Presentation Title

Dive Into Amazing Discrepant Events in the Science Classroom

Park Forest Middle School
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http://tinyurl.com/y4qev6s4

Session Overview

- What are discrepant events?
- Why should we use discrepant events?
- Research says….
- Discrepant Activities

Dive Into Amazing Discrepant Events in the Science Classroom

What are discrepant events?

What are discrepant events?

- 1 - 5 minute activities (student-centered/teacher led) guaranteed to ignite student interest in the world of science.
- A discrepant event is a surprising and paradoxical (seemingly absurd or self-contradictory) learning opportunity with an outcome that is usually not what a student would normally expect.

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Why should we use discrepant events?

1. **Introduce a new concept in science.**
2. **Assess your students' understanding or misunderstanding of a topic.**
3. **Develop inquiry skills. (generating testable questions, planning and conducting experiments, communicating results or evaluating)**
4. **Strengthen critical thinking skills and problem-solving.**
5. **Acquire more of a scientific mindset.**

   When a scientist makes an observation, something may spark their curiosity which will then lead to an investigation or research. This is exactly what inquiry science is – and exactly what NGSS wants us to do!!

Why should we even use discrepant events in the science classroom?

- Students will become "hooked" on science and will become lifelong lovers of learning science!
- These "mini-labs/demos" will leave your students begging you to tell them "how did that happen?...what did you just do?...was that magic?" *That's* the kind of engagement we need (and want!) in science.

It's a win-win!

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Research shows that...

Discrepant events appear to have a positive effect on the academic achievement of my students. Pulling all of the posttest data together, the mean test score went up by 11.3%. As a teacher, I consider that a large benefit to be able to raise students' scores by that amount (Rouwenhorst, 2017).

Discrepant events and organized discussions were implemented into instruction in an attempt to improve and/or clear up identified misconceptions. As the pretest to the posttest outcomes were compared, there was a general 41% improvement for each and every question analyzed, whether it be large or small (Dolgos, 2006).

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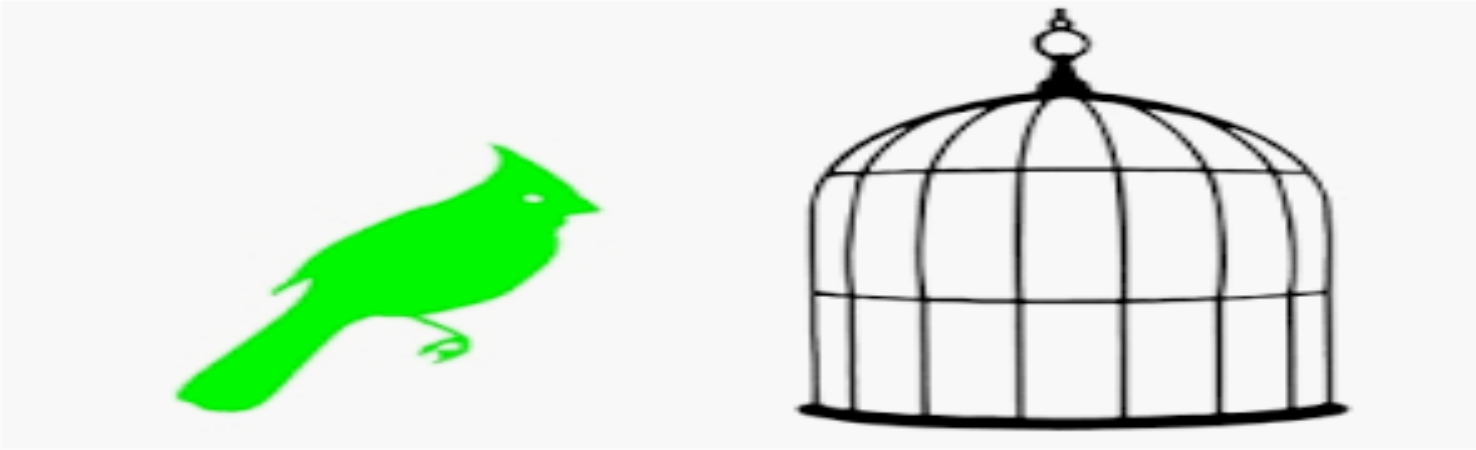
Bird In A Cage

https://www.exploratorium.edu/snacks/bird-in-cage

1. Cut the shape of a bird out of a red, blue or green sheet of construction paper.
2. Make sure the eye is dark.
3. Draw a bird cage on a white poster.
4. Stare at the eye of the bird for 15 - 20 seconds and then quickly stare at the birdcage.



