Everyday Science at Home for Parents & Students: The Home , Yard and Garage as Laboratories

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Everyday Science: The Home , Yard and Garage as Laboratories

- ***Your*** **child's first teacher.**
- **Children and parents benefits from engaging in the *shared* learning experiences that support a child's personal, social, and academic development.**
- **All young learners remember more content when they *have* first-hand experiences rather than just reading about them -- the human brain does its best learning by "doing."**

I hear, and I forget.

I see, and I remember.

I *do*, and I understand.

Everyday Science: The Home , Yard and Garage as Laboratories

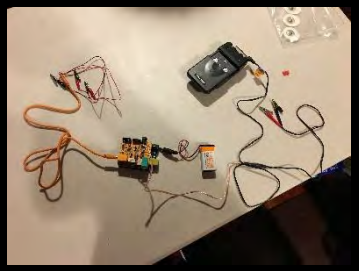
The science and engineering activities highlighted here today will…

1. **provide your child with new knowledge in physical science and skills in engineering**
2. **help them maintain their critically important academic skills while away from school**
3. **offer the kind of shared learning experiences that build positive parent-child communications and relationships.**
4. **Remind you and your child that we are *all* learners regardless of age.**

Science at home

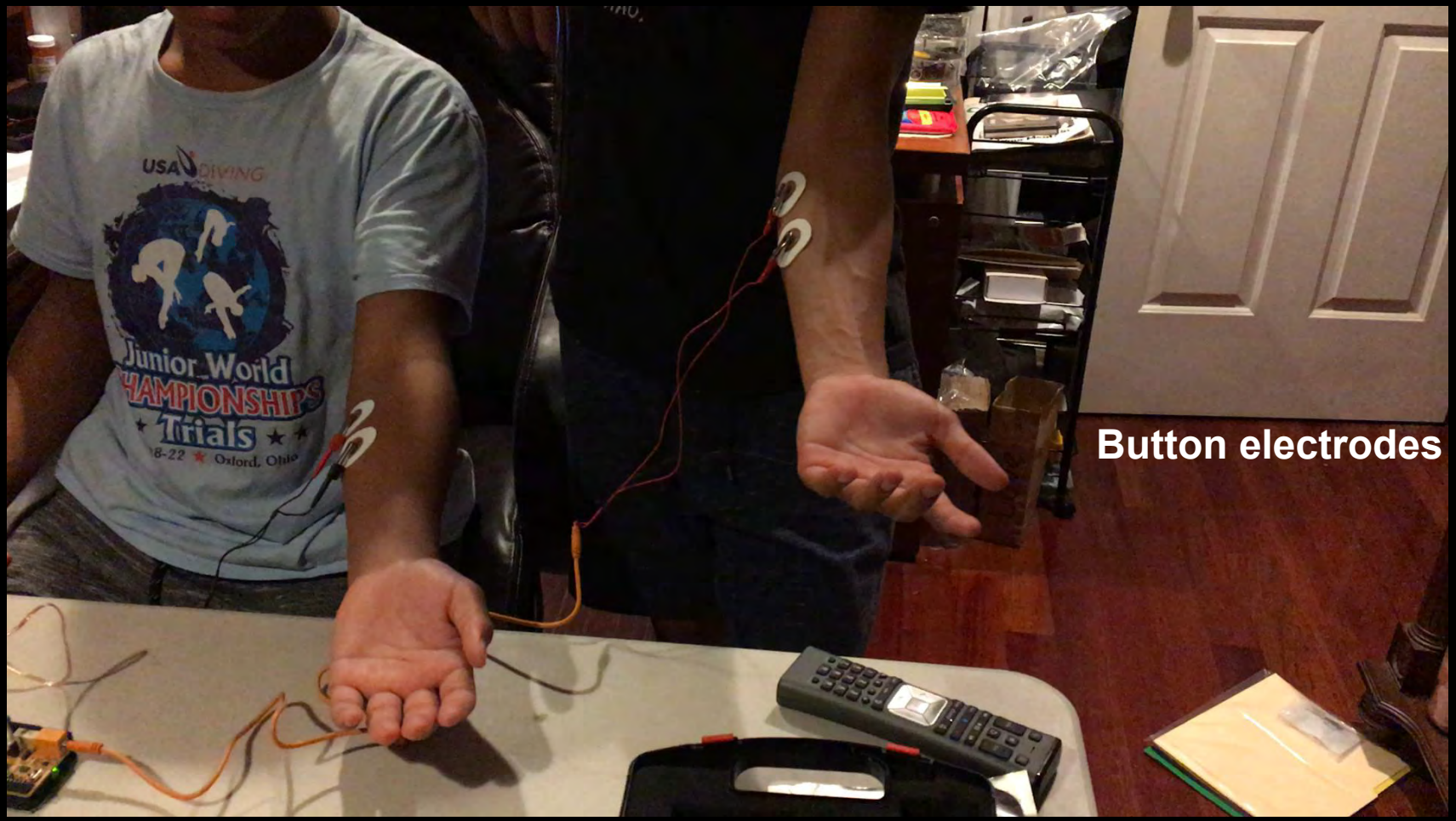
At-home investigations

Observations, conversations & writing



Human-to-Human Interface:

Transferring the electrical signals from one person's brain to the hands of both people



270 = m.p.h. – the speed at which neuronal signals travel

Science and Engineering Practices = Think and Act Like a Scientist

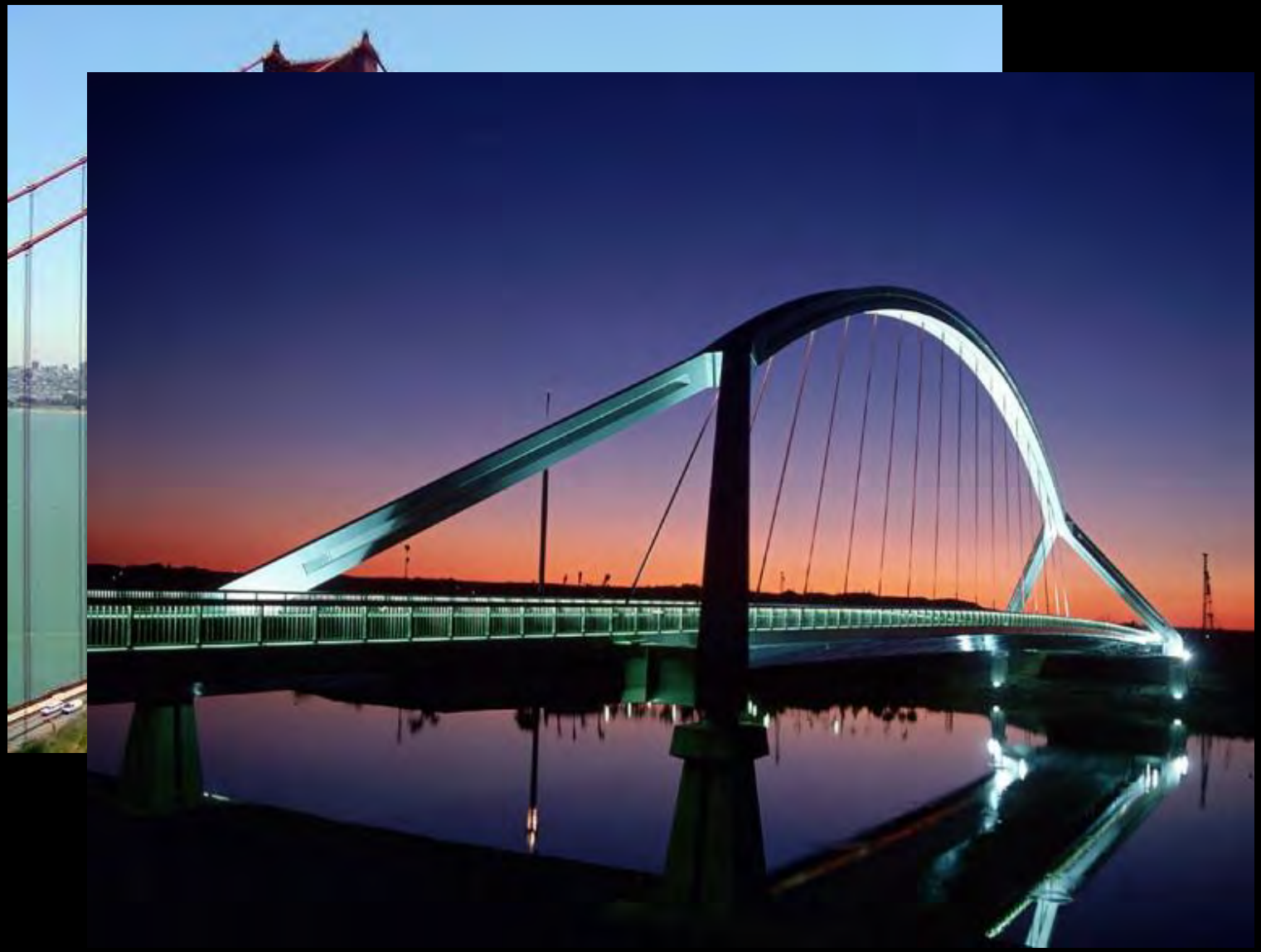
Research is a formalized curiosity. It is poking and prying with a purpose.

