

Marie Curie Challenge

Grades 3-5



7 November 1867 – 4 July 1934

Marie Skłodowska Curie, born **Maria Salomea Skłodowska**, was a [Polish and naturalized-French physicist and chemist](#) who conducted pioneering research on [radioactivity](#). She was the [first woman](#) to win a [Nobel Prize](#), the first person and only woman to [win twice](#), the only person to win a Nobel Prize in two different sciences, and was part of the [Curie family legacy](#) of five Nobel Prizes. She was also the first woman to become a professor at the [University of Paris](#), and in 1995 became the first woman to be entombed on her own merits in the [Panthéon](#) in Paris.

Student Name _____ Teacher _____

Marie Curie Challenge Award Grades 3-5



Kay Carl Elementary School 2019-2020

What:

- Kay Carl Elementary School students are encouraged to earn **500 or more Marie Curie Challenge** points by **April 24, 2020**.
- Students explore science, technology, engineering, art and math (STEAM) connections to the past, present and future.
- Points are earned as students complete a variety of self-paced, student-directed challenges including memorization, investigation, problem-solving, interviews, field trips, reading, writing, web adventures, research and presentation.

Why:

- Encourage students to use their sense of wonder and curiosity about the world around them through student-directed (STEAM) educational activities.
- Go above and beyond classroom expectations and establish a habit of striving for excellence.
- Think like a scientist, engineer and mathematician.

How:

- Parents are encouraged to help students record their accomplishments on their **Curie Record Sheets** and add up their points ready for a teacher to initial the completion of the challenge.
- Upon reaching **500 points**, your child will qualify for the **Marie Curie Challenge Award**, and receive a Marie Curie Medal at the end of the year.

Please contact your teacher via DOJO with any questions.

Brenda Swann

Principal

3rd - 5th Grade Kay Carl Students wanted:

To take the

Marie Curie Challenge:

Complete the following challenges from the menu and earn Curie Challenge Points:

1. Mathematical Facts to MEMORIZE

- Times table quiz 1-12's in under 5 minutes (20 points)
https://www.sporcle.com/games/g/multiplication_table
- Times table quiz 1-12's in under 3 minutes (50 points)
- Prime numbers to 100 (30 points) (2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97)
- Square Numbers to 225 (20 Points) or 625 (40 points)
- Pi to 20 digits (20 points) or 40 digits (40 points)
3.1415926535897932384626433832795028841971
- Roman numerals to one million (20 points)

2. Science facts to memorize

- The first 30 elements of the periodic Table of Elements (number, symbol, and name) (30 points)
- 6 simple machines: lever, wheel/axle, pulley, inclined plane, wedge, and screw (30 points)
- 6 Electrical Circuit Symbols (30 Points)
- 6 terms or symbols used programming code (c++, Java, python, etc..) (30 points)
- 3 basic cryptic codes (Caesar cypher, Atbash, binary, etc...) (30 points)

3. Computer/ math Problems

- Sudoku Puzzles-up to 10 (10 points each)
- Other teacher-approved math problems (10 points each)
- IXL online math practice <http://www.ixl.com> up to 12 hours (20 points per hour)
- After school math or technology class (STEM, Robotics)– up to 12 hours (20 points per hour)
- Code.org practice (10 points for every course passed at grade level or above) <https://code.org/>

4. Math/Technology Literature/ Book Report (up to 100 points for each book)

- The Number Devil by Hans Enzensberger, or other teacher-approved math choice and write a paragraph about what you learned.
- Biography or approved historical fiction related to an important scientist, mathematician, technological innovator, discover or other teacher pre-approved science choice and write a paragraph about what you learned.

