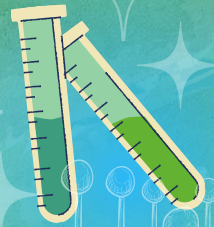


I ♥ STEM Taught®



Pierre and Marie Curie

4th - 8th Grade Edition



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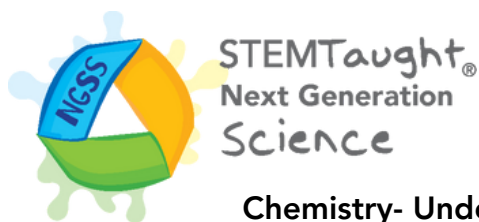
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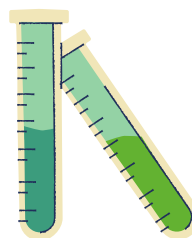
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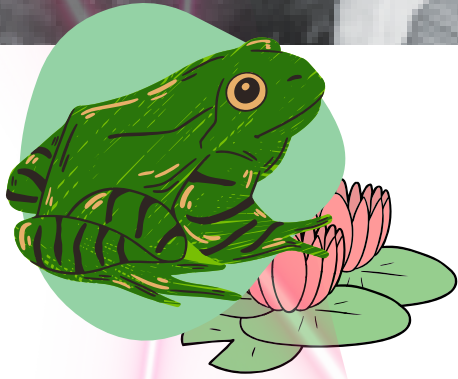
Chemistry- Understanding Atoms and Molecules (*Matter and Its Interactions 5-PS1-1*). Develop a model to describe that matter is made of particles too small to be seen.

Chemistry- Classify materials based off their properties (*Matter and Its Interactions 5-PS1-3*). Make observations and measurements to identify materials based on their properties.

Chemistry- Understand chemical and physical reactions (*Matter and Its Interactions 5-PS1-4*). Conduct an investigation to determine whether the mixing of two or more substances results in new substances.



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Day 1: Beginning





Day 1: Beginning

Marie and Pierre Curie: Interactive Story Ideas!



Background scene:

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

<https://www.youtube.com/watch?v=UZmXjPeMJf0>

Poland - Ambient Music | Autumn • #1 • flymore.pro • 4K



Storytelling Role-Play: 1-5 sand dollars each

(2 students to help cut out props and 4 students to role play)

Choose 3 boy volunteers and 3 girl volunteers to portray Maria, her father, her sister Bronya, her aunty, Pierre and Eugene Curie.

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



New word: 1-5 sand dollars

(Students can earn a sand dollar for discussion participation)

Symmetrical: Symmetry is when an object looks exactly the same on both sides of an imaginary line. If something is symmetrical, it means that you could imagine to fold it in half, and the image on both sides of the line would be identical, like a mirror image.

*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 1: Marie and Pierre Curie

It is holiday time in 1875, and eight-year-old Maria's hair whips against her face as she races through fields of grain. (Armband prompt, tie around arm and admire the festive colors). Her skirt billows out and flaps against her boots and her nose is ruby red from the frosty breeze.

She zips through sprawling woods and sloping fields, stopping frequently to sing Polish songs to nearby birds at the top of her lungs. Then, she takes a tattered, well-thumbed book out of her rucksack, and lays belly-down reading as the grass pricks her cheek.

For the first time in a long time, she feels free.

While these things—speaking Polish, reading a book—may seem like simple joys, for Maria they are thrilling liberties she can rarely enjoy throughout the rest of the year in Warsaw, Poland because it was under Russian control.

The youngest of five, her parents call her Manya. Both school teachers, they supplement her education by her father teaching her science and math, and her mother teaching music.

She is a good, hardworking student, and her father takes pride in sharing what she knows. When their family friends are over, he calls over a well-meaning Aunty to hear Maria's brilliance.

"Manya?" calls father kindly, "Please do recite that poem for us."

"I look up at the sky and look for stars to catch. There distant clouds glint—there tomorrow starts to etch," says Manya, remembering her favorite poets words.

Her doting aunty glows with praise, "Is that your favorite, dear?"

"In poetry, yes. I love literature and sociology," says little Manya, then continues confidently, "But I love the sciences too! I'd like to teach and help the entire world with my science."

The aunty tut-tut-tuts in disdain like a grumpy penguin surrounded by sloshy, melting ice: "But, dear, what would people say? That's not the way women are supposed to behave."

Maria replies carefully, with wisdom far beyond her years: "In science, we should be interested in things, not persons," and her sister Bronya gives her a secret high-five under the table as her mother thinly veils her proud smile. Even Father is pleased.

Day 1: Marie and Pierre Curie

Nearly a thousand miles away in Paris, France, 16-year-old Pierre Curie is already deep into the world of geometry and math.

He, too is being educated by a parent, as his father has taught Pierre at home and sparked a love for Math and geometry.