Snacks: Waves | Exploratorium
exploratorium.edu

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The Gong Show

Challenge: Can sound travel through yarn?

https://www.exploratorium.edu/snacks/secret-bells

1. Tie a 2 - 3 meter string around the hook of a hanger.

2. Wrap the string around your fingers and put your fingers in your ears.

3. Hit the umbrella against different objects.

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Born To Be A Star

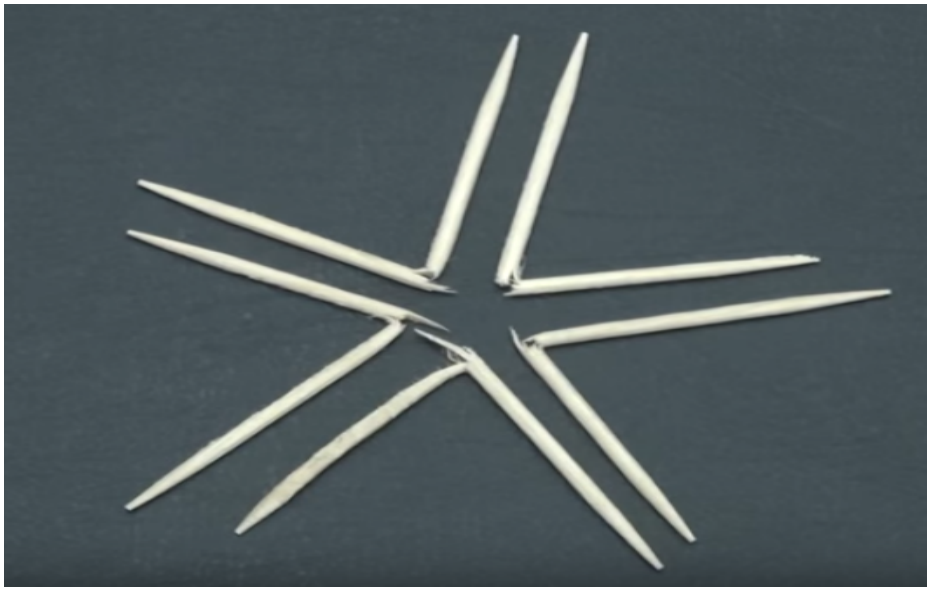
Challenge: Can you make a toothpick move without your hands?

https://www.stevesanglerscience.com/lab/experiments/toothpick-star-table-trick/

1. Bend 5 toothpicks, but don't break them.

2. Place the middle of the toothpicks together to form a star.

3. Use a dropper to gradually release small amounts of water in the middle of the star.



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What a Bag!

Challenge: Is the mass of the bag the same before and after a chemical reaction?

http://www.csun.edu/~cheteach/activities/DoesaGasHaveMass.pdf

1. Place 15 ml of water in a ziplock bag and close it. Place the tablet on top of the bag.
2. Record the mass of the ziplock bag, tablet, and 15 ml of water together. _____
3. Place the tablet in the bag separately from the water and close.
4. Let the tablet and water mix. Observe. Record the mass again. _____

Balancing Act!

Challenge: Can you balance a soda can on the edge of your table?
https://scienceprojectideasforkids.com/center-gravity-balance-can/

1) Empty all the liquid from soda can. Try to balance the can on its edge.

2) Add 10-15 drops of water into the can. Try to balance it again. Any luck? Add or subtract drops of water into the can until it balances.

Balance a Soda Can on the edge

Bringing it all together!

DOOR PRIZES!!!

THANK YOU!!