

STEM Taught Camp

I'm a Scientist

Pierre and Marie Curie: Day 4 Grades: 4-8

WELCOME

(5 min)

Earn sand dollars



Introduction: Welcome your students to camp. Be friendly.

Remind students they have the opportunity to earn sand dollars when they complete a task, help another student, help set up or clean up, write in their journal, read a book, etc. Tally the amount of sand dollars that each student earned from helping and record it on the weekly payroll sheet.

STEM READERS THEATER

(30 min)

- Act out story: 15 min
- Discuss story: 5 min
- Activity: 30 min

READ PIERRE AND MARIE CURIE, DAY 4: FAMILY

Prepare beforehand: Print out one copy of “Day 4: Family” from the Pierre and Marie Curie story. Print one coloring page for each student from the “Student Sheets” section of Day 14. Gather scissors and tape.

What you'll do:

Materials:

- Print one copy of “Day 4: Family”
- Three pairs of scissors
- Roll of tape

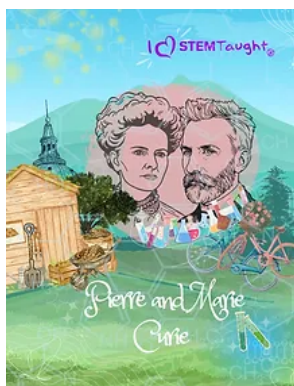
1. **Setup storytelling props (10 min):** Call up volunteers to help with the reader's theater for “Day 4: Family.” Ask students to cut out the story props found in the story document. Remember to tape the headband ends together to fit a child's head. Students that are not helping with the story setup can color their coloring pages while they wait.

2. Gather all students and have them sit to listen to the reader's theater. Ask students to leave their coloring pages behind.

3. Assign a volunteer actor to handle each prop for story time.

4. Read the story to your students. Guide your volunteer prop holders in following the acting instructions as you read.

5. Discuss the story with your students following the discussion prompts printed underneath the story text.



STEM LAB

(30 min)

Materials:

- Black craft paper
- White washable paint
- Foam/wide paint brushes
- Cotton swabs
- Glue
- Small paint cup or paper plate



STEM GAMES

(60 min)

Materials:

- Ball
- Bases

Materials:

- Board games
- Legos
- Blocks
- Coloring supplies
- Books
- Stacking cups

X-RAY HAND

Say: “Marie and her husband Pierre did lots of cool experiments with X-rays and other types of radiation. Their discoveries helped scientists learn how X-rays work and how they can help us see inside our bodies when we're sick. Marie Curie was so good at her science work that she won two special prizes called Nobel Prizes! She's a hero for her amazing discoveries ”

1. The leaders can help paint the students' hands and forearms with white paint.
2. Students will place their hand on the black paper. If needed, help press down on their palm, fingers and forearm to get a good print on the paper. The students will wash their hands while their handprints are drying.
3. Students will cut some of the cotton swabs into different sizes to represent bones.
4. Pour some glue into the paint cup or on a paper plate. Several kids can share the glue.
5. Dip the ends of the cotton swabs into the glue, and glue them to the handprint.

GRAB AND DASH

Teams will compete to grab the ball, and return it to their team without getting tagged.

1. Organize players into two teams.
2. Set up a base for each team about 40 ft. apart from each other. Place a ball in the center between the bases.
3. Each team will line up at a base. When the STEM Coach says “Go!” a player from each team will run as fast as they can to get the ball! The player who gets the ball first will then sprint back to their base. The player from the other team will then try to chase them and tag them before they make it back to the base. If the player with the ball makes it back without getting tagged, then their team gets a point! Alternatively, if the player from the other team tags them, then their team gets a point.
4. The teams will compete until one of the teams has the number of points decided on by the STEM Coach. This could be between five and ten points, or more if there is a longer period of time and a larger group.

