# Got a PD Problem? Let's Shoot for the Moon and Solve It!

## Presenter Contacts


- **Sarah C. Soule, California Academy of Sciences**
  Senior Manager of Teacher Professional Development
  ssoule@calacademy.org
- **Katharine (Katy) Muniz, California Science Center**
  Director of Professional Development
  kmuniz@cscmail.org
- **Elena Lopez, California Science Center**
  Professional Development Manager
  elopez2@cscmail.org
- **Dr. James (Jim) Kisiel, CSU Long Beach**
  Professor, Department of Science Education
  j.kisiel@csulb.edu


## Solution Brainstorming Protocol

### Roles

Each group should have a timekeeper and at least one note-taker.

- Timekeeper sets a timer for each step and encourages the group to move forward when time is up.
- Note-taker(s) capture public notes. Different people can play this role in different sections if desired.

### Part 1: Understanding the problem (12 minutes)

**Purpose:** to make sure everyone in the group is on the same page about what we are discussing, to start unpacking the problem and thinking deeply about it.

**Questions:**

- What specifically does this problem look and feel like?
- What would be different if this problem were solved?
- Why does this problem exist?

**Step 1:** Two minutes of quiet time to think individually about some or all of the questions.

**Step 2:** Ten minutes to popcorn out thoughts. Note-taker captures public notes.

*Note: if this step reveals that members of your group are thinking about substantially different problems, feel free to split into two groups for Parts 2 - 3.*

## Part 2: Generating ideas (12 minutes)

**Purpose:** to get a broad scope of ideas for solutions on the table

**Rules:**

- *NO CRITIQUING:* At this stage, all ideas are good ideas. You are absolutely not allowed to shoot down any ideas or say "well, that wouldn't really work because…" (There will be time for that later.)
- *Quantity over quality:* Aim for as many ideas as you can get, no matter how unrealistic or wild.
- *Inspiration:* Look closely at the notes from the "understand the problem" stage to see if they trigger any new ideas for you.

**Step 1:** Two minutes of quiet time to think individually

**Step 2:** Ten minutes to popcorn out ideas. Note-taker captures public notes.

## Part 3: Developing ideas (21 minutes)

**Purpose:** highlight a few solution ideas that seem valuable, go deeper into detail with some ideas, document some ideas so they can be shared.

**Grouping:** If your group has 3 or fewer people, do this together. If you have 4 or more, split into pairs/trios.

**Step 1:** Chat with your pair/trio about which ideas most resonate with you. Pick one to hash out in a bit more detail.

**Step 2:** On a poster, jot down your small group's thinking about this idea. (Be aware that other groups will read your notes later.) Consider questions like:

- How would you do it? What could it really look like?
- How would it address the problem?
- What might it take to really make it happen?
- How could we overcome obstacles to make this solution work?

# PD Problem/Solution Brainstorm

### Problem #1: Time (or lack of) and Teacher Constraints

- How to increase participation levels in teachers, especially during summer months
- Teachers won't come! (on weekends or weekdays or summer)
- Getting teachers to my ISI on a Saturday for PD

- Time - teachers have none
- NGSS! Teachers have hands full with trainings and changes

**Solutions**:

- Show that you value the partnership - formal AND informal learning is necessary
    - Care package - wine
- Run sessions during the school day
    - Discovery World raised $85K by creating a YouTube video for Development to use/market the program
        - Pay for subs
        - 6 sessions
        - 20 participants (in pairs)
        - Content-specific
        - Focused on energy
    - No Saturdays, summer, or after school
- Partner with Industries
    - Community of Practice
- Have professionals from the field speak
    - Content
    - Focus on student misconceptions
- Partner with districts for buy-in
- Provide physical resources to accompany content (send teacher home with activity supplies)
    - Tangible manipulative giveaways with PD
- Do programs during the school year
- Connect to what motivates a teacher from a mission viewpoint
- PD in schools/more central locations (along subway line)

