Math & Science in the Elementary Classroom

CRISP Workshop
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Agenda

I. Standards & Inquiry Overview

II. 3rd Grade Activity

III. 4th Grade Activity

IV. 5th Grade Activity
How to Read the Standards

https://www.youtube.com/watch?v=Q6eoRnwwL-A&feature=youtu.be
Commonalities Among the Practices in Science, Mathematics, and English Language Arts

Based on work by Tina Chuek ell.stanford.edu
INQUIRY: The 5-e Model

Engagement
Exploration
Explanation
Elaboration
Evaluation
CPA Model

Concrete – Pictorial - Abstract

http://www.mathsnpnoproblem.co.uk/concrete-pictorial-abstract

\[
\frac{1}{2} = \frac{2}{4} = \frac{3}{6}
\]
How does CPA Model apply to teaching kids subtraction?

232 - 156?

How does it apply to teaching fraction division?

\[
\frac{2}{3} \div \frac{1}{6}
\]
3rd Grade Activity
Standards Addressed

3-PS2-2
Make observations and/or measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.

3.MD.B.4
Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.
Deep Thoughts

🤔 Can you incorporate this engineering standard:

**3-5-ETS1-3**

Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
How about this math standard?

3.OA.D.9
Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.
Deep Thoughts

🤔 How can you make this activity more inquiry-based?
4th Grade Activity
Simulating Animal Eyes

Students use:
- Paper Towel rolls to simulate chameleon
- Kaleidoscope to simulate fly
- Magnifying glass to simulate spider
- Plastic mirror to simulate frog
Making a Clinometer

**Materials**
- Protractor
- Washer
- String
- Straw (optional)
Making a Clinometer

Stop when the height of the object you’re estimating is registering 45° on protractor.

Height of object is equal to your distance away from it + distance from ground to your eyes
Standards Addressed

4-LS1-2
Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

4.MD.B.5 & 6
Recognize angles as geometric shapes; understand concepts of angle measurement; use protractor
5th Grade Activity
Standards Addressed

5-PS1-3
Make observations and measurements to identify materials based on their properties.

5-PS1-4
Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

5.G.A.2
Represent real world and mathematical problems by graphing points in the first quadrant…; interpret coordinate values of points
Inquiry Extensions

#3

What is one additional question you would like to research using these supplies?
Deep Thoughts

🤔 Can you incorporate these math standards?

5.MD.C.3
Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

5.MD.C.4
Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.