COVER SHEET

Name: Katharine M. Noonan
Ph.D. in Biological Sciences, National Board Certified Teacher in Adolescent and Young Adult Science, CA Teaching Credential in Single Subject Life Science and Multiple Subjects.

Organizations: Lake Merritt Institute, Community for Lake Merritt, *ad hoc* group to support the Rotary Nature Center

Website: Stem at Lake Merritt https://sites.google.com/view/stem-at-lake-merritt/home

Address: 609 Kains Ave., Albany CA 94706

Phone: 510-684-4157

Email: ktnoon@gmail.com

Date: May 21, 2018

Title for Proposal: **S.T.E.M. Projects for Youth at The Rotary Nature Center**
(Science, Technology, Engineering and Mathematics Events and workshops for Young People Grades 6 through Community College)

Please briefly describe what you are proposing: I propose offering one-time events, weekly activities and some extended workshops for youth that provide extraordinary experiences in science, engineering and conservation. The achievements of these projects will be displayed inside and outside the RNC. Three main areas of focus will be:

- **A Lake Merritt Observatory** patterned after the San Francisco Exploratorium's Bay Observatory the youth project will showcase student monitoring of atmospheric and hydrologic conditions at Lake Merritt and their impacts on the welfare of wildlife and humans. It will create a collaboration of local water testers. Possible display of artwork by Exploratorium artist in residence: Mutual Air Society (APPENDIX A).
- **Monitoring Life at Lake Merritt Life** guided exploration of Lake Merritt's aquatic life will build a greater understanding of ecological interactions, human impacts and ecosystem services provided by nature. The project will use protocol and guides developed for iNaturalist Project "Lake Merritt Citizen Monitoring Study" with guidance from marine biologist and Oakland native Dr. Jim Carlton and San Francisco State University's Smithsonian Environmental Research Center (SERC) scientist Dr. Andrew Chang. Dr. Chang may be able to provide a SERC intern to assist. The project will draw on my experience as a teacher and environmental educator and reach out to local high schools and environmental education groups.
- **Underwater Robotics** with OpenExplorer and OpenRov. To allow participants to work as a team to design and execute an underwater expedition to the deeps of Lake Merritt.

As an Oakland teacher for 25 years, I know that these programs can attract students of diverse backgrounds in Oakland and are highly successful in promoting high school and college graduation, and achievement of science and technology careers among students from all ethnic

and socioeconomic groups. They will give young people experience with 20th century technology tools for environmental science investigation and conservation such as spreadsheets, iNaturalist, G.L.O.B.E. and other online data projects, ArcGIS, and robotics.

They can be started now with little or no funding and without an increase in RNC staffing. They have room to grow to include teacher trainings and collaboration and synergy with all RNC programming providers and organizations (APPENDIX B - detailed project descriptions).

1. Tell us briefly about your organization (max. 2 paragraphs)

I am a certificated teacher, the founder and former director of the Oakland High Environmental Science Career Academy. As an environmental educator I am passionate about providing authentic, locally-based and globally-relevant science experiences for teens and young adults. I have a large network of connections to academic scientists, policy makers and conservation groups with whom I continue to work to design and carry out projects for youth (https://sites.google.com/view/stem-at-lake-merritt/home).

I am a board member and the editor of The Lake Merritt Institute's newsletter, The Tidings, a steering committee member of The Community for Lake Merritt, and organizer of the *ad hoc* group to support the Rotary Nature Center. *Ad hoc* is a citizen's group that advocates for an inclusive, transparent planning process under the direction and approval of OPR&YD for an interpretive center for Lake Merritt.

2. Tell us how your proposal will address one or more of the priorities associated with the Rotary Nature Center Framework?

This proposal addresses most of the priorities in the Rotary Nature Center Framework and would support and interact with other proposals. While it provides activities for young people in the age 12-18 year range, it will benefit the wider community including their parents, families and the elderly-through displays of accomplishments, presentations and through sharing information with science and conservation agencies. (APPENDIX C- detailed explanation of priorities addressed).

3. Please describe your intended audience for this proposal. Who do you plan to reach? How do you plan to reach them?

The intended audience for this project would be young people in the age 12-18 year range, but also the wider community -- everyone who visits the Rotary Nature Center or visits its website to see how people and nature are served.