5. **Interviews**-prepare 10 questions to ask a scientist, engineer or mathematician, interview the professional and record their answers. Write an interview summary. (50 points each)
6. **At-Home Labs**
- Repeat a lab investigation/experiment done in the science class or a S.T.E.A.M. class and share your results. (20 points per lab)
 - Conduct an investigation/experiment of your own choosing and share your results. (20 points per lab) <https://www.stevespanglerscience.com/>
7. **Technology Activities**
- Create an electronic presentation (such as a video, PowerPoint, Google slides, etc.) on a math, science, or technology topic. (30 points each)
 - Create an original Scratch project (not remixed), up to three projects. (30 points each)
 - Create a character design with a story using www.tinkercad.com, up to 3 designs. (30 points each)
 - Create an Original Minecraft mod. (100 points each)
 - Create and run a program on an Arduino, Raspberry Pi, or other such device. (50 points each)
8. **Science/Math/Technology Report**
- History of Computers Report- at least three pages in length. (50 points)
 - Research paper- (at least three pages in length) on a teacher approved math, science or technology topic. (50 points each)
9. **Thomas Edison, Albert Einstein or Marie Curie** crossword Puzzle (30 points each)
10. **Family Science Field Trip**- Take a nature walk, go camping, visit a landform, National Park, science exhibit, science museum, or planetarium (20 points each) present pictures, videos, and/or items collected from the trip with the class for an additional. (20 points each)
11. **Geocaching**- Sign up for geocaching.com and find a geocache (5 points each for up to 50 points) <https://www.geocaching.com/play>
12. **Contests**- Participate in an approved math, science or technology contest. (40 points each)
13. **Citizen Scientists**- Participate in the Lost Ladybug Project <http://lostladybug.org>, become a NASA Citizen Scientists <http://science.nasa.gov/citizen-scientists>, or choose another teacher-approved Citizen Scientist Project. (100 points possible each)
14. **Engineering**- Invent a prototype of something that solves a real-world problem and present it to the class. (up to 100 points possible)
15. **Morse Code**- Memorize the international Morse Code Alphabet. (60 points possible)

16. **Teacher approved learning activities with a focus on math, science or technology concept**- Think on an idea then ask your teacher how many points you may earn. (10 to 100 points possible each)

17. **Art**- Using the A in S.T.E.A.M. to create some form of art based item.

- Draw a character design and write a story for the character. (10 points)
- Create a three view drawing of a complex object. (up to 20 points)
- Create a cardboard Automata with a story. <https://tinkering.exploratorium.edu/cardboard-automata> (20 points)
- Put on an original puppet show with paper bag puppets (20 points)
- Design and build a Rube Goldberg device with at least 7 steps. Take pictures or bring in a video of it working. (20 points)
- Make a Paper-circuit, squishy circuit, sewing circuit, scribble machine or other creative circuit idea and explain how it works to the class. (20 points each)
<https://tinkering.exploratorium.edu/projects>
- Create 5 light paintings with titles. (20 points) <https://tinkering.exploratorium.edu/light-painting>
- Learn the names and uses of 10 art tools, use five in an art project. (20 points)

Family Field Trip Locations and Ideas

- 1. Las Vegas Natural History Museum** 900 Las Vegas Blvd N, Las Vegas, NV 89101
Learn about the animal kingdom and the history of human kind at the Las Vegas Natural History Museum. Filled with fascinating exhibits spanning through centuries from the dawn of time to modern day science, there are a wealth of exhibitions both permanent and temporary to explore.
- 2. Springs Preserve** 333 S Valley View Blvd, Las Vegas, NV 89107
Connect with nature at our award-winning Botanical Garden, home to the largest public collection of Mojave Desert plants. Come see where Las Vegas began! Walk, bike, or ride the train through our trails and discover native habitats and archaeological sites. Explore native Mojave Desert wildlife through live animal exhibits.
- 3. Shark Reef Aquarium** 3950 S Las Vegas Blvd, Las Vegas, NV 89119
Enjoy the interactive layout of the aquarium as it takes you on an action-packed journey through a slowly shrinking temple while showcasing a diverse selection of aquatic creatures, including over 100 sharks, exotic fish, reptiles, sea turtles, and more.
- 4. Spring Mountains Visitor Gateway** 2525 Kyle Canyon Road
Also known as Mount Charleston, The Spring Mountains National Recreation Area offers opportunities for year-round fun. [Learn about the area](#) by exploring our [Spring Mountains Visitor Gateway](#), join an interpretative [program](#) or [volunteer](#) to conserve the forest environment!
- 5. Red Rock Canyon National Conservation Area** 1000 Scenic Loop Dr, LV, NV 89161
Red Rock Canyon National Conservation Area lies in Nevada's Mojave Desert. It's known for geological features such as towering red sandstone peaks and the Keystone Thrust Fault, as well as Native American petroglyphs.
- 6. Sea Quest Aquarium** 3528 S Maryland Pkwy, Las Vegas, NV 89169
Get ready to go on an adventure through rainforests, deserts and the depths of the seas as you see, touch and feed more than 1200 animals.
- 7. Discovery Children's Museum** 360 Promenade Place, Las Vegas, NV 89106
Home to nine themed exhibition halls, the 58,000-square-foot **museum** entices **children** of all ages with a well-rounded array of learning experiences that feel a whole lot more like play.
- 8. Lost City Museum** 721 S Moapa Valley Blvd, Overton, NV 89040
The Lost City Museum, originally known as the Boulder Dam Park Museum, was built in 1935 by members of the Civilian Conservation Corps. The National Park Service created the museum to exhibit [artifacts](#) recovered from local prehistoric archaeological sites, most of which were flooded when the Colorado River was dammed to form Lake Mead.
- 9. State Parks/National Parks**
<https://www.nps.gov/state/nv/index.htm> or <http://parks.nv.gov/parks/map>