-- Zora Neale Hurston

Exploring and Playing with Bridges

1. What is the purpose of a bridge?

2. What how is a bridge constructed?



Many Purposes for Bridges

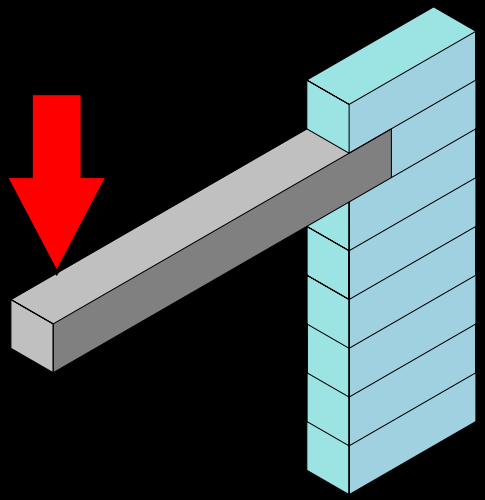
- Walkways
- Highways/Roads
- Railways
- Pipelines
- Connecting lands
- Crossing rivers and canyons

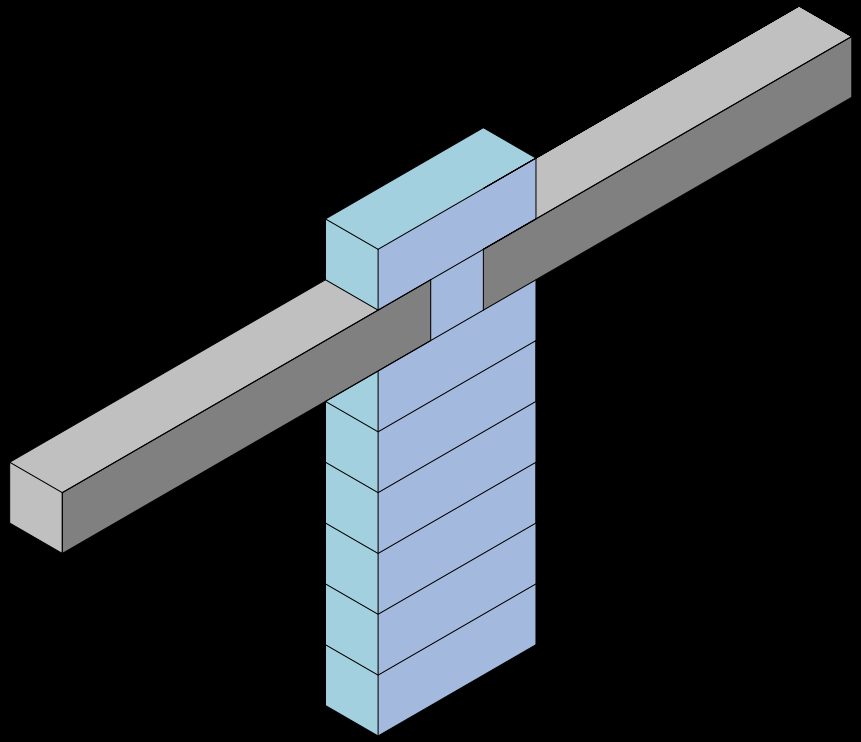
Range of Bridge Types