I am already in contact with teachers, schools, youth groups and afterschool programs that could begin participation right away. They are a diverse group, but I would like to work in collaboration with schools, community agencies and other groups find out what is the best way to reach and engage students in areas of Oakland that have not traditionally been involved. Focus

groups could be held with different potential users of the RNC. Transportation is a barrier that needs to be addressed. I have contacted teacher/naturalist providers of programs at Elkhorn Slough Reserve and think that a model they implement work in Oakland. Elkhorn Slough partners with low economic and ethnically diverse schools in Watsonville to provide visits to the center. Teachers and schools can choose between single visits to 6-weekly visits according to their needs. Each group is matched with scientists who will assist them in an investigation. I believe the RNC is ideally located to take advantage of science community in the area.

Students could be recruited through OPR&YD announcements, teacher workshops, the RNC website and school visits with an already available curriculum (Biodiversity in a Bowl) patterned after Merritt College Environmental Program's old "Lake Merritt Roadshow". Students who participate in workshops may be able to assist in presentations to the public or to school groups (perhaps Children's Fairyland's Science Alive! or, Animal of the Day).

4. If your proposal plans to use the Rotary Nature Center facility, what are the intended times for use?

A Lake Merritt Observatory would be available for viewing during working hours of the RNC, either inside or outside on a flip-chart stand or a roll-out board. Products of **Monitoring Life in Lake Merritt** would be part of an iNaturalist exhibit and posters would be displayed temporarily inside the RNC. Eventually, they would be showcased on the RNC website at OPR&YD.

Scheduling of project meetings would be flexible relative to other users and programs. After school (3:30-5:00 p.m.) and weekends, summer 9-1, are envisioned, but there could be other times to fit in with other needs for RNC and Junior Center.

5. Please describe the budget for the program

The program can get started this summer with no additional funds. A sliding fee scale would be applied for each activity or workshop that could include in-kind service. To promote commitment, a portion of the fee could be returned on completion of a workshop.

G.L.O.B.E. and iNaturalist science programs are free. Small budget requirements would be funded by student fees, fundraising and a small anticipated donation. As a teacher, I was able to fund this type of science experience through grant writing that brought in more than $1,000,000 over 18 years. I would be willing to seek funding through grants.

6. Does the program require additional staffing support from OPRYD staff?

No additional staffing would be required. To operate most effectively my proposal would occur in the context of an integrated nature center with a naturalist who could advise and interpret and with interactive correlated exhibits related to the overall mission of the RNC. It would enhance a planned iNaturalist exhibit. It would benefit from a naturalist devoted mainly to program support and natural history interpretation.

7. How does your proposal demonstrate regard for diversity and inclusion? Are there plans for connecting with areas of Oakland or specific populations typically underserved?

A major effort will be made to engage and recruit participants from local high schools such as Oakland Emiliano Street Academy, Oakland High and Oakland Tech and from connections with nonprofits I have worked with previously, such as the Rose Foundation, that serve diverse students. This might include presentations by students or by Lake Merritt Institute staff (the Lake Merritt road-show). Students can be engaged through school-district internships and district requirements for community service, or senior projects with an active component.

Current aligned youth programs testing and sharing water and sharing data: Chabot Space and Science Center Galaxy Explorers, Rose Foundation New Voices Are Rising, St. Paul's Episcopal Middle School, Oakland Emiliano Zapata Street Academy, Oakland High School Environmental Science Academy, Laney College Geography and Biology Departments, OPR&YD Lake Merritt Boating Center Sailing Into Science Program.

8. What kinds of networking and potential collaborations are possible with your proposal?

I have experience working with the above institutions, nonprofits and agencies, and maintain contact with them. I would continue to seek their advice and support for my youth program. I would also seek to expand the connection of the RNC to the G.L.O.B.E. program by establishing partnership status for the RNC (does not incur cost).

9. How do plan to monitor the benefits of your proposal, such as number of people served, degree of satisfaction, impact etc.