STEM LAB

(60 min)

Materials:

- Paper cups, 3oz
- Paper bowls
- Bowls for mixing
- Spoons
- Popsicle sticks
- Foil
- Tedros test tubes
- Graduated cylinders
- Whisks or big spoons
- Vanilla pudding
- Milk
- Food coloring

Ingredients for 8 kids:

- 1 package of vanilla pudding, 4 serving size
- 2 $\frac{2}{3}$'s cup of milk (equal to 550 ml)
- Liquid food coloring



RAINBOW PUDDING POPS

Say: *The Curies carefully experimented in their lab and mixed and measured. Now you can do the same. Let's experiment with phase change by mixing solid powders with liquids. You will watch the powder dissolve, then turn your liquid into a solid by freezing it into your own popsicle.*

Set up:

Kids will work in groups of 8. Each group will start with all of their supplies and printed directions. Have 2 $\frac{2}{3}$ cups of milk in the graduated cylinder. Consider appointing someone Head Scientist, they will be in charge of reading the step by step directions, facilitating, and making sure everyone gets to participate.

Instructions:

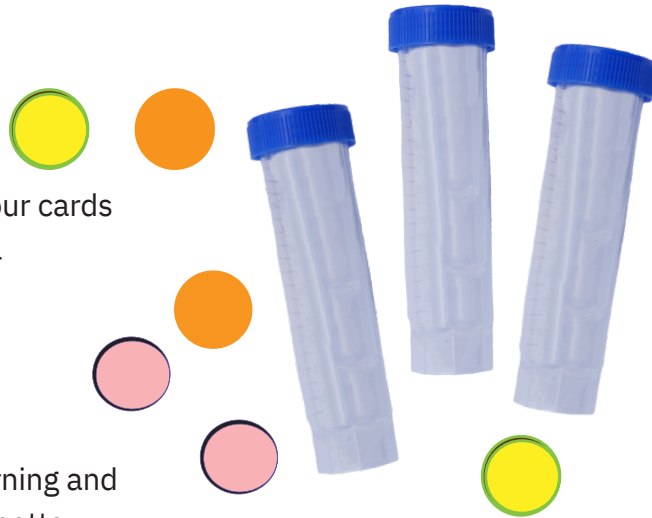
1. Sit in a circle or in rows across from each other at the picnic table.
2. Pour the pudding mix into the big bowl.
3. Using the Tedros test tubes, the first student will carefully pour 50 ml into the test tube. Add it to the bowl of pudding and whisk it. Have the group keep count together each time the milk is poured in the bowl. The next student will carefully pour 50 ml of milk into their test tube, then add it to the pudding and the whisk is passed to him to stir. The 3rd student pours 50 ml milk into the test tube then adds it to the pudding bowl. The whisk is passed to her to stir. The whole group should be counting out loud each time milk is added to the bowl. Continue till 11 test tubes of milk have been added to the pudding.
4. Next, the Head Scientist will divide the pudding evenly into 5 bowls. Food coloring will be added to each bowl to make it a different color. Stir each color with a different spoon, or wipe it off between colors. Blue=6 drops, Green=6 drops, Yellow=6 drops, Orange=1 drop red+5 drops yellow, Red=6 drops.
5. One at a time the kids will layer one tablespoon of each color pudding into their Dixie cup. Be careful not to mix the colors if you want a rainbow effect.
6. Kids write their name on one end of a popsicle stick. Cover the cup with foil, then carefully stick the popsicle stick through the center of the foil. Freeze for approximately 6 hours.
7. Peel the cup off and enjoy!

Learn by playing Mixed-up Elements

The Curries worked very hard to mix and separate elements in the lab. They were careful and precise and got very good at what they did. Now you can try learning from your experiences to solve these element puzzles. Discover how you can learn and improve your performance when solving puzzles as you play Mixed-up Elements!

What you'll need:

- 3 Tedros test tubes (each group)
- 6 pom pom's that match the color of your cards
- your puzzle challenge cards - a clock or stopwatch

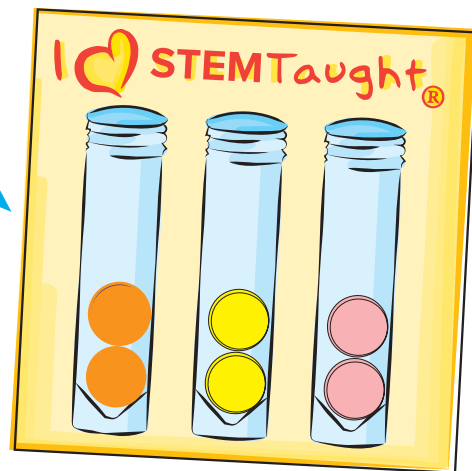


What you'll do:

Work with a partner to discover how learning and memory can help you learn to do a task better.

