

Jeanie Ritchie Grants - Funded by MPAEF

Jeanie Ritchie Grant Application 2018-2019	
Project Title:	Starry Night Planetarium
Lead Teacher/ Project Director Name:	Caryl Brewbaker Teacher - 4th Grade
Email Address:	cbrewbaker@mpcsd.org
Best Phone Number:	650-854-4433
Names of Other Teacher Participants (include school if project will span multiple campuses):	*Oak Knoll School will benefit. *Gwen Solomon will assist in keeping track of the Dome, for multiple-year use. *Alicia Payton Miyazaki - will help in implementing the standards and help encourage a variety uses for all levels of students via their teachers.
Principal's Name:	Kristen Gracia
Director of Technology Name: (if applicable)	na

Before this application is submitted, it is necessary for the principal to review it.

Has the review been completed? ___ Yes ___ No

Date of Review: _____

I have reviewed this proposal and am aware that it is being proposed for implementation and will be supported through the Technology Department.

Director of Technology Signature/Date: _____

Please Note: The Jeanie Ritchie grant process is anonymous. Your application will be considered according to an ID number only. Please do not include the name of your school in the body of your application. This title page will not be made available to the committee until the grants are awarded.

Jeanie Ritchie Grants - Funded by MPAEF

Project Title: Starry Night Planetarium	
ID# (for office use only)	Type of Grant (check all that apply) <input checked="" type="checkbox"/> New <input type="checkbox"/> Repeat (___ # Years) <input checked="" type="checkbox"/> Teacher Initiated <input type="checkbox"/> In Class <input type="checkbox"/> Student Initiated <input type="checkbox"/> Before/After School <input type="checkbox"/> Field Trip <input type="checkbox"/> Lunchtime <input type="checkbox"/> Technology Support Approved
Grades Involved	Number of Students Involved - School-wide use
Total Funding Requested \$ 1,010.53	Date(s) when will the project be conducted: 2018- 2019 Building the planetarium starts during the second Trimester and teachers will be encouraged to become involved. It will be ready for STEAM ON THE KNOL, in April, but as soon as it has been built, all teachers will be encouraged to utilize it for any variety of learning situations that fit their needs.
Project Description	
(Use this form or attach a separate sheet)	
<p>1. Goals: What are the goals of the project? What are you trying to teach?</p> <p>STEAM (an acronym for the study of Science, Technology, Engineering, Art and Mathematics) and the new Core Curriculum encourages teachers to make educational cross-cuts through a variety of disciplines. This creates deeper and more meaningful learning experiences. We want to prepare our children to “think dynamically” and be good problem solvers in the quickly changing world we all share. We need individuals with an open mindset, willing to try new things and improve upon the old. In order to achieve this lofty goal, children need to understand, or at least be familiar with options. The more they are exposed to... the more that they can achieve and move forward with purpose.</p> <p>In a nutshell, this project helps children become “makers”. Makers are typically driven by their curiosity for learning and creating new things, as well as by an interest in sharing their work and processes with others.</p> <p>This is a STEAM project from beginning to end. Science, Technology, Engineering, Art, and Math will play a huge role in its building, and the inside space will be usable for multiple venues of projections, science movies, and learning experiences. All levels of teachers, and therefore children at Oak Knoll, will be able to use this planetarium for a wide range of experiences.</p>	
<p>2. Core Activities: Describe what students will <u>do</u> as they participate in the project. How will the project accomplish its goals?</p>	

Please see the CCSS Content Standards below, suggested by Alicia Payton Miyazaki, our district's Science and Math TOSA.

With the help of parent volunteers, our class will help to build this reusable planetarium and everyone is invited to participate in its creation and use.

3. **Innovation:** To what standards and/or aspects of the curriculum is the project linked? In what ways does it go above and beyond what is normally required?

For the building of it:

CCSS.MATH.CONTENT.1.MD.A.1 Measure lengths indirectly and by iterating length units.

Order three objects by length; compare the lengths of two objects indirectly by using a third object.

CCSS.MATH.CONTENT.1.MD.A.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.

CCSS.MATH.CONTENT.1.G.A.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

CCSS.MATH.CONTENT.1.G.A.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

CCSS.MATH.CONTENT.2.MD.A.2 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

CCSS.MATH.CONTENT.2.MD.A.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

CCSS.MATH.CONTENT.2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters.

CCSS.MATH.CONTENT.2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

CCSS.MATH.CONTENT.5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Science standards for using it:

1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated. [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]

1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. [Clarification Statement: Examples of materials could include those that are transparent (such as clear

plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).]

1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.*

1-ESS1-1. Use observations of the sun, moon, and stars to describe patterns that can be predicted.

1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.

2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow. *(Having the space could lend its self to doing this Performance task)

2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen

5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.

4. Success Evaluation:

- a. If this is a new grant, how will you know that the program has been successful?

When students have a multitude of hands-on experiences with equipment, models, and experimentation devices, they become “invested” in the problem at hand. Investment means they are much more likely to learn and retain important concepts, and actively process the information revealed to them. “Investment” is one of the ways to measure the effectiveness of our Starry Night Planetarium as far as students are concerned.

Student investment can be evaluated as “successful” if the following are true:

- **Students are regularly making new associations between new ideas and their previous conceptions of how the world, and the Space beyond works.**
- **Students are having active discussions about environmental issues and other science concerns, and have been empowered with knowledge to help find wholesome solutions.**
- **There is increased interest & participation in the science activities offered at our school, in and beyond the classroom.**
- **Students are regularly making associations between discoveries in class, and the world at large.**
- **Students are having active discussions about science at home and at school.**
- **Students have been empowered with knowledge to help them create and investigate experiments of their own to share with others, or simply to expand their own, personal knowledge.**
- **There is joy, motivation and an inquisitive, challenging attitude amongst our students.**
- **Students score well on tests related to science units of study.**

The project can further be evaluated as “positively effective” if teachers...

- **have extended the depth and breadth of their science curriculum.**
- **provide challenging and stimulating lessons beyond the standards.**
- **look on the planetarium as an asset they would hate to do without.**

- b. If this is a repeat grant request, attach last year’s completed evaluation form.

PLEASE NOTE: REPEAT APPLICATIONS WILL NOT BE CONSIDERED

Jeanie Ritchie Grants - Funded by MPAEF

WITHOUT AN EVALUATION.

- c. If this is your 3rd year of funding, what steps are you taking to obtain funding from other sources? Funding from Jeanie Ritchie ends at year four.

5. **Detailed Budget:** Include all expenses, e.g., sales tax, shipping, etc. If any materials can be re-used in future years, please indicate this in the information provided.

- (125 count) --

Expenses	# needed		Total Cost
48" X 48" Corrugated Pads	125		234.00
		Shipping	137.81
Acrylic Dome Mirror - 180° View	1		73.00
		Shipping	10.98
Two-tier Shelving unit	2		50.98
Epson VS250 Projector	1		299.99
Box Rivets	3boxes		82.47
Cutter Dan Chan	5		39.95
			929.18
Tax (8.75 for Menlo Park)			81.35
GRAND TOTAL			\$1,010.53



Jeanie Ritchie Grants - Funded by MPAEF

Please email questions, comments and your final application to Colleen Cutcliffe:
jeanieritchiegrants@mpaef.org.

Thank you for submitting a Jeanie Ritchie Grant Application!