- Arch
- Truss
- Cantilever
- Cable-Stayed
- Suspension

Cantilever Bridges

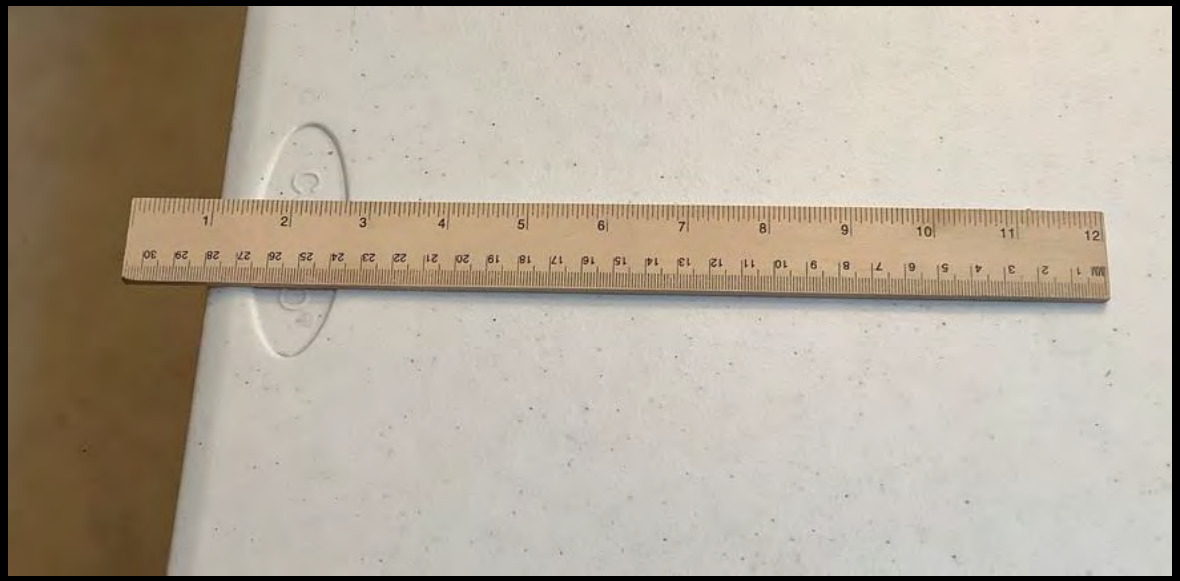
Cantilever bridges are typically supported on one side only. A cantilever bridge is a form of beam bridge





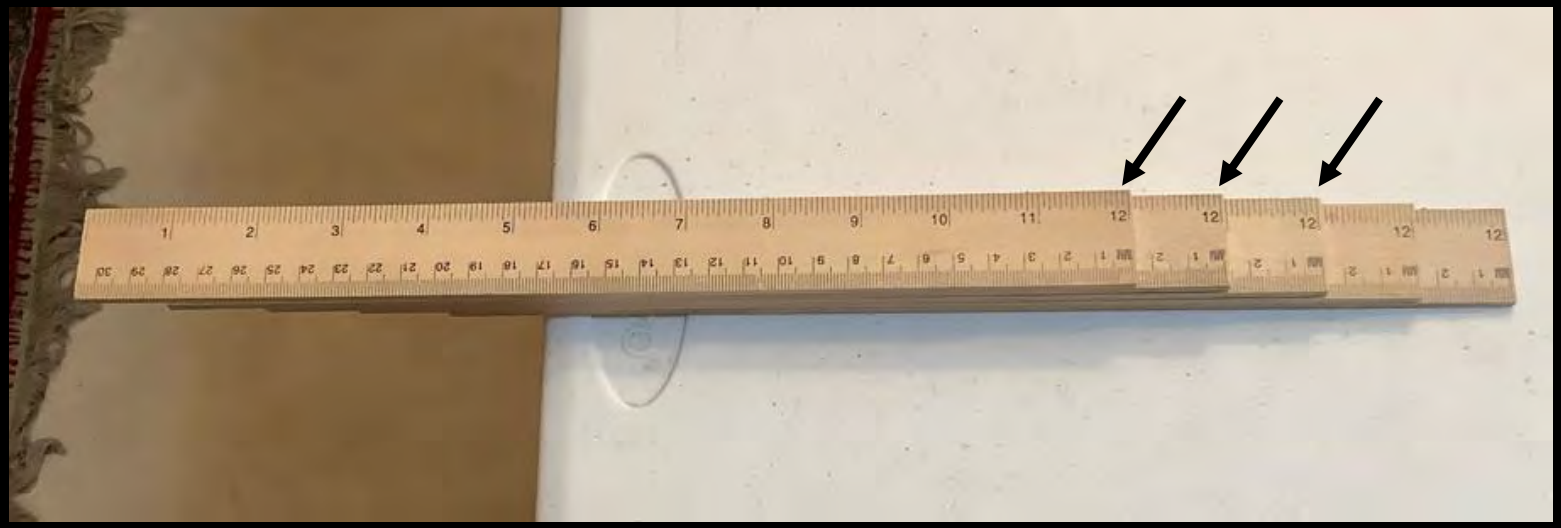
Two cantilevers can meet in the middle of a bridge connecting the two spans.

