Curiosity as a Tool for STEM Education

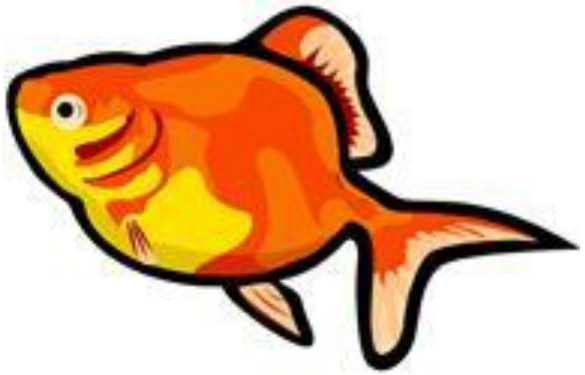
Cheryl Moeller and Brenda & Tim Barrett

Decoder Matching

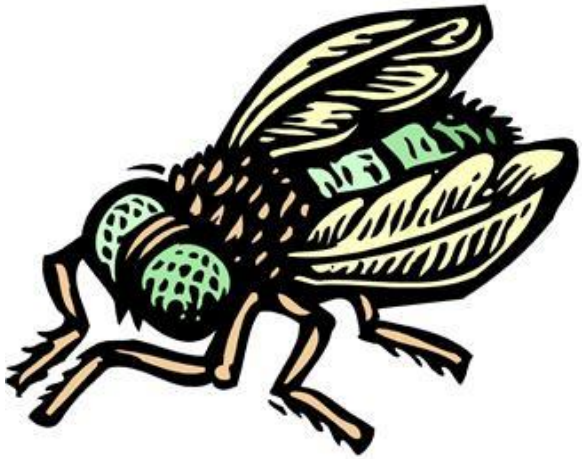
- Examine the card you were given
- Find the other card which matches with your card.
- Be prepared to share with the group

Decoder Matching

Decoder Matching



Decoder Matching



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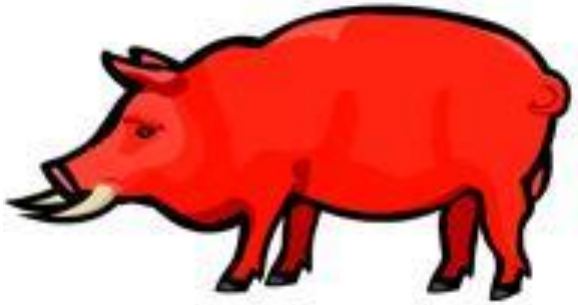

Decoder Matching

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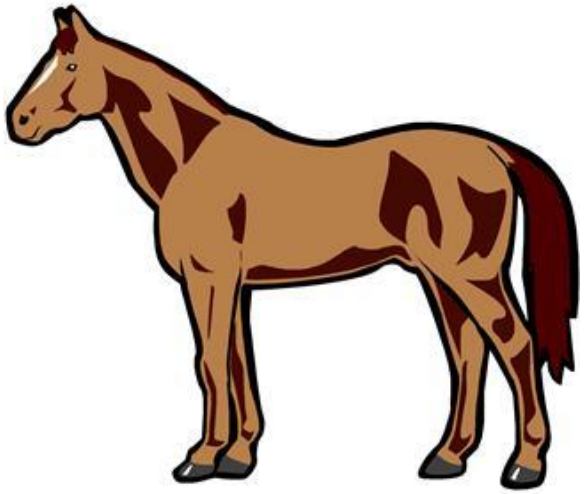

Decoder Matching

Introductions

Cheryl Moeller

- STEM Consultant
- High Tech Kids
- The Bakken Museum
- University of St. Thomas
- Medtronic/VTC, Inc./Honeywell

Tim Barrett

- Minnesota Department of Education
- Minnesota Tech Association (formerly MHTA)
- The Bakken Museum
- University of St. Thomas/St. Catherine University
- Climb Theater

Brenda Barrett

- Frassati STREAM Academy
- STEPS Camp – St. Thomas
- Minnesota Institute for Talented Youth (MITY)
- Kindercare/Children's World
- Climb Theater

Three Statements

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- **In the 1970s, my dad had a laptop computer.**

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- In the 1970s, my dad had a laptop computer.
- When I was in grade school, I enjoyed math & science.

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- I was once the Emperor of Austria.

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Using the activities to teach STEM

- Engages different learning styles
- Makes the abstract idea more concrete
- Assists students in understanding processes they already use in other settings

Why Curiosity?

