



Day 5: America and Beyond

Marie and Pierre Curie Interactive Story Ideas!



Background scene:

Play this video in the background on a big screen, smart board, or laptop. Please mute the sound.

◀ Pantheon, Paris [HD] ▶ <https://www.youtube.com/watch?v=BVn4d11nOqk>



Storytelling Role-Play: 1-5 sand dollars each

(2 Students to help cut out props and 6 students to role play)

Ask for 3 girl volunteers and 3 boy volunteers to portray Marie Curie, Marie Meloney, Irene, Eve, a woman gathering funds in America and an American university student.

Let students listen for their part and act out what is happening in the story.



New word: 1-5 sand dollars

Element: An element is a unique substance that can not be separated into different substances. There is a Periodic Table of Elements that contains unique elements. It is usually very rare to discover a new element, as it needs to have certain properties and behave in a certain way. Marie and Pierre discovered two new elements.

*Remind the students that they can earn a sand dollar if they tell you at the end of the story what the new word means. If they get it wrong remind them of the definition and have them try again in a few minutes.



Day 5: America and Beyond



Day 5: Marie and Pierre Curie

It is 1921, and by now, the radium Marie holds so close is beginning to show its impact on her health through unprotected exposure. While radium in the right amounts and with the right protection can do amazing things like help cure cancer, unprotected exposure—like carrying it in your pocket, separating it from ore with your bare hands, and basking in its glow can be deadly. At the time though, nobody knew this as she and Pierre were the first ones to discover it.

Marie has a nagging cough and her health is beginning to decline—the result of years of exposure to the dangerous radioactive rays, say doctors. (Cough syrup prompt, keep coughing.)

However, she knows this journey is too important to miss out. With her daughters, now 23 and 16 years old, she steps aboard the ship, (Ship ticket prompt, board a giant ship to America!) ready to make her first voyage. Marie is going to America to collect the most profound gift from the women of the United States. Having reluctantly agreed to be interviewed by Marie Meloney, the editor of a US magazine, her story has crossed the Atlantic, tinged with the irony that the very woman who discovered radium is finding it difficult to continue her research for lack of it.

Meloney begins a fundraising drive to procure a gram of radium for Marie, and women—housewives, Girl Scouts, students and more—all join in with pennies, coins and anything else they have to raise the astronomical \$100,000 required. (Donation box prompt, collect money to buy radium for Marie.)

To Marie, America is a country she maps by the places and quantities of radium rather than the states alone—four grams of radium are in Baltimore, six in Denver, seven in New York—she can rattle off all the locations with ecstatic precision.

She meets President Warren G. Harding and receives the precious gift, (Visitor pass prompt, enter the White House and meet the President!) thrilled about the work ahead. Whilst in America, she enjoys the deafening beauty of Niagara Falls, and the stoic crests and valleys of the Grand Canyon. *I wonder what special ores might be in there*, she thinks to herself. Irene and Eve go hiking and enjoy reading, (Boots prompt for Irene and Travel magazine prompt for Eve, explore America!) Most of all, she finds solace in the precision and accuracy at the Bureau of Standards in Washington.

Some people might think of standards of measurement as boring—but not Marie! Though she is 54, her eyes widen like a little girl at this whole new side to measuring and bringing more uniform precision to the world of science, where she knows that even the tiniest amount can make a huge difference. She marvels at the open universities and admires that the girls dedicate themselves fully to PE; she can't wait to go home and introduce such measures. Most of all though, she can't wait to research with her radium.

Day 5: Marie and Pierre Curie

For no matter what happens next...the real world applications of radium, the awards and accolades she will earn, the committees she will chair, or the institutions she will fund, at her heart, Marie will always be dedicated to her science, just as she and Pierre vowed. *How thrilled he would have been to see this*, she thinks. Marie remembers the ramshackle shed and the pine cones, as well as her favorite walks with Pierre up and down the cramped workspace as they shared thoughts, dreams and ideas.

In their interaction with each other and the way Pierre believed in Marie when no one else did, or Marie encouraged Pierre to get his doctorate, they are a prime example of two true friends bringing out the best in each other. In fact, this beautiful effect stretched towards their children as well. After Pierre and Marie became the first couple to be jointly awarded a Nobel, their daughter Irene, and her husband, Frédéric Joliot-Curie, would be the next couple to win the prize together, 24 years after her parents!

For the scientific community, they forged a path ahead, illuminated, as it was, with radiant energy. If any one of you have ever known someone who has had cancer and is still alive, Pierre and Marie are to thank. Their discoveries brought about radiation therapy for cancer and countless other discoveries. Their story is a tale of respect, understanding and resilience. They had an unflinching belief that hard work and dedication will pay off in the end, and that even from pine needles and dirt...a new discovery can emerge.

During the interview, Maloney asked Marie why she and Pierre didn't get patents for their method, and why they shared what they learned with the world so freely. Had they applied for the patent and received it, a great many financial burdens would have been eased, the journalist explained.