I will collect statistics on numbers of young people served in total and from different ethnic backgrounds, economic backgrounds and areas of Oakland in the form of attendance and completion records. I will develop an evaluation form to collect information from participants on their satisfaction with the activities and the usefulness of the experience. I will look to other Rotary Nature Center programs for additional ideas about how to capture program success.

10. Please include any relevant references from aligned organizations and community partners.

Letters of support attached to Proposal Application:

1. Rosten Woo, Exploratorium Artist in Residence, Kirstin Bach, Exploratorium Center for Art & Inquiry.

2. Susan Schwartzenberg, Director, Fisher Bay Observatory at Exploratorium, The Exploratorium

3. Tracy Ostrom, Project Coordinator
   College and Career Academy Support Network
   University of California Berkeley Graduate School of Education of GLOBE Pacific Southwest Region Coordinator and CASN UC Berkeley

4. Svetlana Darche, Principal Investigator, GLOBE Mission Earth
   WestEd and CCASN at UC Berkeley US GLOBE Partner

5. Dr. Andrew L. Chang and Dr. James T. Carlton who has advised me on the iNaturalist Project "Lake Merritt Citizen Monitoring Program"

6. Jill Ratner, The Rose Foundation for Communities and the Environment and New Voices Are Rising Youth Environmental Justice Leadership Program, for whom I have led Secchi DipIn events and water quality internships for several years.

7. David Lang, Founder and Executive Director of OpenROV, Inc.

APPENDIX A:

From the Exploratorium Artist – Letter of Support attached.

Mutual Air Society takes the whole of the Oakland as its location and uses a network of bells to give public presence to air. *Mutual Air Society* asks 30 Oakland residents to become stewards of a bell, distributed by public institutions including the Exploratorium, the Oakland Museum of California, and the Chabot Science and Space Center. Each bell consists of a mount and an enclosed unit that consists of a set of chimes and a set of sensors. The sculpture simultaneously collects data about the air, expanding an infrastructure of sensing across Oakland, and simultaneously produces a shared sense of time and communal rhythm through daily, monthly, and annual soundings.

Our atmosphere forms a commons to which we all contribute with almost no feedback, or receipt of our participation. Our commons is both evenly distributed (in the sense of our overall climate, inexorably connected to the amount of atmospheric carbon emitted, sequestered, and free in the atmosphere) and unevenly distributed (in the amount of toxins such as ozone or small particulate matter). It is both radically shared (in the sense of its uncontainability) and not shared (in the sense of the disproportionate amount of $C0_2$ and other matter emitted by our world's private and corporate entities and radically unshared and in the sense of the burden that a warmer climate will place on rich and poor). *Mutual Air Society* aims to connect the residents of Oakland through the air, by creating a shared community of sound, connected to the shared community of climate and air quality.

These sculptures will work in unison to ring out the daily highs and lows of Carbon concentration as well as particular densities of particulate matter. The sculptures work, in a sense, as Trojan horses - utilizing interest in civic art to enhance the quality and resolution of environmental monitoring in Oakland - the sculptures will be designed in collaboration with atmospheric chemists at U.C.Berkeley (The Berkeley Atmospheric $C0_2$ Observation Network), as well as meteorologists and public health researchers.

The project will proceed in three phases. First, public bell/sensors will be installed at The Exploratorium, the Oakland Museum of California, and the Chabot Space and Science Center. The opening of these bells will be programmed as public events with film screenings and talks on air quality, climate, environmental justice, and bell music. These events will serve as a recruitment mechanism for bell stewards for phase 2. In phase 2, Bell Stewards will agree to host a bell in an audible location on their property and supply power (and in some cases connectivity) for 6 months. Phase 2 lasts six months, during which bells will infrequently sound in unison across the network (once at the point of highest $C0_2$ concentration, and once at the lowest), particular sequences will be sounded on Spare the Air days, and when global C02 thresholds are breached.

Phase 3 is deinstallation and a public event to discuss what has been learned -- both from the enhanced density sensor network, and through the public experience of the bells.

Lastly, participants in a few selected high density areas, (such as around Lake Merritt) can sign up to be relay sites - using a small speaker and low-frequency radio to connect their individual

sites to a public bell. (or those with radios can participate just be leaving their radio on and tuned to the same low frequency channel.)