Step 1: Cut out your puzzle cards.

Step 2: Put two elements in each test tube of each color to start the game.



The rule of the game:
You may only pour the elements from tube to tube to rearrange them.

Step 3: Your partner times how long it takes to rearrange the colored elements to match the card. Switch roles and repeat. Record your time.

Step 4: Keep completing more puzzle cards to see if you can solve the puzzles faster. Record your times.



How long does it take to solve the puzzle?

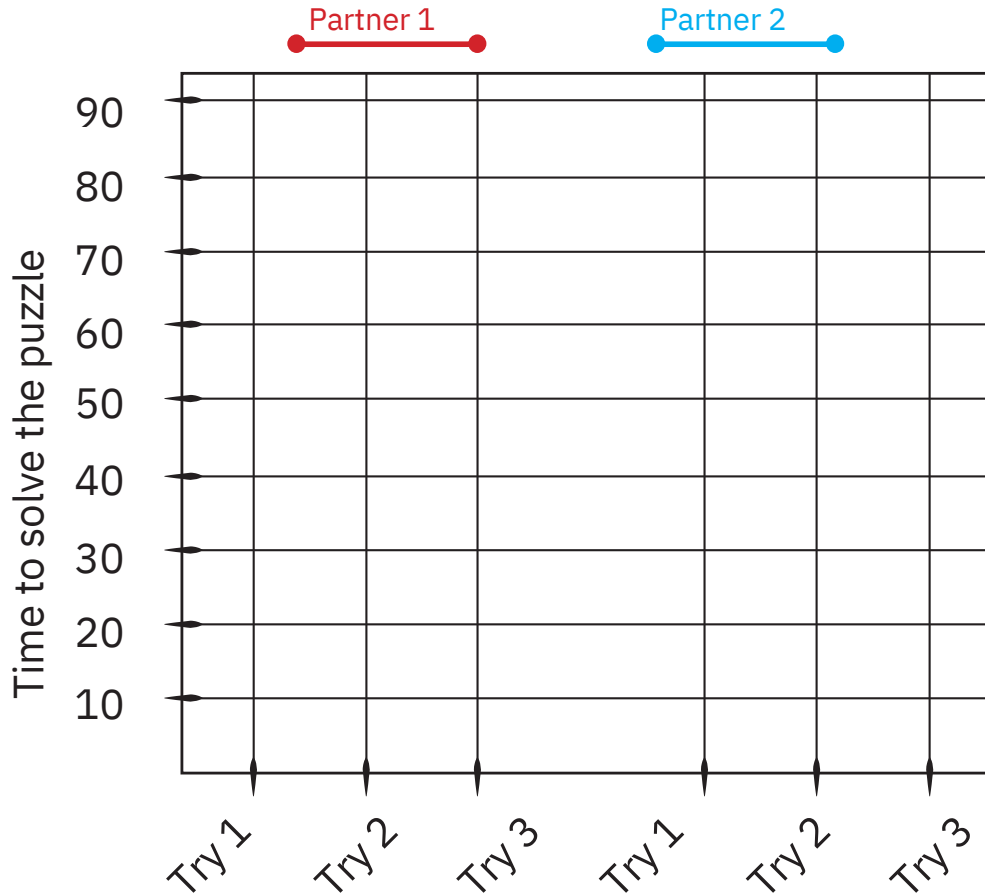
Draw a card and time yourself as you solve the puzzle. Then try and solve the same puzzle again and then again does your time change.

Partner 1:

Try 1	<input type="text"/>	seconds
Try 2	<input type="text"/>	seconds
Try 3	<input type="text"/>	seconds

Partner 2:

Try 1	<input type="text"/>	seconds
Try 2	<input type="text"/>	seconds
Try 3	<input type="text"/>	seconds



How does the time it takes to solve the puzzle change as you gain more experience?
