

Amplifying Hosts:

Developing community leaders to spread prevention information

Monday, January 27, 2025
Oakland, CA / MVCAC 2025

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EcoHealth Vector Education



Problem

- Limited time
- Limited resources



Teacher Training Program

7
Steps



Step 1: Identify the message & audience



Message:

Source reduction & bite prevention



Audience:

K – 12 programs → middle school
science teachers

Step 2: Develop the curriculum

Goals:

- Prepare teachers to be “topic experts” in their classroom
- Familiarize teachers with Operation Mosquito G.R.I.D.
- Support teachers through the implementation process

What is taught:

Vector control, mosquito basics, & best practices for facilitation

How:

PowerPoint, activities, & hands-on experiences



Step 2: Develop the curriculum



1. Content
2. Activities
3. Structure (hybrid, virtual, in-person)
4. Length of time
5. Location (amenities)

Cal Poly Pomona, College of Agriculture San Gabriel Valley Mosquito & Vector Control District's "Operation Mosquito G.R.I.D." Syllabus

Course title: Teacher Training: Middle School Citizen Science
Mosquito Surveillance Project

Meeting Times

Format and Length of course:

Hybrid: Day 1 of training takes place via Zoom. Day 2 is hands-on, in the lab. Participants will then implement the training materials in their own classrooms and submit evidence before November 30, 2022.

Days and Times of Onground or Synchronous Online Class Meetings (if applicable):

(Virtual, synchronous) Wednesday, July 20, 2022, from 10am – 3pm

(In-person, synchronous) Thursday, July 21, 2022, from 9am – 4pm



Water Sample Collection



Lab Analysis



Trap Preparation



Step 3: Develop Resources

Hi everyone,

I hope this message finds you all well. Our science department is partnering with our friends from the [San Gabriel Valley Mosquito and Vector Control District](#) to educate our students about the science behind controlling vector borne illnesses and how climate change has highlighted the need in the San Gabriel Valley for public awareness. In simple terms, the SGV Vector Control District is one of the public health entities that help prevent outbreaks of diseases like West Nile, Zika, Yellow Fever, and Malaria to name a few. The most exciting aspect of our partnership is that they partner with our students to collect samples and teach them how to analyze these samples to help map potential hot spots of mosquito breeding grounds. Our students essentially take part in the science relevant to real-life public health!

Our participation in [Operation Mosquito: GRID](#) will ensure that our students will get a hands-on experience doing meaningful science in care and protection of our community and public health. It really is a fantastic way to expose our students to civic participation through science.

In order for our students to get the full experience, we need your help to complete the following tasks by **Monday, September 25th**.

Complete the following steps:

1. Sign the parent permission slip and return to your teacher by **Monday, September 25th**. This will be given to your child in class. Attached is a PDF just in case you need another copy.

2. Students- Complete this online survey: <https://www.surveymonkey.com/r/GRIDpre2024>

The parent permission slip and online pre-assessment must be submitted for participation in Operation Mosquito GRID prior to **Monday, September 25th at 11:59pm**.

For more information on the program, please scan the QR code.

If you would like some further background on why this is critically important from a global-economic-environmental-public health perspective, please view this [video](#).

Please feel free to contact me if you have any questions!



Aedes Mosquito Research Assignment

Objective: Investigate the *Aedes aegypti* mosquito species, its characteristics, behaviors, and impact on human health in Southern California.

Task:

1. **Research** the *Aedes* mosquito species found in Southern California. Specifically, investigate the following:
 - o How the *Aedes* mosquito lives and reproduces
 - o Why the *Aedes* mosquito needs blood to survive
 - o How climate change may influence the prevalence of diseases spread by the *Aedes* mosquito
 - o What individuals can do to help prevent the spread of diseases carried by the *Aedes* mosquito
2. Create a 8-10 slide **Google Slides presentation** that addresses each of the research topics above. Be sure to include relevant facts, statistics, images, and references to support your information.
3. Your slides should be visually appealing and easy to follow. Use appropriate formatting, fonts, and design elements.
4. Be prepared to present your Google Slides presentation to the class.