Bells will sound infrequently (~ twice daily) creating a community of sound throughout the Bay Area with a more concentrated network located in Oakland. For many it will be a passive ambient chime. But occasionally an individual's interest will be piqued enough to visit a url with films explaining the meaning of the sensors, and the political framework of monitoring and sensing climate change and emissions. In this way, the bells will create a new natural rhythm overlaid on clock time, synchronizing the residents of Oakland with one another and the atmosphere in a new way.

The idea of a networked chime comes from the function of the Church Bell in 17th Century France, when bells provided daily rhythms (when to go to the fields, when to return), communal space (the limits of a village were in some ways determined by the distance that one could hear the church bell), special community events (weddings, funerals were tolled by the bell), as well as crisis and alarm (the bell was rung for fire). This project reimagines the village bell for contemporary life - not as a single hugely audible church bell, but a network of tiny chimes weaving a unified soundscape across the city.

Mutual Air Society builds upon the Exploratorium's current engagement with Rosten Woo as a 2014 - 2016 Artist-in-Residence and his project *Common Sensing*. Working with Oakland High School students and atmospheric chemists at UC Berkeley (who established a micro network of C02 and air quality sensors throughout the East Bay), Woo has been developing a series of short films about sensors, climate change, and public policy. The project explores the invisible infrastructure of scientific data collection in our urban environment. A Bea$C0_2$N network sensor is located at Oakland High School, home of the Environmental Science Academy. After submitting our initial proposal for *Mutual Air Society* to the Rainin Foundation in June, recent conversations with scientists at U.C. Berkeley, Oakland High School, and environmental justice activists in the Bay Area have informed more specific ideas about: the density of the network; the kinds of sensors that would affordable and feasible; and the types of signals that would be meaningful and useful to atmospheric chemists as well as public health professionals.

APPENDIX B: Detailed outline of programs to be offered and timelines.

One-day Events: Summer 2018

Some activities can be completed in one day and can begin even without RNC opening:

Great Secchi DipIN – July 2018: This international event tracks water clarity around the world, as well as other water quality measures. Going into 10th year of participation at Lake Merritt by high school students, this is a one-time event with a pontoon boat for up to 18 youth. The program would need $200 funds for boat rental which will be provided by a donor. It would benefit from access to a computer with wi-fi access, but this could be loaned or the iPhone App can be used..
http://www.secchidipin.org/

Single-visit Lake Invertebrate Microhabitat sampling – Planned activities to work with Lake Merritt Citizen Science Study (iNaturalsit) and Dr. Andrew Chang's Lab at SFSU. If available, Dr. Chang might be able to provide an intern to assist paid for by SFSU.

More Extended Experiences:

I. LAKE MERRITT OBSERVATORY:

– Letters of Support attached.
This project will allow young people to contribute to making the RNC an interactive estuary observatory, similar to the Exploratorium's Fisher Bay Observatory. Lake Merritt is technically the San Antonio Slough, heavily managed, but still part of San Francisco Bay.

From the nature center walkways and bird island viewing station, you see Oakland from the bottom of the Lake Merritt 4,650 acre urbanized watershed. This can serve as an entry point for authentic investigations into dynamic processes in the water, air and land, and the human impact on them.

The exhibits inside the nature center will allow visitors to go into more depth and for specific topics to be addressed. The Lake Merritt Observatory youth project will introduce participants to the process of scientific observation, and the tools and methods scientists use to gather information about the world around us.

Each project will provide weekly 2-4 hour meetings with groups of 5-20 young people to engage in scientifically-directed activities monitoring Lake Merritt, its impact on the community and wildlife refuge. Students would be expected to commit to attend at least 4-8 sessions, to contribute to and attend final project presentation.

Testing the Water:
The Rotary Nature Center would serve as a hub to collect and store environmental data collected by local schools and Laney College. Through a Rotary Nature Center workshop, trained students would contribute measurements twice a month. They would also learn to use spreadsheets to store and analyze data.

This workshop for 10-15 young people would collect weekly or bi-weekly water quality measurements from boat and shore stations. The results would be posted inside and outside the RNC and shared with the San Francisco Estuary Project Citizen Monitoring and local water testing groups. The program would participate in the Environmental Protection Agency Citizen Monitoring for Bacteria (*E.coli*) Program in the fall of 2018.