Like tangrams or the blocks of a Rubik's cube he loves studying the way faces of a crystal are arranged, and how the natural world is full of unique geometrical patterns.

Pierre strolls with his father, Dr. Eugène Curie, who helps patients throughout the city and loves spending time with his family, reading, bowling and playing chess.

"Why didn't you send me to a regular school?" asks Pierre today, as they water their garden. (Watering can prompt, water the garden together). He intently studies a Lilly petal. (Lilly prompt, look closely at it).

"Your dreamer's spirit wasn't made to be ordered in strict chunks of time," says his dad thoughtfully, "I love that you have time to collect plants and animals in the country and study them."

This was true, and Pierre was able to tell which animals inhabited each pond, forest and field of Paris, often picking them up to examine them closely—even if it was a wriggly salamander or a slippery frog. (Salamander, prompt, Pierre studies it closely then it jumps out of his hands).

Though they are both growing up unaware of each other's existence, one day soon they will meet.



Questions/Reading discussion: 1-5 sand dollars
(Students can earn a sand dollar for discussion participation)

Ask: What do Marie and Pierre like studying?

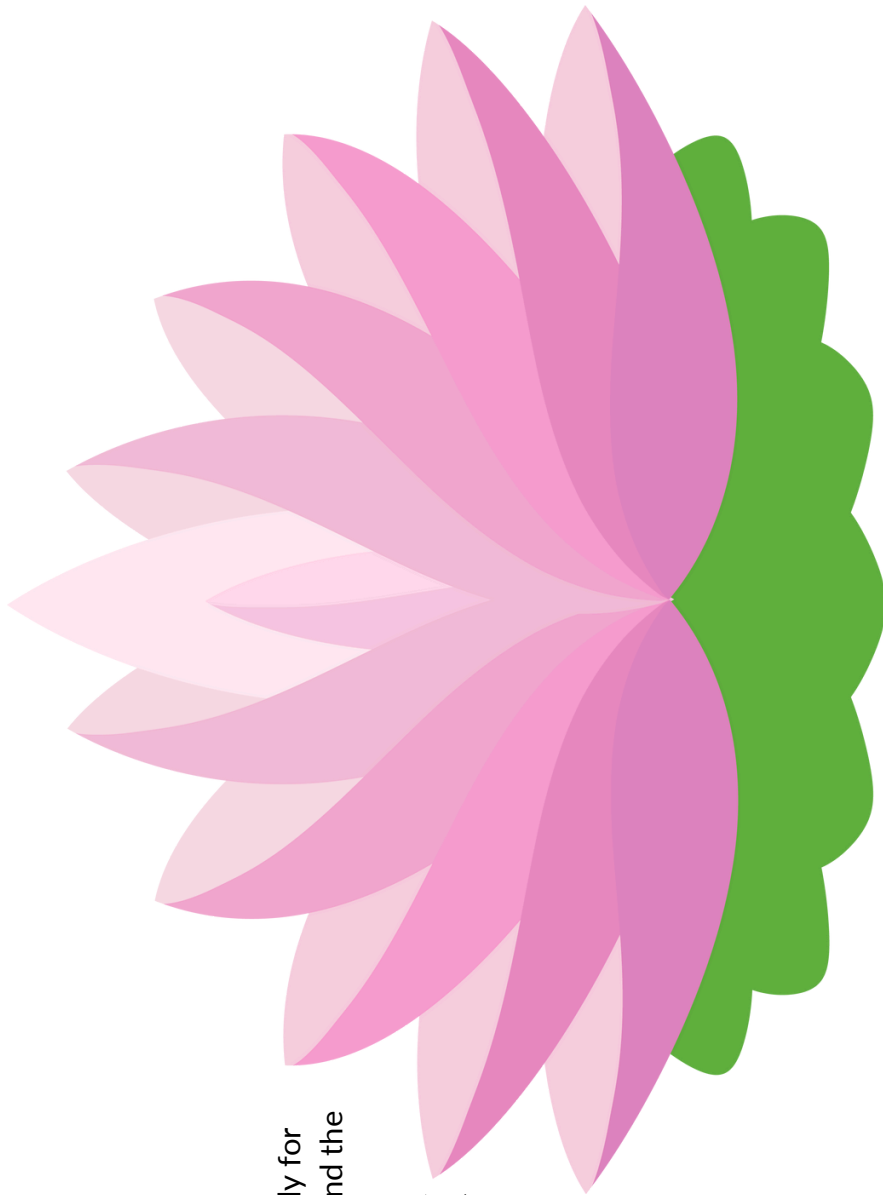
Example: Marie likes poetry, science and math. Pierre likes geometry a lot, and being out studying plants and animals in nature.

Ask: What made Aunty so uncomfortable?

Example: She was amazed that a girl wanted to study science at university and change the world.

