.

#### **Evaluation:**

Are students able to recreate the clothing of their chosen person?

Can the student describe why it was restrictive to their chosen activity?

Are students able to compare this historical clothing with a more suitable choice of clothing for that explorer?

Were the designs coloured and was attention paid to detail?

Photo examples to base project on:

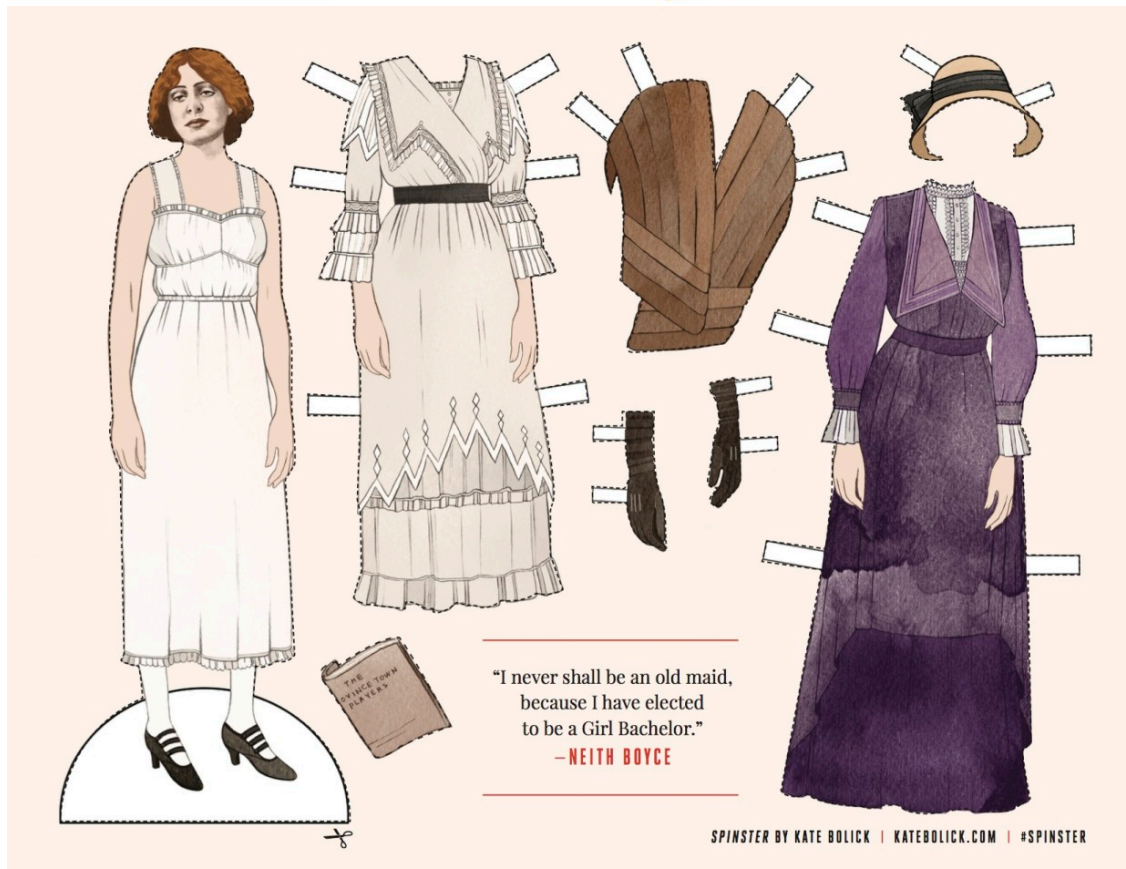




Premade Paper dolls:

Sources: <https://lithub.com/the-spinster-hall-of-fame/>;