Differences from traditional approach

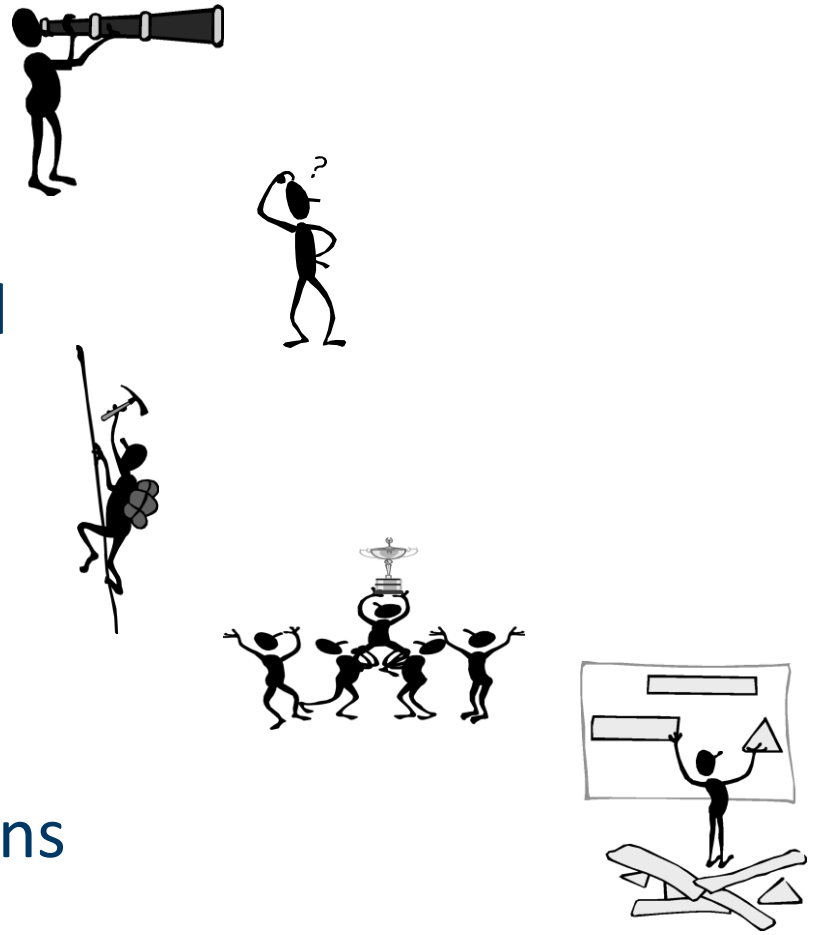
- Active vs. Passive Participation
- Lower the “filter”
- Keep students on their toes
- Model a Growth Mindset

Mystery Object

- Pair off with another participant
- Come up with two questions about the object.
- Which questions could we answer by doing an investigation?

The Creative Thinking Skills

- Make careful observations
- Ask questions that can be investigated
- Take risks and learn from mistakes
- Work with and learn from others
- Use evidence to support my conclusions



Background Research

Research about how Curiosity affects our brains

1. Helps with learning information
2. Increases brain activity related to reward
3. Remember facts unrelated to activity

Background Research

By using curiosity in the STEM classroom, we can -

1. Lower anxiety due to STEM's rigorous nature
2. Engage those who do not identify with STEM
3. Reinforce STEM skills and understanding

Curiosity as Mystery


10
20
30
40

Curiosity as a Tool for STEM Education -

Curiosity as Connection

Curiosity as a Tool for STEM Education -

Curiosity as Connection












Curiosity as Puzzle

What's going on in this picture?