The results would be displayed on a Lake Merritt Observatory roll-out board similar to displays at the San Francisco Exploratorium Bay Observatory. Student-created temporary exhibits about the physical conditions at Lake Merritt will be related to local climate and environmental quality issues.

The Lake Merritt Observatory will have the opportunity to make a presentation in San Francisco at the Exploratorium.

The Rotary Nature Center may have the opportunity to participate in Exploratorium Artist in Residence Rosten Woo's project throughout Oakland, called Mutual Air Society. The display of this community art piece (Appendix A) would be supported by student exploration of CO_2 sources and sinks near the nature center using hand-held CO_2 meters borrowed from the Chabot Space and Science Center.

G.L.O.B.E. at the Rotary Nature Center (Global Learning and Observations to Benefit the Environment)**:** – Letter of Support attached.
The Rotary Nature Center is an ideal location to host a G.L.O. B. E. student program. The G.L.O.B.E. program is funded by NASA and NSF. It provides protocols and an international online community of students to engage with. Each year, one or more environmental "campaigns" may be joined to work with students within the region or world-wide on a particular question.

Participants would use the G.L.O.B.E. Hydrology Station established at Lake Merritt in 2009. Participation in a GLOBE campaign could lead to making a presentation at the GLOBE Regional Science Symposium in Spring 2019. The Rotary Nature Center would be an ideal place to host teacher trainings for the GLOBE program.

Student would use G.L.O.B.E. protocols to investigate the effects of urban microhabitats on urban air quality and global CO_2- Using equipment available from Chabot Space and Science Center or BEACON, LHS, ManyLabs or BAYCES West Oakland projects. Students will test CO_2 in areas of their choosing. Possible connections with BEACON and WestED/G.L.O.B.E. Mapping with Strategic Energy Innovations tools or other online services like ArcGIS.

E.P.A. Citizen Monitoring of Coliform Bacteria – Five consecutive week dry season sampling and possible visit to EPA labs to begin in August or September 2018. Wet season sampling was completed by Oakland Emiliano Zapata Street Academy in March 2018.

MONITORING LIFE AT LAKE MERRITT:

Bi-weekly meetings would train interested and committed students in scientific sampling of aquatic lake organisms for the Lake Merritt Citizen Monitoring Study on iNaturalist which is continues Dr. James Carlton's re-survey of lake invertebrates in 2016. Dr. James Carlton of Williams College and Dr. Andrew Chang of San Francisco State University and the Smithsonian Environmental Research Center will provide guidance for the program. Dr. Chang's lab may be able to provide a college student intern. Students will be able to work with Dr. Chang to deploy and retrieve settling plates and collect invertebrate samples.

A protocol and identification guides have been developed with help from Dr. Carlton which walk a citizen scientist through a site survey lasting approximately 1 hour and provides a checksheet to standardize observations collected on not only organisms but site conditions. The Rotary Nature Center would be the repository of field observations gathered and the observations would be showcased at the indoor iNaturalist exhibit and also on the RNC website.

National Ocean Science Bowl Team Oakland – Intensive study of ocean sciences and careers in ocean science. Competition at Regional Sea Lion Bowl.

Scientific Poster Making and Visit to a Scientific Meeting
Some workshops will be able to produce posters to enter into Science Fairs or to the State of the S.F. Bay Estuary Conference presented by the San Francisco Estuary Institute in 2019. Offer to help develop posters from Oakland Public Works' Mike Perlmutter.

Student visits and poster presentations at State of the S.F. Bay Estuary Conference 2019 (when it meets in Oakland). Posters to be showcased and possibly presented to community at the RNC.

OpenROV – UNDERWATER ROBOTICS EXPEDITION

– Letter of Support attached from David Lang

Students will define a mission and create an OpenExplorer expedition to investigate a question of their choosing at https://openexplorer.nationalgeographic.com/home
Example:
https://openexplorer.nationalgeographic.com/expedition/oaklandesaunderwaterexplorers
Possible collaboration with Adrian Cotter of Community for Lake Merritt.