<https://www.kiwifamilies.co.nz/articles/make-your-own-paper-dolls/>

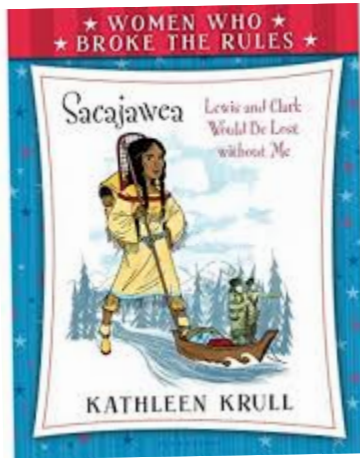




## RESOURCES

### BOOK SUMMARIES

#### 1. Sacajawea: Lewis and Clark Would be Lost Without Me



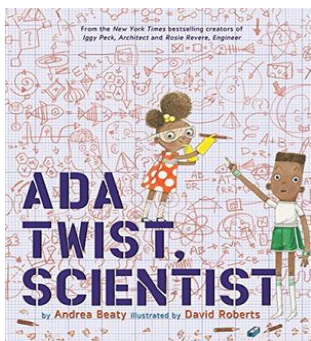
By Kathleen Krull

from the *Women who Broke the Rules* Series

<https://www.amightygirl.com/broke-the-rules-sacajawea>

The explorers Lewis and Clark are well known for leading the first American expedition across the western United States, but did you know that their expedition succeeded because they were guided by a 16-year-old Lemhi Shoshone woman named Sacajawea? Carrying her baby on her back, she traveled over four thousand miles by foot, canoe and horse, all the way to the Pacific Ocean. Sacajawea acted as a guide and an interpreter, helping Lewis and Clark establish cultural contacts with Indigenous peoples. In *Sacajawea: Lewis and Clark Would be Lost Without Me*, Kathleen Krull introduces young readers to the story of this courageous woman and her remarkable journey.

#### 2. Ada Twist, Scientist



By Andrea Beaty

In a series of books about her classmates and their various passions, Ada Twist is always curious. Now, in her own book, Ada Twist is a young girl who has a passion for science. Though she doesn't say a word till she's 3, she's always investigating the world around her, and when she does start to talk, she is FULL of questions. Her family tries to support and accommodate her curiosity, even when she follows her nose, single-mindedly investigating the source of a bad smell, and turns the house upside-down. But putting the cat in the washer is the last straw, and her parents send her to "the Thinking Chair." But Ada decides to write scientific formulas all over the wall instead of just going to think like her parents had asked. Ada's parents decide to help foster her love for science: "Because that's what you do when your kid has a passion." Ada continues her investigation on the bad smell in her house and involves her class in her experiment. Inspired by the scientific minds of Ada Lovelace and Marie Curie, this book helps to empower young girls and others about diversity and science.

## ONLINE RESOURCES

### INTRODUCTION TO FEMALE EXPLORERS

#### **TEDEd: The Contributions of Female Explorers by Courtney Stephens**

<https://ed.ted.com/lessons/the-contributions-of-female-explorers-courtney-stephens>

This animated short film from TedEd outlines some of the factors that prevented women from becoming explorers. It introduces three women, Marianne North, Mary Kingsley and Alexandra David Néel, who defied societal expectations and made important contributions to the study of previously little-understood territory.

The film provides an interesting starting point for think-pair-shares and then a whole class conversation about exploration and history. Some questions we could discuss include:

- Why do you think we don't know much about female explorers?
- Are girls and women freer to explore today? Can you think of any examples of present-day female explorers?
- Why is it important for women to have the chance to explore?
- In the film, what did you notice about the clothes women wore in the past? Do you think their clothes affected their ability to explore?
- Do we need to travel far away to explore? One of the exciting things about exploring is that it lets you see and experience the world in new ways, even in our own backyards. What is something you've discovered while exploring? Did that discovery change how you see the world?
- It takes a lot of courage to do something different. Can you think of a time that you were afraid to do or say something different than the group, but you did it anyway? How did you feel at the time? How do you feel about it now?

Another use for the film could be as starting point for an outdoor journey of discovery. After discussing as a class what the three women explored and the different ways they recorded their discoveries (drawing, painting, journal entries, maps, etc.), we could go outside to the school yard or a local park if possible and explore. The teacher should bring along various materials for the students to document their findings as they go. Back in the classroom, we would share and discuss their representations.

LAND: MARIANNE NORTH

**Website of the Marianne North Gallery at the Royal Botanical Gardens, Kew.**

Images:

<https://prints.kew.org/collections/marianne-north>

About:

<https://www.botanicalartandartists.com/about-marianne-north.html>

Story:

[https://www.youtube.com/watch?v=YmF\\_6KAvck](https://www.youtube.com/watch?v=YmF_6KAvck)

Marianne North was a Victorian painter that documented a significant amount of plant life across the world and used her own resources to open a gallery in Kew Gardens dedicated to displaying her artwork. Acknowledged by Charles Darwin and British Society her 800+ paintings contributed to the field of botany, having discovered a new type of plant and even had a species named after her.

Using the video on YouTube by the Kew Collections or using the images on the of the Kew Collection website, students could use the paintings as inspiration for a multitude of projects. They could start with their favorite painting of a plant and research where they came from and study the country where Miss North first painted them. The teacher could use this website as a cross curricular project by then talking about these plants in science, drawing their own plants at home or from the park in art class and in creative writing they could write a short story about the animals that call this plant home.

