

Gallery Walk March 17th and 18th Principals Leadership

1. What are the characteristics of effective science instruction?

-All subject areas:

-Predict, observe, explain, explore, integrate, assess, hook, discover, NO worksheets, NO lecture, start with constructivist approach, build excitement, enthusiasm, Just do it!

-See outcomes / evidence, see more than just instruction – see the end product

-See the results/data

-Whether valid or not, we are held to them (CRT)

-What does time allow? Students need to demonstrate knowledge

-theory?

-a constructivist approach to relevant questions-promoting high interest and student engagement

-meaningful contextual exploration, compare, observation, evaluate, application, synthesize, conversation, evidence, community, fun, connections, curiosity challenge, integration

-hook: why does this matter? Demonstration, physical

-feedback: address misconceptions

-multiple modalities

-engagement

-objective, start with in mind

-assessment, reteach, enrich

-higher order thinking, why?

-experimentation

-no demonstrating without all participating

-no worksheets and chapter reading as the sole science teaching

-doing and discovering

-cooperative learning

2. What is the role of the principal in effective science instruction?

- To provide the teachers with ALL of the necessary resources
- Money, time, PD, scheduling, behavioral strategies, feedback, content knowledge
- Teachers see the principals supporting science, doing science, interested in science
- offer PDs in science specifically
- choose to observe science lessons and offer valuable feedback
- set expectations
- dream w/ colleagues about what can be
- dashboard of indicators
- principal asks appropriate questions to determine needs
- teach and understand data to effectively implement data driven instruction
- be advocate for science let kids and teachers see the principal doing science
- have fun
- know science curriculum
- celebrate and recognize
- show that we care
- provide a sample daily schedule that includes time for science

3. What does 'science as practice' mean to you?

- A way to discover and understand life and our environment
- Hands-on / Active not passive learning
- Creative curiosity
- A way of thinking and observing
- Predict, observe, explain
- Science is more than physical; it should include social science, technology and other sciences
- can be a passion, life-long interest
- The spectrum can be universal or atomic
- we can see science in everything we do

- integrate
- having fun
- discovery-learning
- making science cool
- LIFE!!
- logical problem solving
- science is around us all the time
- hands on, taught regularly
- a way of looking at and living in the world
- the fun in the lesson...it's fun
- analysis discussion
- apply to other content and life
- when you see your students looking through the grass at recess....they've become scientists

4. Give evidence of 4 strands being used in your school

1. Understanding scientific explanations
2. Generating scientific evidence
3. Reflecting on scientific knowledge
4. Participating productively in science

For whom are these strands intended?

- Butterflies
- Wednesday walks
- Science fair
- Farm day
- Weather bug
- Solar ovens
- Spawning field trip
- Gooseberry experience
- Mad science

- MESA
- Growing germs
- ISEE programming
- Nature Center
- Clark Planetarium 4-6th grade
- Natural Resource Fair-BLM
- Ranger Cindy
- Gateway Discovery
- Growing Seeds
- understanding through research-
 - Newspaper
 - Techonology
- real life connections
- students, teachers adults that volunteer
- science prep time
- museum natural history kits
- teachers must 1st understand the strands in order to explicitly teach them to students
- Weather Station
- Field trips
- zoo
- community garden
- tacking temperatures
 - yeast root beer
 - fungus growth-6th grade
- hatch eggs in 2nd grade and write reports

5. How would you support teachers to carry out an extended project like the biodiversity project? How would you adapt that to your region/district/school?

- Paying attention – encouragement – validation – giving resources – draw attention – ‘go the extra mile’
- Look for funding sources – grants
- Time – allow for time to accomplish/scheduling conflicts/outside the school day
- clear expectations that align with the core
- open the school to outside experts
- extend day
- flexible schedule options
- outdoor nature center developed to encourage study of native plants and habitat. Eagle projects, path, bridge, planting. We still need field guide, map, etc.
- neighboring parks
- Mill Hollow Summer Project
- Green House
- Community Garden worked with community health department. They provided land and plants. Children helped lay out plots, plant and tend. Families signed up to tend plants during summer. Next year will use produce in our food services and at a farmers market
- provide time and supplies consider partnerships with community, Encouragement opportunities to share with other colleagues, media, parents, students etc.
- Support, don’t get in teachers way-let them go
- adapt to environmental conditions
- Making your own: Look outside your walls, bring in outside experts, look at community resources, nature centers, create own community garden on-site, use unique weather as a resource

6. How could you facilitate a discussion with teachers using either ch. 1 or the case studies from ch. 1 as a starting point:

- Don’t squash them like a bug
- Taking field trips
- Giving students the experience; directly link it to the standard, identify content areas to go cross curricular, generating guiding questions
- Give a ‘why teach’ science, list problems requiring science solutions
- Expose teachers to case study or experiments

- Get teacher to experience
- Give collaboration time for teachers
- Read and discuss in PLC's
- Café models (brainstorming model)
- Parent child meeting / make take
- Tap into community resources (use parents to help with content knowledge)
- begin by asking "What do you remember best about your elementary school experience?"
- Expose teachers to a scientific case study or experiment
- why teach science pg. 3, 4 reasons
- list problems requiring science solutions
- read and discuss in PLCs
- ask questions, "What have you always wanted to do with kids?"
- brainstorm
- multigrade group activity
- teachers discuss
 - standard
 - application
 - identify content areas: cross curricular
 - guiding questions to use with class
- connection to life experience
- list problems requiring science solutions
- café model
- make/take with parent or child leading