## Problem #2: Working with Admin and Districts

- How do I work with districts that are self-sustained with TOSAs, resource teachers, etc.
    - Districts are already paying these people, why do they want us?
- Breaking into/working with the district
    - Want to go into classrooms and watch teachers teaching pre/post-training around a controversial topic, how to get permission?
- Lack of district buy-in/support
    - Being written into grants with schools/teachers, but never hear from them again!
- Getting school principals to let me come and present at staff meeting

**Solutions**:

- Invite stakeholders (admin/TOSAs) to museum to build allies and start conversation
- County or district Science Leaders Network - find out where they already are and meet them there
    - Attend meetings and be a fly on the wall
- Learn acronyms and “insider language”

- High-level admin want to know that this is being advocated for throughout the district - start with teachers and move up
- Host events for administrators - seen as a networking opportunity and possible credit hours
    - More about salary advancement, very difficult to be on “the list”
- School Boards - do we know anyone on their Board?
- Partner with admin on a grant
- Connect with someone and instead of asking for something , offer them something that would be valuable for them
- Avoid controversial buzzwords, start with cool science/technology and move toward controversial topics (climate change/evolution)
- Offer PD opportunities for free as a marketing opportunity (“scholarship funding”)
- Host an event with many organizations from community
    - admin/TOSAs during the school day?
    - Going to already occurring meetings can combat traffic/personal time issues

## Problem #3: Reaching the “Right” Audience

- Reaching <u>any</u> audience first
- They are focused on standards
- No buy-in, people who sign up don’t show up
- The ones who do show up are already in on it
    - Preaching to the choir
- Teachers who need it aren’t showing up
- How sustainable is the “teacher pays/individual sign-up” type workshop?
- Teachers from well-resourced schools
- Motivation, interest
- Huge districts
- Advertising, how it relates to resources and privilege
- Mixed levels
- Repeat customers
- Hard to get response from admin
- Few non-white participants
- Who is attracted by stipends?
- Districts run a lot of internal PD (not all good)
- Teachers may choose options that are less rigorous and give more money, PDPS, credit

**Solutions**:

- Going to the desired audience to pitch program - make sure they know it exists
- Listen to the target group to learn about what they need from PD
- Invite teachers who already come to bring a friend
- Partner with districts
- Have districts disseminate
- Provide outcomes ahead of time so they know what they will get
- See the districts’ curriculum - how can you tie in?

- Get topic ideas from the teachers
- Deposit to hold a spot
- Get community leaders to be present
- Certificates, recognition
- Offer physical materials, build kits to take home
- Plug in to districts' internal PD
- Find out what barriers are, find ways to remove them
    - Food, childcare, transportation
- Try out different times/days
- Get districts to pay for subs/supplies so teachers can participate during school day
- Local businesses to sponsor food

## Problem #4: Perceptions of Informal Sites

- Teachers resistant to informal learning methods
- To get teachers to think beyond the museum as a site only for history field trips. I do math and science too, but they don't come.
- Subjects we offer are perceived as "extra", "add-on", "special" and discounted
- Changing attitudes about using ISI for teacher PD
- Preconceived notions
- STEM is not "only" science
- Teachers married to curriculum
    - Must be standards connected
- Justify a school trip
- Creativity of teaching is not supported

**Solutions**:

- Educators and informals seen as partners
- Top down and bottom up support for this
- Ready-made materials that are engaging
- Giving them tools to evaluate and teaching them to use evaluation
- Model the science behavior
- Parents are invested
- Inquiry field - integrated
- Hands-on learning
- Leadership team
- Consider teacher culture
- Start small, where is the fertile ground?
- Field trip; multiple contacts
- Acknowledge barriers and brainstorm how to get around
- Relationship building
- Working through children of parents; activity
- Scalable to size of ISI
- External pressures - number of participants, funders
- Teacher prep program requires informal ed component