Cantilever Bridges



Cantilever Bridges

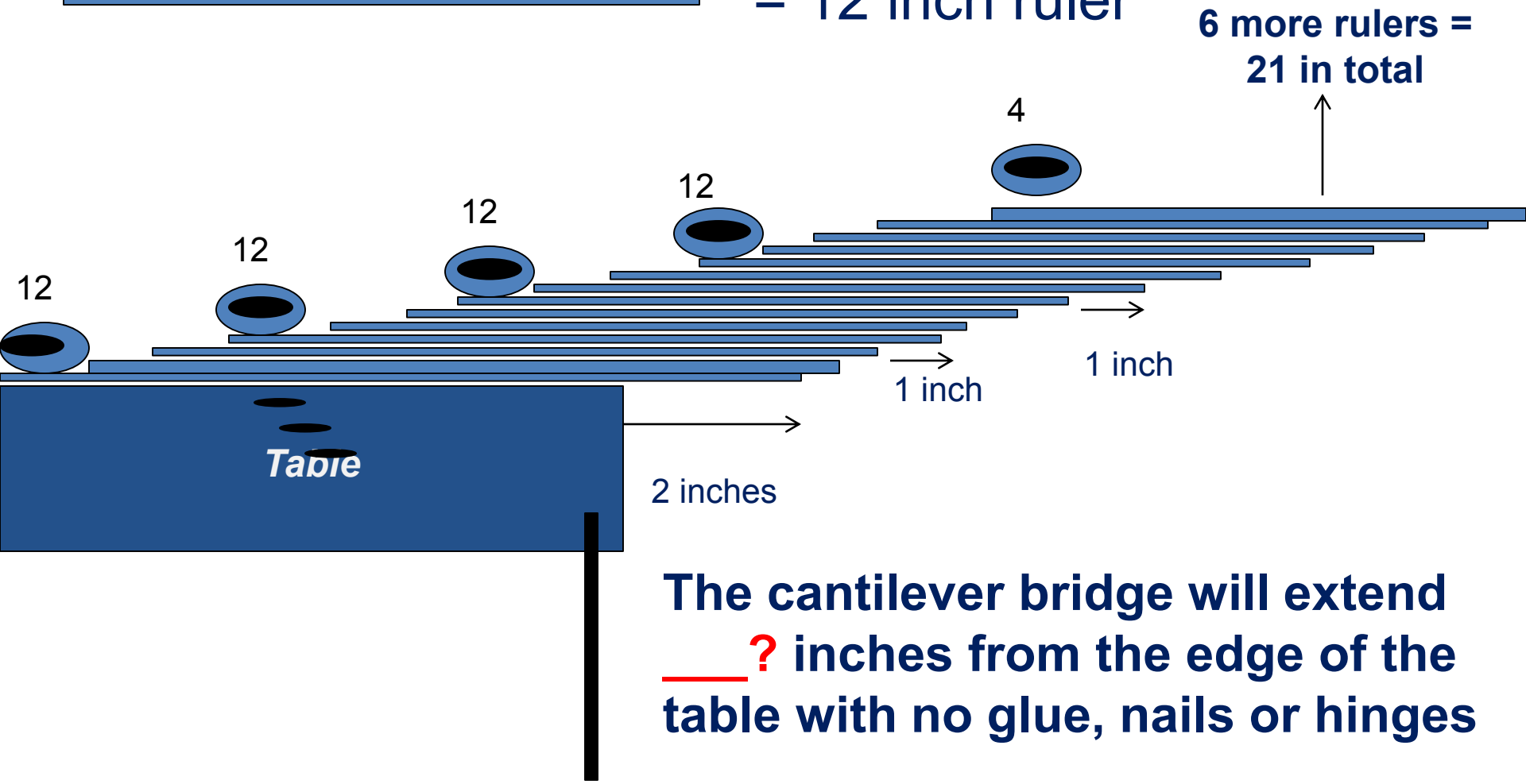
Cantilever Bridges



Balance and Engineering:
The Cantilever Bridge Challenge

= washers