Recommended Research Sources:

1. **San Gabriel Valley Mosquito and Vector Control District:** This local agency focuses on mosquito and vector control in the Southern California region. Their website has information on the *Aedes* mosquito species, disease prevention, and community education resources.
 - o Website: <https://www.sgvmosquito.org/Links to an external site>.
2. **Centers for Disease Control and Prevention (CDC):** The CDC has detailed information on the *Aedes* mosquito, the diseases it can transmit (like Zika, dengue, chikungunya), and tips for prevention and control.
 - o Website: <https://www.cdc.gov/mosquitoes/about/biology.html#links to an external site>.

Operation Mosquito G.R.I.D. Egg Paper Analysis Reporting Guidelines 2024

Name: _____

Agent Number: _____

Directions: Check off the answers that apply for each question.

1) Does the paper have *Aedes* egg suspects?
 Yes Circle the items on the egg paper that look like eggs.
 No, analyze the egg paper under the microscope just in case.

2) Scan your paper under the microscope.
 Place the paper with the black line face up- only inspect this side
 Lay the paper as flat as possible
 Place the top left corner of the paper under the microscope
 Move the paper slowly under the microscope from left to right
 Once you get across the paper, move down to the next section and start again, left to right.
 Avoid scraping the paper to keep the eggs attached

3) Do the egg suspects pass the egg checklist test under the microscope?
If you can check these off, it's likely an egg!
 Black or dark
 Shiny
 Smooth on all; pimpled when zoomed in
 Even surface
 Shaped like a grain of rice
 Shaped like an oval laid in a line
*Hint: *Aedes* mosquito eggs?

4) Are there *Aedes* mosquito eggs?
 No, take a photo of any interesting items on the egg paper
 Yes! Take a clear photo of the egg paper. SGV Mosquito & Vector Control staff will confirm or correct identification.

5) Post to Padlet and include a description
Post only 1 or 2 of your best images!
 Found NO mosquitoes!
1. Padlet Subject: Agent # (NM)
Write something beautiful: "No presence of *Aedes* mosquitoes" and a description of anything interesting you found
2. Write something beautiful: "*Aedes* mosquito eggs present"
3. Post photo of anything interesting you found
 Found Mosquitoes!
1. Padlet Subject: Agent # (NM)
Write something beautiful: "*Aedes* mosquito eggs present"
2. Write something beautiful: "*Aedes* mosquito eggs present"
3. Post a clear photo of the egg(s)

Padlet QR Code:

Padlet Link: <https://padlet.com/foothelath/GRIDeg2024>

Step 4: Promote the Program

1. Incentive: Professional Development (PD) Credit & curriculum enrichment

- Ideas: Food, gift card, property inspection

2. Promotion:

- Eblasts
- Quarterly EcoHealth Newsletter
- Local newspaper
- Social media

Free Teacher Training Opportunity
Scope Out with
Operation Mosquito G.R.I.D.

Cost
FREE for middle school teachers at schools in the San Gabriel Valley
3 free Cal Poly Pomona Continuing Education Credits (CEUs)

When
Synchronous workshops:
On Zoom **Thursday, July 25** (10am - 3pm)
Hands-on Lab **Friday, July 26** (9am - 4pm)
Project duration:
Implement program at your middle school from July 29 - November 30

Where
1145 N Azusa Canyon Rd., West Covina, CA 91790

More info and RSVP
VectorEducation.org/TeacherTraining

What You Will Learn

- Mosquito biology, surveillance strategies, mosquito source reduction, and bite prevention strategies
- Link between mosquitoes, vector-borne disease, and climate change
- How to facilitate our community science mosquito surveillance program with your middle school students
- Student use of microscopes to analyze field data collected and data reporting

San Gabriel Valley Mosquito and Vector Control District
EcoHealth Vector Education
EcoHealth@SGVmosquito.org
(626) 214 - 0726

Step 5: Conduct Training



Step 6: Support Trainees

Sent via Email

Do we toss the samples after we analyze?

Anecdotally, the majority of the kids whose parents said no, said it was a cultural reason. Not sure what to do with that.

Hello,

Some of our kids will not be here on Tuesday 10/15 due to a field trip. Could we have student post their mosquito lure pictures on Monday or Wednesday? Also, how do you want us to dispose of the lure papers or will you come collect them?