As one would have expected, true to her legacy—to Pierre's legacy—Marie replies without a sand speck of remorse in her voice: "There were no patents. We were working in the interests of science. Radium was not to enrich any one. Radium is an element. It belongs to all people."*



Questions/Reading discussion: 1-5 sand dollars

(Students can earn a sand dollar for discussion participation)

Ask: Who raised money for the gram of radium?

Example: **The women of America.**

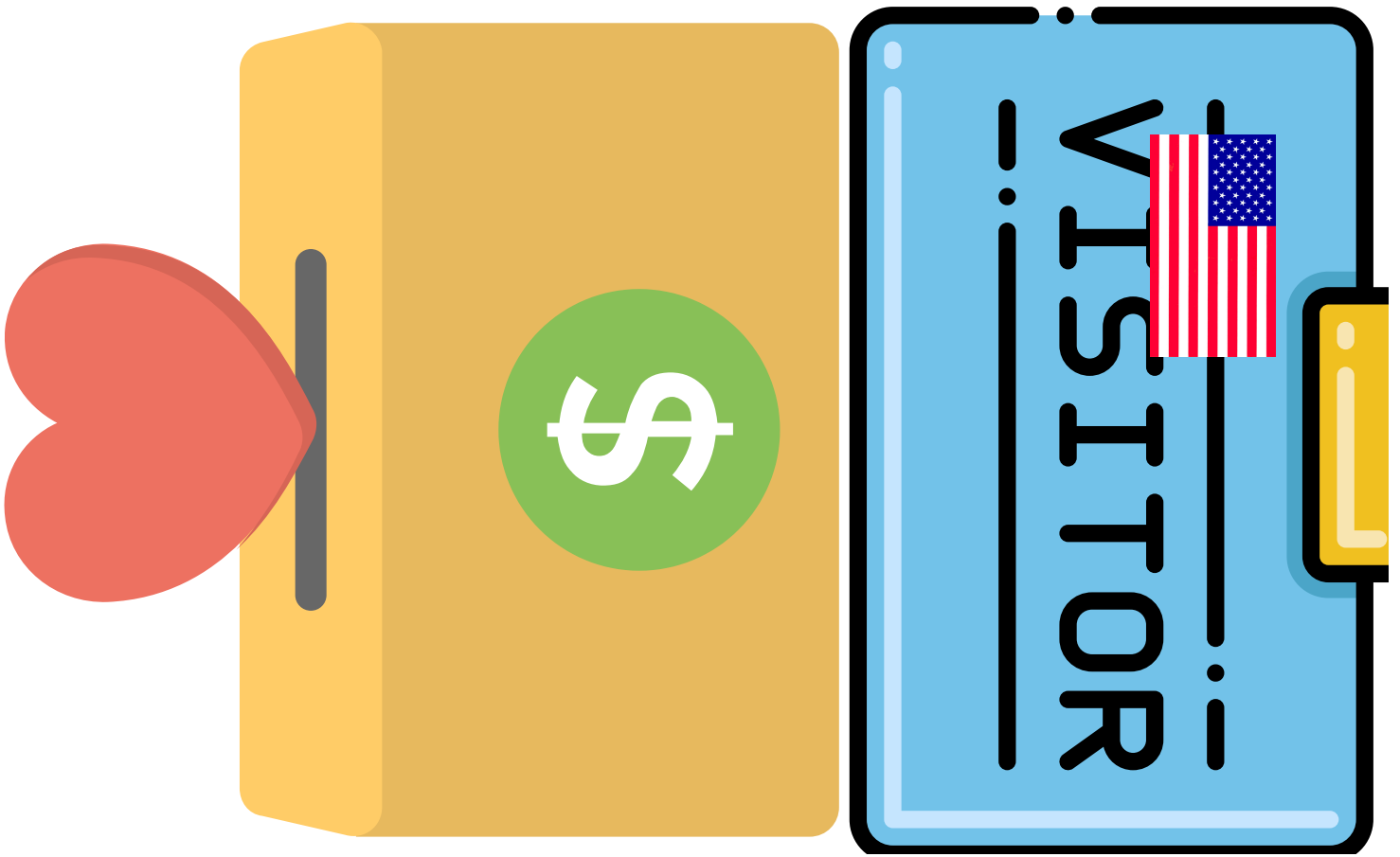
Ask: Why is Marie's health likely suffering?

Example: **Because she handled radium without protection for years.**

Ask: How do you think Pierre would have felt when Mary received the radium? Why? **Answers will vary.**

✂ Cut out this donation box for the women to gather funds.

✂ Cut out this visitor pass for Marie to take to the White House.



✂ Cut out this boarding pass for the ship.