Underwater video from expedition could be shown inside the RNC:
https://www.youtube.com/watch?v=5uoL0U0TySY

The resulting OpenExplorer Expedition could be linked on the RNC website, and any videos produced could be shown in an exhibition at the Nature Center.

APPENDIX C - Rotary Nature Center Framework Priorities

- **Developing Programs And Activities That Reach Out To All Ages (Youth, Adults, Seniors) And All Areas Of Oakland**

Directly serving young people in the age 12-18 year range, my proposal will benefit the wider community as well - their peers, parents, families and the elderly and wider public. Displays of the young people's accomplishments, presentations and sharing information with science and conservation institutions will educate and inspire the community.

- **Developing Synergies Among Various Individuals, Agencies, And Institutions That Serve Lake Merritt And The Rotary Nature Center**

My proposal involves synergies between science, art, environmental justice and conservation institutions:

- San Francisco State College and the Smithsonian Environmental Research Center.
- Peralta Colleges
- The San Francisco Estuary Institute
- The Exploratorium Bay Observatory, Artist in Residence Program and Center for Art & Inquiry,
- The Rose Foundation for Communities and the Environment New Voices Are Rising
- OEA Environmental Justice Caucus
- The project will benefit from the educational mission of the Lake Merritt Institute.

- **To Become A Symbol And Attractor For What It Means To Become A Good Environmental Citizen**

The displays in and outside the RNC generated by Lake Merritt Observatory and Monitoring Life, among other projects, will educate visitors to the RNC about the concerns of young people and the issues they investigate. The products of the youth workshops will be unique to the Rotary Nature Center and help to make it a "destination" for visitor from Oakland and beyond.

The accomplishments of the workshops, all of which will culminate in a public presentation, will boost the reputation of the Rotary Nature Center as an institution that continues to launch young people on science careers as it did in the 1960's – 1980's.

- **To Become Stewards & Educators Of Lake Merritt, The Wildlife Refuge, And The Pacific Flyway, A Natural Portal Into The Wonders Of Nature, Wildlife, And Science**

Project display at Lake Merritt Environmental Observatory will attract notice and appreciation of the community for student achievement in science and also as examples of good environmental citizenship.

- **To Be Constructive Partners With Agencies Supporting The Health & Vitality Of Lake Merritt And Advocates For The Beauty, Value, Utility, And Wonders Of Water & Wildlife**

The programs will work with the Lake Merritt Institute to involve participants in cleaning the lake, contributing to wildlife counts, and assessments of human impacts at the lake. Through L.M.I., youth will cooperate with all of the age groups, agencies and professions that engage in service through the Lake Merritt Institute.

- **A Resource To Nurture Stem (Science, Technology, Engineering, Math) For All Ages And Demographic Groups**

It addresses the need for Science, Technology, Engineering and Mathematics programs for young people. It also addresses the need for career education and development of soft skills for employment. The projects will give youth experience with 20th century technology tools for environmental science investigation and conservation including photography, spreadsheets, iNaturalist, G.L.O.B.E. and other online data projects, ArcGIS, and robotics. Partnerships with diverse scientists, environmental justice advocates will provide mentoring and role models.

- **A Hub For Encouraging The Relationships Of Art, Music, And Creativity Alongside Nature, Wildlife, And The Outdoors**

Science will be viewed as a creative enterprise at the RNC as exemplified by the local institutions that support my proposal. Art will be incorporated through presentations (web and poster, among others). A connection with the Center for Art & Inquiry at the Exploratorium, and John Muir Laws nature journaling for youth and educators will complement formal science.

APPENDIX D – Example of a teacher survey form.

The Oakland Museum recently conducted an online survey of teachers using their programs, which might serve as a model. The Oakland Museum has been generous in offering to help the RNC as its sister institution:

9/16/17

Oakland Museum of California

Share Your Thoughts!

Dear teachers,

The Oakland Museum of California is in the process of redesigning its school field trip program, and we want to make sure that our changes represent the needs of you—the teachers who bring their students to OMCA. Will you help us by taking a short survey to share your thoughts?

Your input is essential in shaping what we offer here! As a bonus, by completing the survey, you will be entered into a drawing for a $100 Amazon gift card.