Step 7: Evaluate & Adapt

Program Barriers

*IN our control
*OUT of our control

- I have **a few unmaintained microscopes.** I need a few more to make this project better
11/4/2024 10:38 AM [View respondent's answers](#) [Add tags](#)▼
- I did need to **get Padlet approved for devices on our network** but it was manageable.
11/4/2024 10:45 AM [View respondent's answers](#) [Add tags](#)▼
- 1. I needed **permission forms in Arabic.** 2. Anecdotally, some parents viewed the project as putting their kid at risk of being bitten by mosquitos. I tried to alleviate those fears, but ultimately 2 or 3 kids didn't participate as a result.
11/4/2024 10:45 AM [View respondent's answers](#) [Add tags](#)▼
- Sometimes it is difficult due to **not having cell reception int he classroom** I still made it work by emailing the egg pictures through my phone to the students.
11/13/2024 04:48 PM [View respondent's answers](#) [Add tags](#)▼
- The **sound on the how-to videos** was difficult to make out sometimes.
11/4/2024 10:45 AM [View respondent's answers](#) [Add tags](#)▼

Step 7: Evaluate & Adapt

Program Improvements

If possible just **one round of egg trapping.**

11/15/2022 08:44 AM

[View respondent's answers](#) [Add tags](#)▼

One change I would like to see would be **increased time frames,** if possible. Another couple of weeks would benefit my students as we usually start later than traditional campuses. I would like students and parents to have more time with the sign-up process and maybe resource packet geared toward parents to help them understand the scope of the project.

11/9/2022 12:07 PM

[View respondent's answers](#) [Add tags](#)▼

It was hard for me to know if students really completed the surveys. It would be helpful if I were able to **see a live progress** of their work.

11/1/2022 10:33 AM

[View respondent's answers](#) [Add tags](#)▼

I do not prefer survey monkey as it could be confusing for students. Many of them think they have completed it but they did not. A **google form** will help them receive a copy in their inbox as proof of completion next year? This way I can also post this on my classroom Canvas page as an assignment.

11/13/2024 04:43 PM

[View respondent's answers](#) [Add tags](#)▼



Step 7: Evaluate & Adapt

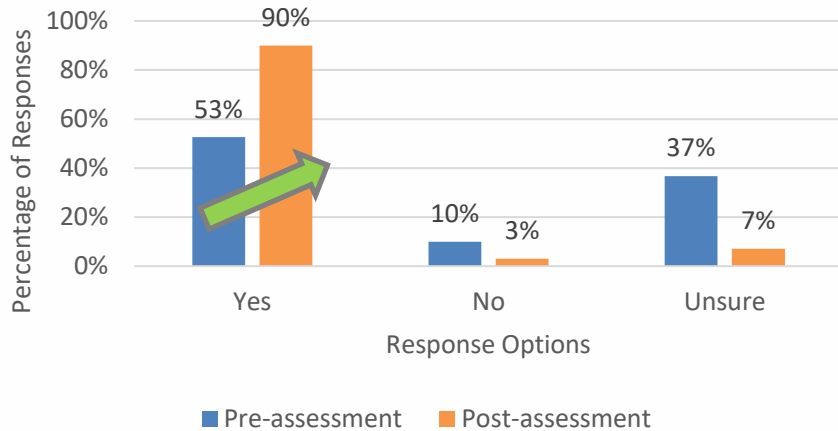
Value Added

- This was such an amazing opportunity for students to **connect to the real world science!** Not only did they see science happening in their own home, they also valued the connection to the community that they felt as they joined an important mission.
10/25/2023 02:59 PM [View respondent's answers](#) [Add tags▼](#)
- Students are vigilant now regarding mosquitos on campus.** They told me that the art teacher left a fish tank outside which had rain water and it is breeding mosquitos. So we were able to empty the tank. Thanks to the G.R.I.D program!
10/20/2023 08:48 AM [View respondent's answers](#) [Add tags▼](#)
- GRID project is a well organized, public health Science investigation to eradicate mosquitoes. It not only aligns with NGSS, it is also **highly interactive and educational for our students.** I would highly recommend this program for any classroom.
11/13/2024 05:12 PM [View respondent's answers](#) [Add tags▼](#)
- The **students and parents loved seeing what microbes are lurking in their yards.** I also had an entomologist look at the padlet with water samples.
11/13/2024 04:48 PM [View respondent's answers](#) [Add tags▼](#)
- they provide my students with **additional practice with microscopes**

