

STEM Taught Camp

I'm a Scientist

Pierre and Marie Curie: Day 2 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 2: THE PROMISE

Prepare beforehand: Print out one copy of “Day 2: The Promise” from the Pierre and Marie Curie story. Print one coloring page for each student from the “Student Sheets” section of Day 12. Gather scissors and tape.

What you'll do:

Materials:

- Print “Day 2: The Promise”
- 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 2: The Promise.” 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.



Summer Camp

The Curies: Day 2

STEM LAB

(30 min)

Materials:

- Atom lab sheet
- Colored marshmallows
- Chocolate chips



STEM LAB

(60 min)

Materials:

- Oil (any type)
- Food coloring mixed w/ water.
- Alka-Seltzer Denture cleaner tablets
- STEM tool bag (test tubes, pipettes graduated cylinders)



MAKE A MARSHMALLOW MODEL OF AN ATOM

Instructions:

1. Look at a periodic table and use the atomic number to model your atom. Remember the atomic number represents the number of protons, neutrons and electrons in an atom. Choose two colors of marshmallows (example: pink and yellow) use the same number of pink and yellow marshmallows to make up the protons and neutrons. Place them in the center.
2. Use the same amount of chocolate chips as you used for protons. These will be electrons, place them around your nucleus.

Explain and try:

Say: In most atoms there are the same amount of protons and neutrons in the nucleus so the positive and negative charges balance each other out and the element is stable. Some atoms though have different numbers of protons than neutrons which makes the nucleus unstable, and they can be very reactive and cause explosions and radiation as with the radioactive elements that the Curies discovered. Can you model a radioactive element? How would you do it?

LAVA LAMP EXPERIMENT

Let's experiment with different types of liquids. Oil and water are both liquids but because of differences in their atomic makeup oil repels water. This is because oil has a neutral charge and water has a positive end and a negative end so water sticks to water and oil is not attracted.

Instructions:

Say: Have you ever seen a lava lamp? These cool lamps are fun to watch. They are made using chemistry! Today we get to do an experiment to create a similar outcome.

1. Give each student a test tube that they will wash out at the end of the experiment. **You need your test tubes all camp.
 2. Fill 5 few graduated cylinders with about **200 ml of water** and add about 15 drops or a good squirt of food coloring. Place on desks around the room.
 3. Next pour **18 ml of oil** into each students test tube, if they are responsible they can do it themselves. Measure carefully.
 4. Students use their pipette to measure 12 ml of colored water into their test tube (4 squirts). Try to not get oil on your pipettes
- Ask: What do you notice is going on?
5. Break the denture cleaner tab in half. Each student will get 1/2. Students then break their half in half again and use (**1/4 tablet**) for your experiment. Let the bubbles begin!
 6. With your last (1/4 tablet) make up your own experiment. You can add sparkles or more food coloring or a little more oil.
 7. Clean your tools, don't throw them away you need them again.

STEM LAB

(60 min)

Materials:

- Club soda
- Water
- Sugar
- Root beer extract
- Vanilla ice cream
- 2 liter root beer (In case their's didn't turn out to their liking or to add to theirs)
- Cups
- Spoons
- Bowls



ROOT BEER FLOAT SCIENCE

Set up:

Have all your supplies ready to go. Do this activity outside on the picnic tables or in a shady spot. It involves sugar and ice cream, and you don't want to attract ants to the classroom! You can explain this activity inside, then take the kids outside to make the root beer, add the ice cream, and drink the float.

Instructions:

1. Leading up to this fun treat, ask the kids some questions.

Ask: **What are 3 states of matter?** (Guide them if needed. Solid, liquid, and gas.)

Ask: **Can anyone name something solid?** (pencil, table, shoe)

Ask: **Can anyone name something liquid?** (water, juice, blood)

Ask: **Can anyone name a gas?** (helium, air, steam from boiling water)

Say: "Just like the Curies who mixed and measured in their lab, we are going to be doing some mixing and measuring in our outdoor lab. Today you get to mix up your own special batch of homemade root beer! There will be cups and sugar (a solid), club soda (a liquid mixed with a gas), root beer extract (a liquid). You will need to mix the sugar with your club soda until you like the taste and then I will give you some root beer extract. Next, we will add ice cream!"

2. Next, take the students outside, and demonstrate: Show the students the bottle of club soda and show them that the liquid looks like it has no bubbles in it.

Say: "This is because the inside of the bottle is under so much pressure that all of the bubbles (the gas) are pushed into the liquid. When you take the top off you release all the pressure that is pushing the gas into the liquid what happens? Yes! The gas comes out of the liquid and forms bubbles."

3. Have kids sit at the tables. Pass out cups and spoons to each student. Place bowls of sugar on the table for the kids to share.

4. Go around to each table to pour club soda into the cups. The students will mix in the sugar. Then they will use pipettes to add the root beer extract.

5. Say: "Now we are going to take a solid, add a liquid and make a gas, and it's going to be delicious! Ice cream has carbon dioxide in it. When it's combined with root beer, the root beer releases the carbon dioxide and it makes bubbles and foam!"

6. Add a scoop of ice cream. Enjoy!

STEM GAMES

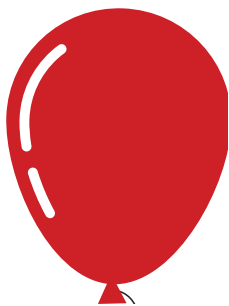
(60 min)

Materials:

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

Materials:

- Balloon or beach ball



KIDS CHOICE

Allow students time to connect with each other through a fun game or let them choose to read. If the students have not had time to draw/write in their journal, have them take some time to do so now.

Kids' Choice Instructions:

Choose between options that the teachers have set out: Board games, building with Legos, blocks, or other things, reading, coloring/drawing (include ocean related coloring pages), cup stacking.

Beach Ball Volleyball

The game can also be played using balloons. If a balloon is used, have 4 people on a team.

1. The game consists of two teams of 6 players each. You can have multiple games going at once depending on the number of players you have.
2. If you don't have a volleyball net, tie a piece of yarn or rope between 2 chairs or poles outside. Kids will play volleyball. Decide if the kids are playing for points using simple rules, or if they are just hitting the ball back and forth with no rules or scoring. Either way is fun!
3. One person will serve the ball. The other team has 3 hits to get it back over the net. One player can't hit the ball twice in a row. No holding the ball.
4. Volley the ball back and forth.
5. The team scores a point when the ball hits the ground on the opposing team's side, or isn't returned over the net. The first team to get 10 points wins. Play again or play a different team.