Thanks again,
Amy Billstrom
OMCA Associate Director of Learning Initiatives

Dear Teachers,
The Oakland Museum of California is in the process of redesigning its school field trip program. We want to make sure that we listen to the needs of teachers. Thank you in advance for completing this survey. Your input is very important!

By completing the survey, you will be entered into a drawing for a $100 Amazon gift card.

If you have any problems completing the survey or need any additional information, please contact survey@museumca.org.

Thanks again, Amy Billstrom, OMCA Associate Director of Learning Initiatives

1. About how many field trips did you take during the 2016-17 school year?

2. About how many field trips do you plan to take during the 2017-18 school year?

3. What are the biggest challenges to taking field trips? Mark up to two answers.
Scheduling and logistics (e.g., completing school forms, field trip registration, permission slips)
Transportation
Field trip fee
Getting enough chaperones
Convincing my school administrator to let us take field trips
Missing class time (getting my time covered and/or permission from students' other teachers)
Other (please specify)

4. How do you find out about field trips? Mark up to two answers.
I typically go to the same places each year
From other teachers, parents, friends, or family members
From flyers, calendars, or brochures I get in the mail
From e-mail, e-newsletters, or websites
From workshops or other professional development offerings
Donors (e.g., Google, Rotary Club)
Other (please specify)

5. How important is it for the content of the field trip to connect with classroom curriculum? Mark one answer.
Very important—it is essential that the field trip ties to what I'm teaching in the classroom.
Somewhat important—it's nice when there are connections but not essential
Neutral—scheduling, cost, and logistics are top of mind and not content
Not important—I don't focus on the content but rather think about the experiences the field trip will offer

6. What kinds of pre-visit materials do you prefer to use? Mark up to two answers.
None, I typically don't use any pre-visit materials
Lessons and activities that I can do with my students
Worksheets and handouts for students to use on the field trip.
Background information written for teachers to help me learn about the topic
Resources (images, video, website links) that I can use in my own lessons
Other (please specify)

7. What kinds of pre-visit programs do you prefer to use? Mark up to two answers.
None, I typically do not use any pre-visit programs
Not sure, I've never been offered any pre-visit programs
Teacher workshop or class
Visit in the classroom by field trip site staff
Other (please specify)

8. Have you ever taken your students to the Oakland Museum of California on a field trip? Mark all that apply.
No, never
Not sure

Yes, this past school year (2016-17)
Yes, in previous years

9. Did you use the Oakland Museum school group registration website?
No
Yes

10. Did you know that the Oakland Museum offers Oakland Schools a 30% discount for tours, programs, and performances?
No, I wasn't aware
Yes, I've used it
Yes, but I haven't used it
Not applicable, don't teach in Oakland

11. Did you know that the Oakland Museum offers scholarships for all schools with 75% of the student population qualifying for free/reduced meal program?
No, I wasn't aware
Yes, I've used it
Yes, but I haven't used it

12. Have you ever attended a teacher workshop, "teacher feature," or "teacher lounge" at the Oakland Museum?
No, never
Not sure
Yes, within the last 12 months
Yes, but it's been more than 12 months

13. Have you ever visited the Oakland Museum on your own or with your family?
No, never
Not sure
Yes, within the last 12 months
Yes, but it's been more than 12 months

14. Currently, do you have an educator membership to the Oakland Museum?
No
Not sure
Never heard of this
Yes

15. What grade(s) do you teach? Mark all that apply.
Preschool
TK
K
Grade 1
Grade 2
Grade 3
Grade 4
Grade 5
Grade 6

Grade 7
Grade 8
Grade 9
Grade 10
Grade 11
Grade 12

16. What subject(s) do you teach? Mark all that apply.

All subjects (preschool or elementary school)
English language arts
Visual art/studio art
History/social studies
Science
Foreign language
Other (please specify)

17. What is your school zip code?

18. In what type of school do you teach?

Public
Charter
Independent/private

19. About how many years have you taught?

1 to 3 years
4 to 6 years
7 to 9 years
10 or more years

Thank you so much for completing this survey! If you would like to be entered into a drawing for a $100 Amazon gift card, please provide your email address. Your email is separate from your survey and will not be used for any other purpose. Thanks again!