If additional information is required, students could use their iPads or computers to read this online resource, to view the 100 or so available images and watch the video.

## SPACE: MAE JEMISON

### 1. NOVA's Secret Life of Scientists & Engineers

[https://www.youtube.com/watch?v=7q9X5T-NdQ&list=PLbGkbfsn-hiGCP\\_2pRW4Di4RG8mMq0pxm&index=2](https://www.youtube.com/watch?v=7q9X5T-NdQ&list=PLbGkbfsn-hiGCP_2pRW4Di4RG8mMq0pxm&index=2)

Nova's Secret Life of Scientists & Engineers is a PBS produced web series that profiles a wide range of scientists and engineers in short, engaging videos. In 2014, they did a 4-video series with Mae Jemison. She is best known as the first African American woman in space but to leave it at that, would be to sell her short. Mae has been a Dancer, Physician, Engineer, Professor, Astronaut, Author, Actress, Businessperson, and Public Speaker.

The four videos total just over 6 minutes but offer a launchpad for many deep topics in Social Studies.

- When she went to space, Mae had not really considered that she was the first African American woman to do so. Yet, she still had a sense of telling the stories of people who are often excluded. On her trip, Mae chose to bring a number of artifacts to represent these people and groups. Discussion: Whose stories are often omitted and why? What happens when we exclude people and groups? Why is it important to find these stories?
- At one point, Mae had to decide between pursuing a career as a professional dancer or going into medicine, both areas she was passionate about. Her mother guided her to medicine, saying she could still dance on the side, but if she became a dancer, she couldn't be a doctor on the side. Discussion: How do we choose what objectives matter in the world? Mae credits dancing as giving her many of the skills to be a successful astronaut, yet if Mae had become a professional dancer, even if she were the best dancer to have ever live, would we still be talking about her?
- Mae was inspired to go to space as a child. She looked up to Lieutenant Uhura, a character on Star Trek. Discussion: Why are role-models so important? Why does it matter to see diverse representation of potential role-models?

At the end of one of the videos, Mae says that if her younger self could meet her now, she thinks she would have been 'tickled.' So as an activity idea, students can try to think of themselves 30 years from now. They can imagine that they achieved an extraordinary goal and are now writing a letter to their younger selves about the accomplishment, what it has meant in the world, who and what inspired them, and the challenges they faced along the way.

**2. Podcast: StarTalk Radio hosted by Neil deGrasse Tyson  
A conversation with Mae Jemison**

<https://www.startalkradio.net/show/a-conversation-with-dr-mae-jemison/>

In this podcast, we hear Mae recount her life through conversation. She tells about her childhood, her various career paths, and her vision and goals for the future. The podcast is about 50 mins long but it is fairly well segmented, so educators could choose sections to share with student's based on the discussion they are hoping to fuel. The following are a few social studies topics covered:

- Neil and Mae discuss the battle for funding in the sciences, and Neil comments on the massive defense budget in the US. Discussion: What does this say about societal values? Which do you think is more important and why?
- Mae discusses how everything we do is in some way a selfish act but that is not necessarily a bad thing. She argues that we do good deeds because they feel good to do (selfish), even if they appear selfless. Discussion: Do you agree or disagree with Mae? What are your motivations for the things you do?
- Mae and Neil discuss inhabiting a new planet and some of the skills that would become more important. They give sewing as an example of something that would become a critical skill, because we wouldn't be able to transport much luggage with us on our journey. Discussion: Which other skills do you think would become critical? How are these skills valued in our current society? Do you think they should have more or less value and why? What are the ethics of humans inhabiting another planet?

As an activity, students could imagine that we have found a new planet that is habitable, and we have a chance to start over. This is our opportunity to correct many of the issues we have here on earth. Students could work individually or in groups to tackle a major issue and come up with ways that we could avoid it on our new planet. Examples of major issues are climate change, racism, social inequality, poverty, disease, and pollution.