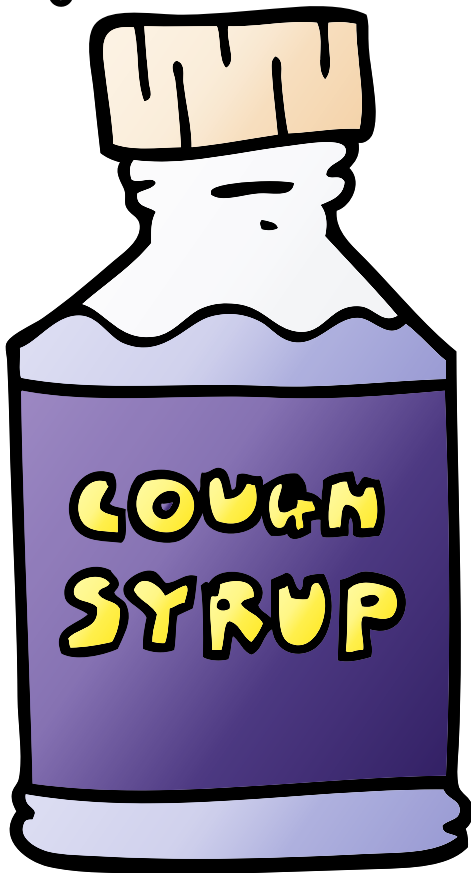
Marie Curie: Put on this visitor badge when you go to the White House.

Marie Meloney: Take this donation box to lots of girl students in the class and explain you are collecting donations for Marie Curie to have radium.

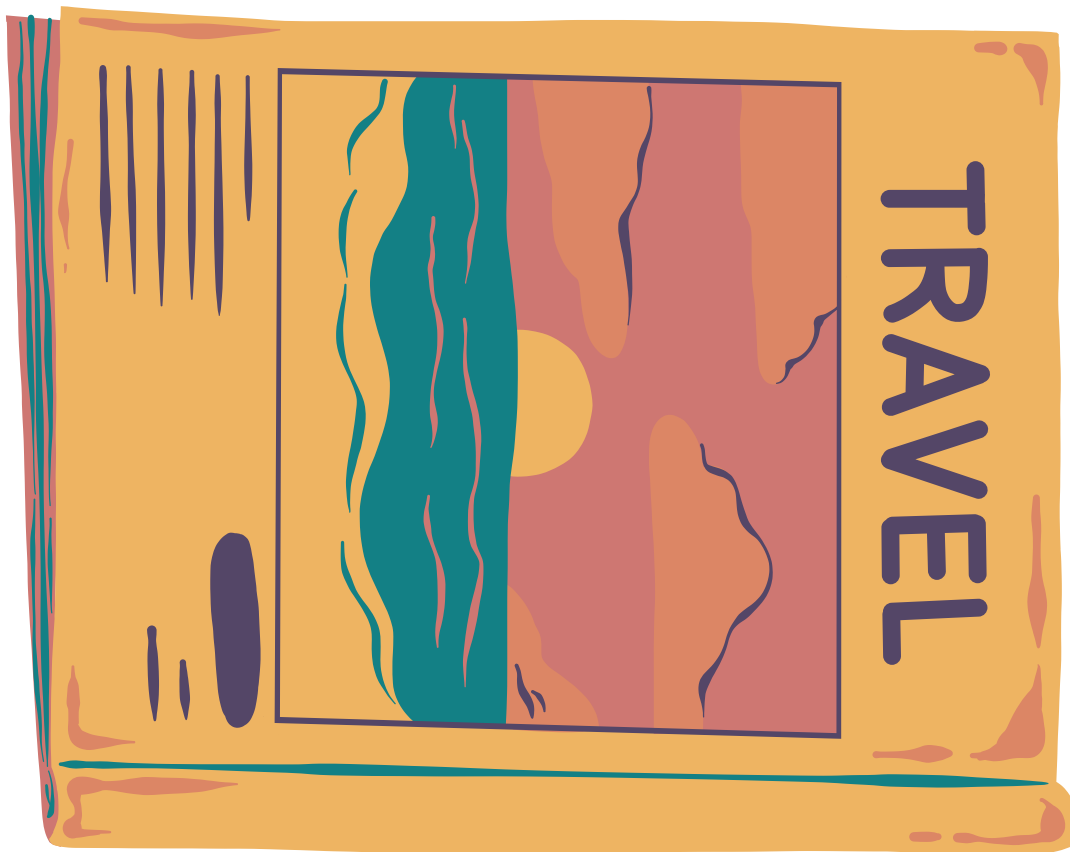
Marie: Tuck this boarding pass under your arm and get on a ship to America. Hold your daughters' hands.



Cut out this cough syrup for Marie.



Cut out these boots for Irene to go hiking in the Grand Canyon.



Cut out this magazine for Eve to read.

Irene: Wear these boots taped to your shoe and explore the Grand Canyon. Say: "I wonder what elements Mother could find HERE!"

Marie: Have this cough syrup but keep coughing.

Eve: Read this magazine and say, "I would love to write about all these adventures when I grow up!"

**Postscript*

Marie passed away in July, 1934. Till her last breath, she was dedicated to research, and mentoring researchers at the Radium Institute. She called them her children, and often, from the moment she entered the building to the moment she left, she would be surrounded by these 'children' asking her questions to be guided in their own research.

Their notebooks and other possessions are still considered highly radioactive, and will remain so for the next 1500 years. Though it came at a tremendous personal cost to them, Marie and Pierre Curie helped us understand more, so that we may fear less.