Ask: How are Marie and Pierre's fathers similar?

Example: They both taught their kids at home, although Marie also went to a regular school. They both are very smart and good at the sciences. They seem kind and proud of their kids.



Cut out this water Lilly for Pierre to study and find the line of symmetry.



Cut out this band and tape it around Marie's upper arm.

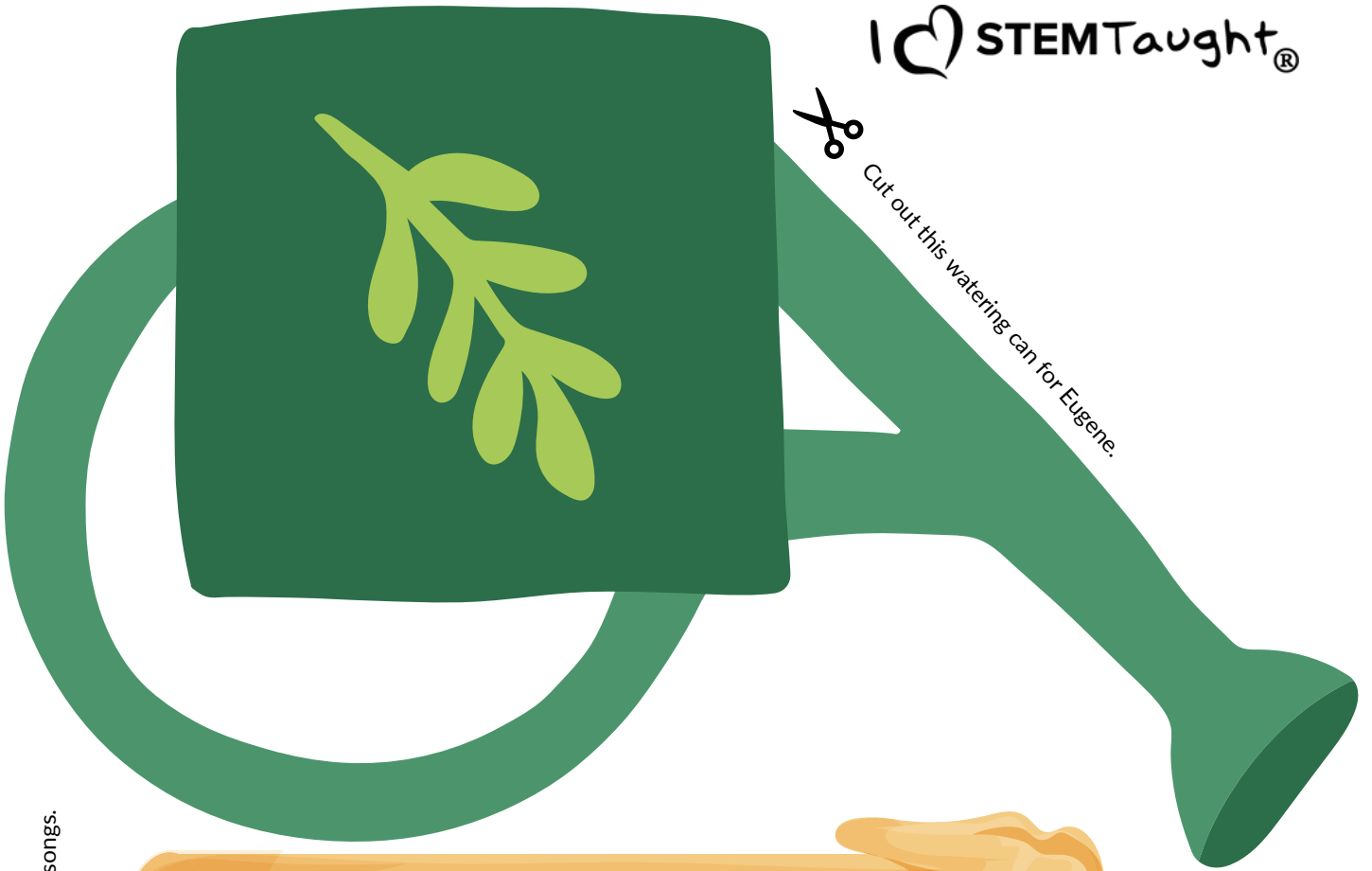


Maria: Wear this
around your arm
proudly and sing!
Fa la la la la!

Pierre: Study
this Lilly
carefully then
smell it and
say, "Ahhh."



Cut out this watering can for Eugene.



Cut out this candle for Maria and her family to softly sing songs.



Cut out this salamander for Pierre to observe.

Eugene: Water your garden with Pierre. Make a watering sound and say, "Son, you're such a good dreamer!"

Maria: Sing in a whisper by the candle light.

Pierre: Count the spots of this salamander. Then have it jump out of your hands.