## WATER: SACAGAWEA

### 1. Online Teaching Guide

<https://www.scholastic.com/teachers/lesson-plans/teaching-content/i-am-sacagawea-story-teaching-guide/>

The book *I Am Sacagawea* by Grace Norwich would work well as a whole class read aloud or as reader's theatre. Scholastic has produced an online Teaching Guide to accompany *I Am Sacagawea*, and while its focus is on the U.S., the ideas in the guide could easily be adapted to work in Canadian classrooms. For instance, the resource suggests opening a discussion by passing around the Sacagawea dollar coins, minted in 2000. This could lead to a conversation about the representation of Indigenous and other female explorers in Canadian history, with questions such as: Do we know anything about them? Are they pictured on any of our currency? What about other female explorers in Canada? Do we have public representations of them (currency, statues, museum exhibits, artworks)? When were those representations created? Why might this be the case? As an extension of the discussion, learners could be encouraged to learn about a female Canadian explorer and create their own representation of her through a medium of their choice.

The Scholastic website also offers several free printable resources, including vocabulary cards, concept wheels, text features recording sheets and a trail journal entry. The trail journal entry could be adapted into an activity where students depict an event that took place in the book, from Sacagawea's point of view. The activity could be prefaced by a discussion of how history was typically written by men. We could talk about how what we know about Sacagawea is drawn almost entirely from the journals of Lewis and Clark because at that time women were rarely given the tools to record their own stories.

Another direction to go with this activity could be to have the students imagine the rest of Sacagawea's story. We could discuss how, after the Lewis and Clark expedition ended, Sacagawea's story was no longer recorded and not much is known about the rest of her life. No one is even sure whether she died at age 24 or at age 95. We could develop possible theories about what she did after the expedition based on existing information, and then the students could create representations of what they think happened.

## 2. Sacagawea and Natural History

### Interactive Maps:

#### **Google Earth**

<https://earth.google.com/web/@38.77591,-90.48247,137.32431217a,625d,35y,359h,0.00000548t,0r/data=CjYSNBIGMGZiYjg5N2RiMTEwMTFINjlmZWYzOTljMWQzYTJlZWYiEHBic19sZXdpYXJrXzE>

#### **Mr.Nussbaum.com**

<https://mrnussbaum.com/lewis-and-clark-expedition-interactive>

#### **Mapmaker:**

<https://mapmaker.nationalgeographic.org/>

#### **NPS Storymaps – Plants and Animals Recorded by the Lewis and Clark Expedition**

<https://www.nps.gov/gis/storymaps/maptour/v3/index.html?appid=2909c502fd6a498f8ad4f8b3ec5aeab> (Animals)

<https://www.nps.gov/gis/storymaps/maptour/v3/index.html?appid=77a988c9f3d646b6804f902cc7902451&webmap=806cad8d10ae4a99966387cb0e18e3e6> (Plants)

Besides being a guide and interpreter, Sacagawea also taught the Lewis and Clark Expedition about many plants and animals and their uses. As a class, we could discuss the role of Indigenous women in helping explorers gather information about the natural world. We could then talk about some information regarding the natural world that was shared with explorers by Indigenous people and is still important today, like how to make cacao or how to build canoes.

After this, we can virtually walk the interactive map of the Lewis and Clark expedition using either the maps at Google Earth (this is an amazing resource) or Mr.Nussbaum.com and follow Sacagawea's journey with them, while making guesses about the plants and animals they might have found along the way.

The students could then get into pairs or small groups and look at the NPS Storymaps of the plants and animals recorded by Lewis and Clark, keeping in mind that Sacagawea helped them with much of that identification. Each group could choose a plant or animal, place a marker for it in the region where it was found on a map generated by the teacher, and then tell the class something about it. National Geographic's mapmaker would work well for this.

As an extension activity, we could talk about how Sacagawea also helped Lewis and Clark to gather plant specimens to take home. The students could then collect an interesting or mysterious object or plant from around their homes and share it with the class. The other students would be encouraged to identify the object and think of uses for it.

## IDEAS: MARIE CURIE

### **Who Was? Show and book series**

**Episode 108: Marie Curie and Harry Houdini,**

**Who Was Marie Curie? Book written by Megan Stine and WHO HQ and illustrated by Ted Hammond.**

<http://www.whowasbookseries.com/wp-content/uploads/2019/03/WhoWasNetflixGuide-WEBSITE.pdf>

This series on Netflix, explores historical people throughout history and presents it to school aged viewers in a manner that is both interesting and informative. The book and the episode explore the life of Marie Curie, a female scientist who was forbidden to attend the male-only University of Warsaw, so she enrolled at the Sorbonne in Paris to study physics and mathematics. Marie Curie discovered the elements polonium and radium and was the first person to receive two Nobel prizes.