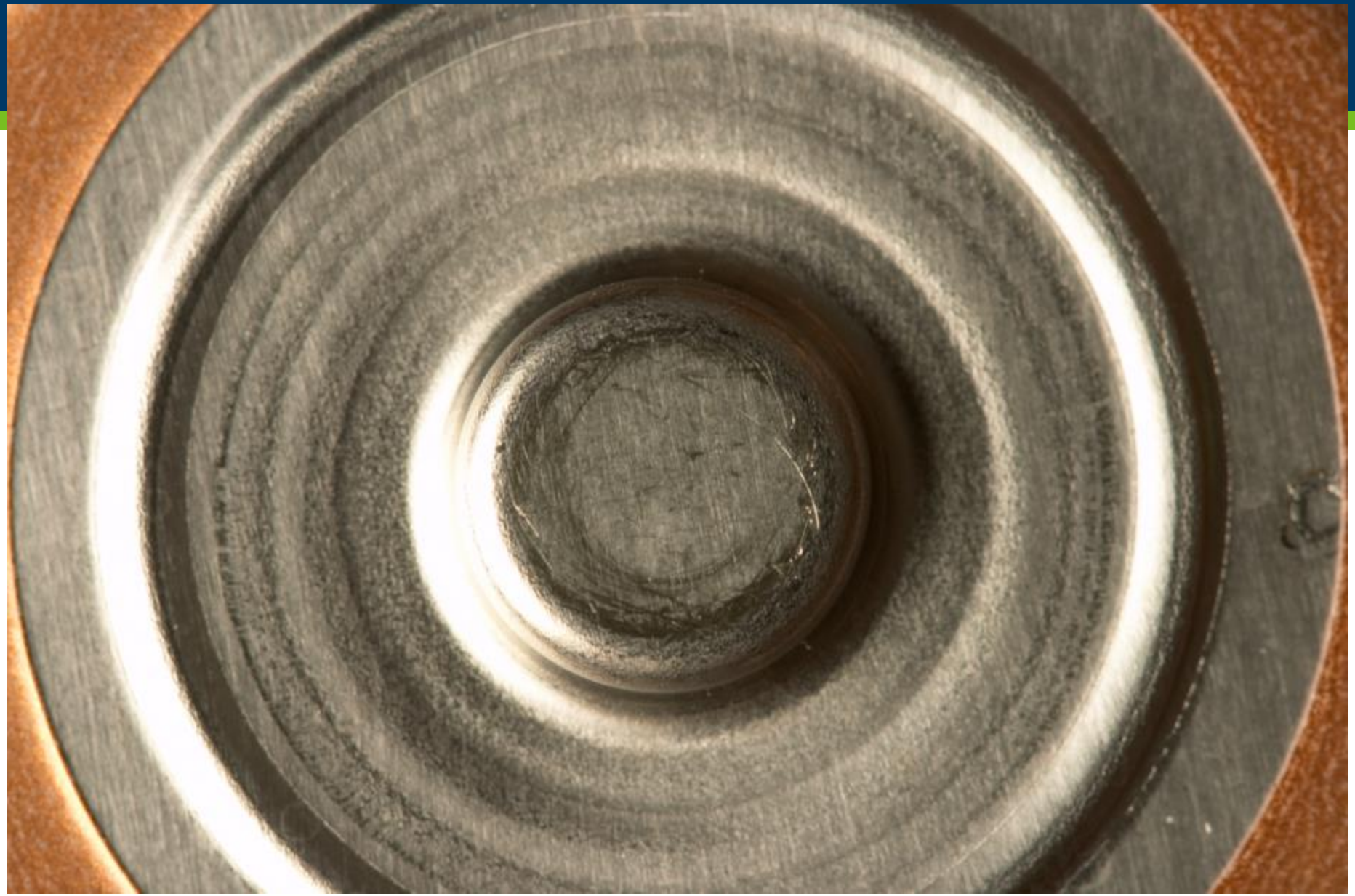
What's going on in this picture?

Curiosity as a Tool for STEM Education -

Curiosity as Puzzle

Curiosity as a Tool for STEM Education -

Close-Up Pictures

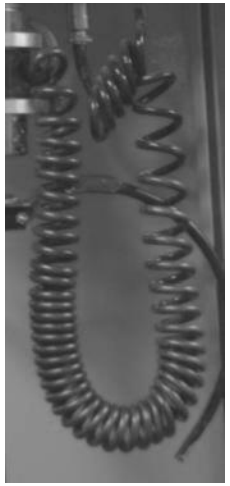


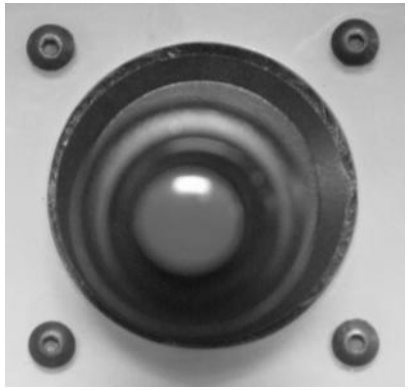
Curiosity as a Tool for STEM Education -

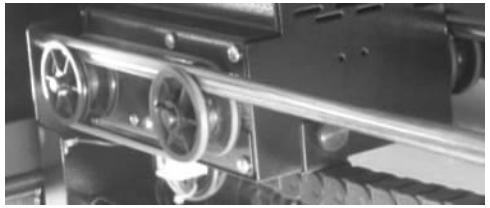
Parts of the Whole

Curiosity as a Tool for STEM Education -

Parts of the Whole







The Answer…


Sports
FanBus
WIN!
football

Review and Questions

By using curiosity in the STEM classroom, we can -

- Lower anxiety due to STEM's rigorous nature
- Engage those who do not identify with STEM
- Reinforce STEM skills and understanding

Review and Questions

Any Questions?


Thanks!