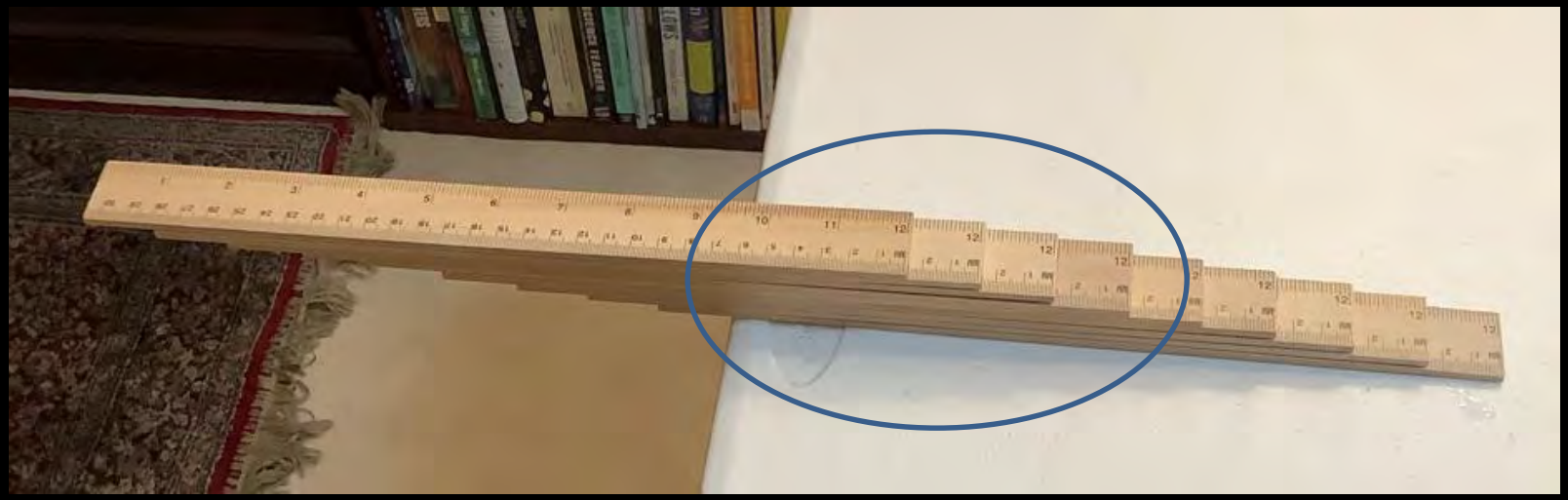
= 12 inch ruler



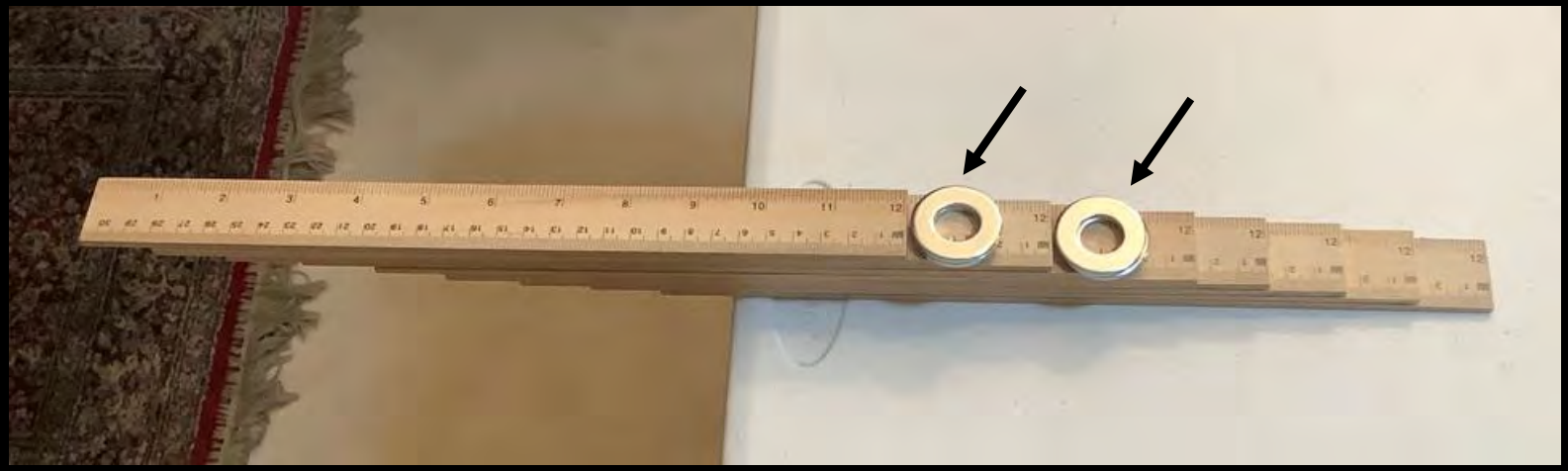
The cantilever bridge will extend ___? inches from the edge of