The link provided is for an educator guide for each Netflix episode and book that corresponds. The guide provides ideas for various ideas for games and activities that could help students engage in Marie Curie's life. One such one is called "Marie's hot radium", Where the students would do some research on Marie Curie's life and work. Use an object to act as the 'radium' and have the students pass the object around the room as they are asked questions about Marie Curie. Students must answer a question correctly before they can pass the "radium" to the next player. · Start music and play the game. Whoever is caught with the "radium" when the music stops are out, and the game keeps going until there is a winner.

### **Biography of Marie Curie**

[https://www.ducksters.com/biography/women\\_leaders/marie\\_curie.php](https://www.ducksters.com/biography/women_leaders/marie_curie.php)

This is webpage all about Marie Curie, from her childhood to her death and some interests included. The webpage is geared towards and made accessible for students to be able to read. It goes into details about her work and life without being too hard for most students to comprehend.

Using this website and any other biography resource for Marie Curie, students could share and discuss with the following questions:

- Marie Curie gained so many 'firsts' for women. What do you believe that girls today owe to her?
- What things did Marie Curie help to invent that has changed our lives today?
- Why do you think that the Curies decided to let the world benefit from their discoveries rather than selling them?



- Why do you think that young women like Marie, were unable to attend university in Poland?
- If you could ask Marie Curie any question, what would it be?

We could also turn a lot of these questions into bigger discussions about gender and science and why women in science are not as talked about as their male counterparts.

Another activity that students could engage with is answering the question of “What does it mean to be a scientist?” Students could draw, write, sculp or use any other medium to express their answers.

## CULMINATING PROJECT IDEA

### **Objectives:**

Map the locations and routes of the explorers studied in this unit.

4.2.1 Examine the stories of various explorers of land, water, space and ideas.

4.2.2 Analyze the factors that motivate exploration

4.2.3 Evaluate the impact of exploration over time

After having examined different explorers and the motivational factors of women exploring these fields and this activity will allow students to create a map to display where these women explored.

### **Materials:**

Computers/ iPads - Google earth, create a map website

Posters, markers and documents from unit for reference

Globes / string / pushpins with little flags

Blank maps, projectors and poster paper for tracing outlines.

Atlas and textbooks for references.

### **Procedure**

#### Introduction:

As a class brainstorm a few explorers discussed in the unit and where or what they explored. Open google maps on the smart board and show where we are situated and where these places are located. With the help of students, we can use string or smart board lines to show the location and route of these explorers or where they came from. To demonstrate we can use different maps to illustrate the voyages and different pins, post-its, small flags, drawings or lines on posters, globes, atlas or digital maps to show where these places are.

Explain and demonstrate different mapping ideas:

If they were to demonstrate an astronaut's journey, they could use a globe and small eraser that orbits the earth. If students were to plot out the journey of a scientist's life, they could find a map of their country, mark where their home, workplace and other important places in their life are located.

#### Project:

In groups or pairs have students use their notes to find the locations of where their favourite explorers travelled. Students can choose 2 or 3 to fill in the map. Have them fill out a sheet to help prepare their data for the maps. Answer the questions to prepare for the presentation.

The students can choose to use globes, posters, or computer maps to create their explorers' journeys and add some details such as home, special discoveries or important points on their maps.

They can use iPads, computers and Atlas' to help find the places and aid them pinpoint the locations on their maps.

Supporting learning: Use prepared blank maps on large paper and prepare students in previous units by having them write a list of destinations of their explorers in advance. Practice searching in Atlas', on Google Maps, or on a globe.

Challenging understanding - Ask students to make a map using their imaginations. They can make it abstract or cartographic, digital or drawn. Find similarities in the locations of people studied. Choose new explorers not discussed in class and do research, find the important places in their life and make a map based on their life.

#### Closure:

Students will present their posters and explain who they chose and where they went.

#### **Evaluation**

Were students able to search our readings and resources for locations on their explorer's journeys?

Were students able to work together to fill out a map?

Were students able to use their knowledge of the world and use google maps or using Atlas' for assistance in finding these locations?

Could the students demonstrate what they learned by sharing with their peers?

Did student share why they chose their explorers?

Map tools:

<https://mapme.com/>

<https://www.scribblemaps.com/create/#/lat=36.87962061&lng=-40.78125&z=3&t=hybrid>

Location worksheet:

Explorer	Home city and country	Destinations or workplace	Other important locations - School - Holiday spot - Place they died
Why did you choose these explorers? 1 - 2 - 3 -			
What did they do that was important? 1 - 2 - 3 -			

Blank Map template:



[www.PrintableWorldMap.net](http://www.PrintableWorldMap.net)