

OUSDK-12 ScienceFair

AGENDA

Elementary Science Fair Workshop, OUSD Think College Now, Room B202 March 14, 2013, 4-6 PM

Presented by:

- Duffy Ross, Meredith.Ross@ousd.k12.ca.us, Elementary Science Specialist
- Sonnie Dae, Sonnie.Dae@ousd.k12.ca.us, Elementary Science Specialist

Welcome

Why do a Science Fair?

Anticipated Benefits	Anticipated Challenges

I. The Basics

Types of Projects

1. Science Investigation
2. Systematic Observation
3. Engineering Challenge

Projects can be completed as a class, in groups or individually.

Projects can use or build on existing curriculum (i.e. FOSS).

II. Organizing Student Projects

Project Teams

- K/1 suggestion: whole class project
- 3/4/5 suggestion: small groups or pairs
- Teacher discretion

OUSD discourages individual projects.

How comfortable are you managing multiple student projects for quality?

Who Chooses the Question?

Spectrum:



Directed:
Teacher Choice

Guided:
Student Choice
within a structure

Open:
Student Choice

Factors:

- Science experience?
- Comfort in managing group work?
- Comfort with 'not knowing?'
- Time

Materials Exploration

Observe & explore materials

At Bell:

- Materials down
- Record as many questions as possible
- One question/sticky note

Sorting Questions

- Investigable
- Non-investigable

Investigable Questions	Non-investigable Questions
<ul style="list-style-type: none"> • Access to appropriate tools • Enough time • Discrete enough to be answered in single investigation • Safe <p><i>“Measuring questions”</i> <i>“Comparison questions”</i> <i>“What happens if...”</i></p>	<ul style="list-style-type: none"> • Unanswerable • Not “scientific in nature” • Too big (often “Why” or “How” questions) • Answer already available - “Ask an Expert” question • Not enough time - “Million Year” question • Not enough money - “Million Dollar” question • Too dangerous

The Variables Scan: “Turning Questions”

Ex: Why do seeds grow?

1. Identify the components of the original question
 - *Seeds*
 - *(water, soil, sunlight)*
2. Ask “How can each variable be changed?”
 - **Seeds:** size, type, number
Investigable Question: *How does the **number** of seeds in my cup affect their growth?*
 - **Water:** amount, chemistry, temperature
Investigable Question: *How does water salinity affect seed germination?*

Sorting your Questions

Sort your questions into:

- Investigable
- Non-investigable*

If necessary, turn questions using the *Variables Scan*

Guiding Students' Choice of Questions

1. ✓ Materials exploration (stations)
2. ✓ Students generate questions
3. ✓ Sort questions
4. ✓ Turn non-investigable questions
5. Write each investigable question on sentence strip
6. Post on wall
7. Gallery walk to select a desired question

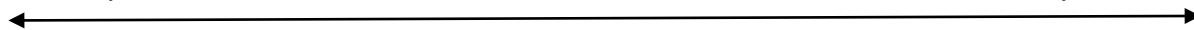
The Question Re-visited

Teacher

writes questions

Students

write questions



Selects
question
for class

Presents several
questions for class
voting

Teacher turns student
questions; presents
several for voting

Students
turn own questions
and then vote

Logistics/Making Time

Backwards plan

- Periodic check-ins/feedback

Class time

- Slow and steady
- Dedicated focus
- As homework (?!)
- Lunch/after school club

Identifying the Right Question

Developing a question

- Keep a running list during year
- Encourage student interests
- Encourage relevant or societally important questions
- FOSS focus questions (or extension)

Project Development

Managing Group Work:

- Same question, different "trials"
- Same umbrella question, different variables
- Different questions

III. Organizing a Schoolwide Fair

Advanced Planning: Big Picture

- Scheduling (Tues-Thurs)
- Timing (afterschool, custodial)
- Location
- Facilities Permit
- Large Room (tables!)
- Administrator involvement
- Recognition (certs, ribbons, etc.)
- Scan signature/mail merge
- Build excitement (signs, announcements)

Planning for Family/Community Event

- Invitations (flyer, wristbands, phone calls)
- Food as incentive (Dryers Ice Cream?)
- Program (student performances, raffle, photo board)
- Incentives (mandatory/extra credit to attend, stand/explain at board, remove on time)
- Students must attend with adults
- Plan ahead for afterschool program involvement

Planning for Project Evaluation

- Decide: Competitive or no?
- Adapt OUSD Rubrics for School Purposes
 - Broad: *inclusive but limited*
 - Science-focused: *targeted but valuable*
- Share rubric with faculty (& students) from beginning
- Confirm Judges (Science Prep/Lead, Principal, Community Scientists)

Day of Fair: Student Engagement

- Post & Review Rules for Self-Guided Tour
- Consider Adult Monitor for Orientation
- Tour with Buddy classrooms
- Focused Tour with Scavenger Hunt
- Students vote for Student Choice Award

Day of Fair: Project Evaluation

- Review rubric and calibrate with judges
- Select six to advance to OUSD Fair
- Identify awardees:
 - Top from each grade/class? Student/Principal choice?
 - Most original? Most creative? Best presentation?
- Finalize & Distribute Recognition Awards

IV. District Science Fair Guidelines and Rules

OUSD Science Fair Guidelines

Safety Issues

- Animals, mold, body parts, blood
- Electricity, fire, water
- Human subjects
- Ed code violations

Important Dates

- Organize School Fair – Now until May 16
- Confirm Participation in District Fair – Fax form by April 5
- Register Projects – Enter data online by May 16
- Deliver Projects to Chabot – May 20 between 2-6 pm
- Community Science Fair Celebration – May 22, 5-8 pm
- Take home ALL Projects – May 22, between 8-8:20 pm

V. Resources & Questions

Planning Resources

Request a site-based Science Fair PD (Principal to cvargas@ousd.k12.ca.us)

- Notes from today's workshop
- Official OUSD Guidelines
- Question & project ideas (for various categories)
- Sample rubrics (investigation, K/1 whole class investigation, engineering, systematic observation)
- Sample student planning tools (planning packets, checklist)