Marie Curie Challenge Point Recorder

Name _____ Teacher _____

Challenge Name	Date	Points Earned	Your Initials	Teacher Initials
Time Tables under 5 Minutes <i>20pts</i>				
Time Tables under 3 minutes <i>50pts</i>				
Prime Numbers <i>30pts</i>				
Square Numbers <i>20pts to 225</i>				
Square Numbers <i>40pts to 625</i>				
Pi to 20 digits <i>20pts</i>				
Pi to 40 Digits <i>40pts</i>				
Roman Numerals <i>20pts</i>				
30 Elements of the periodic Table of Elements <i>30pts</i>				
6 Simple Machines <i>30pts</i>				
6 Electrical Circuit Symbols <i>30pts</i>				
6 Terms or Symbols using programming code <i>30pts</i>				
3 basic cryptic codes <i>30pts</i>				
Sudoku Puzzles <i>10pts each up to 10 puzzles</i>				
Teacher-Approved Math Problems <i>10pts</i>				
IXL Hours <i>20pts per hour</i>				
Before/After school classes <i>20pts per hour</i>				
Code.org practice <i>10pts up to 100 points</i>				
Math Book Report <i>100pts each</i>				
Science Book Report <i>100pts each</i>				
Technology Book Report <i>100pts each</i>				
Interview with a Scientist, Engineer, or Mathematician <i>50pts each</i>				
At-home Labs <i>20pts each</i>				
Electronic Presentation: Math Topic <i>30pts each</i>				
Electronic Presentation: Science Topic <i>30pts each</i>				
Original Scratch Projects <i>30pts up to 3 projects</i>				
Create a character design with story on tinkercad.com <i>30pts up to 3 designs</i>				
Create an Original Minecraft mod <i>100pts</i>				
Create and Run a program on an Arduino, Raspberry Pi or other device <i>50pts each</i>				
Research Paper: Math, Science, or Technology topic <i>50pts each</i>				
Edison, Einstein, or Curie crossword Puzzles <i>30pts</i>				
Family Science Field Trip <i>20pts each</i>				

Marie Curie Challenge Award Grades 3-5



Dear Kay Carl Elementary School Parents,

In an effort to encourage students to use their sense of wonder, go above and beyond classroom expectations and establish a habit of striving for excellence, Kay Carl Elementary School students are encouraged to earn **Marie Curie Challenge** points throughout the school year. Points are earned as students explore science, technology, engineering, art and math connections to the past, present and future. Students will challenge themselves through a variety of self-paced, student-directed activities including memorization, investigation, problem-solving, interviews, field trips, readings, writing, web adventures, research and presentation. Upon reaching **500 points**, your child will qualify for the **Marie Curie Challenge Award!**

There is no limit to the number of Curie Challenge points students may accumulate. Parents may help students record their accomplishments on their Curie record sheets and add up their points. **All challenge points must be earned no later than April 24, 2020.** Students who achieve the Marie Curie Challenge Award will receive a Marie Curie medal for the 2019-2020 school year.

We are excited that your child is participating in the Marie Curie Challenge this year and hope they enjoy this learning adventure. Please feel free to help your child as they work at home and school to complete these meaningful and exciting challenges. Emailing your teacher pictures or videos of family field trips or at-home labs will allow the teacher to project them in the classroom so your child can share them with their classmates. Your support and encouragement will help your students become a Curie in no time!

Please contact your child's teacher via DOJO with any questions.

Sincerely,

Brenda Swann

Principal

Family Field Trip Locations and Ideas

- 10. Las Vegas Natural History Museum** 900 Las Vegas Blvd N, Las Vegas, NV 89101
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- 18. State Parks/National Parks**

<https://www.nps.gov/state/nv/index.htm> or <http://parks.nv.gov/parks/map>