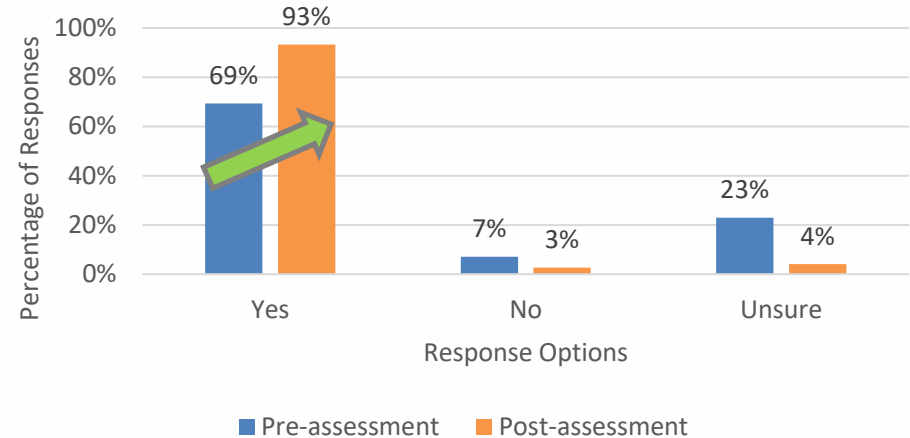
Step 7: Evaluate & Adapt

Trainee Success- Student Knowledge Gain

Question: Water trapped for longer than one week can grow mosquitoes.



Question: Removing items that can trap and hold water is a good way to keep mosquitoes from growing.



Step 8: Evaluate & Adapt

Trainee Success- Padlet.com Postings

EcoHealth + 562 • 2mo

Operation Mosquito G.R.I.D. 2024 Water Samples


Water samples from across the San Gabriel Valley

Allizadeh Per 4

Allizadeh Per 6

Harb Per 1

2310151 (YM)




Video • 00:03
IMG_2814

The water was tinted yellow and I got it from my grandma's fountain.

usually algae or plant material

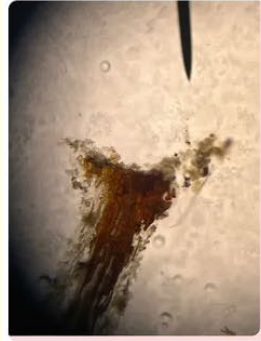
♡ 0

227710254 (YM)



The water was clear and a slight tint of yellow. I see mosquito larva. it looks like a worm. I also see like a tail . I did find many mosquitos in my sample (Yes, this is a pupa-

170400048 (NM)



i found only plant material and i did not find any mosquitos or anything else (Thanks for

EcoHealth + 595 • 2mo

Operation Mosquito G.R.I.D. 2024 Egg Papers

Student surveillance from across the San Gabriel Valley

Wagner & Lawson

Nasont- Per 1

Nasont- Per 2

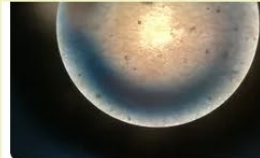
that might be a mosquito egg.

♡ 0

498460 (Ym)



I found a Aedes egg on the paper. S-DI-474



No mosquitos were found (Thank you for sharing!)

♡ 0

1517049 NM



I didn't find any mosquito eggs,

153869 NM



(Description?)

♡ 0

1516944 NM



Cost of Teacher Training 2024

Line item	Cost
Advertisement on Meta & Google	\$186
Lunch & Snacks	\$188.38
CEUs from Cal Poly Pomona	\$360.00
Supplies for in-person training	\$0
Teacher materials (clip on microscopes)	\$30.72
TOTAL	\$765.10

***Excludes items we had on hand:**

- **Folders**
- **Name tags**
- **Giveaway bags**
- **Lab materials**
- **Comms supplies**



Was it worth the effort?

* Trained by a fellow teacher

Teacher	# Students (2022)	# Students (2023)	# Students (2024)
Sierra Madre	168	189	178
Lone Hill 1	132	137	131
*Lone Hill 2	153	177	165
*Lone Hill 3	0	0	35
San Jose Charter 1	67	68	69
*San Jose Charter 2	68	68	64
CIS Academy	13	0	0



2,081 Students Reached



Make mosquito control a shared responsibility



Vector Inspector of the Year Award Recipients



THANK YOU

Kriztian Luna Corona

Education Specialist

San Gabriel Valley Mosquito and
Vector Control District

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626-814-9466

    @SGVmosquito



Additional Resources

Link to Teacher Training Program:

vectoreducation.org/teachertraining

Link to Operation Mosquito G.R.I.D.:

vectoreducation.org/operation-mosquito-g-r-i-d