the table with no glue, nails or hinges

Cantilever Bridges

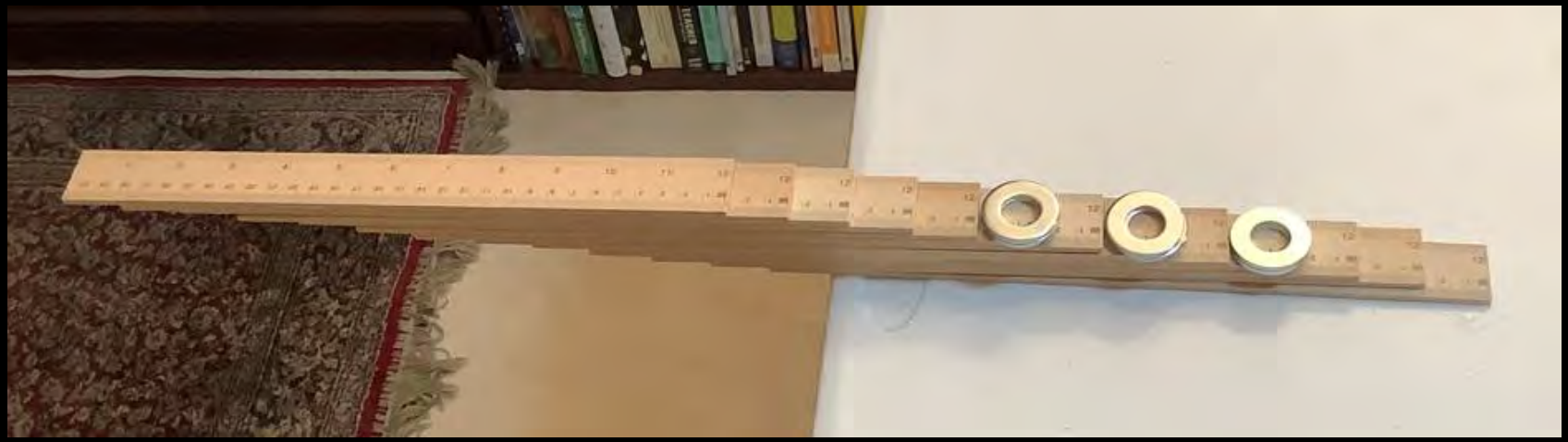
Cantilever Bridges



Cantilever Bridges



Cantilever Bridges



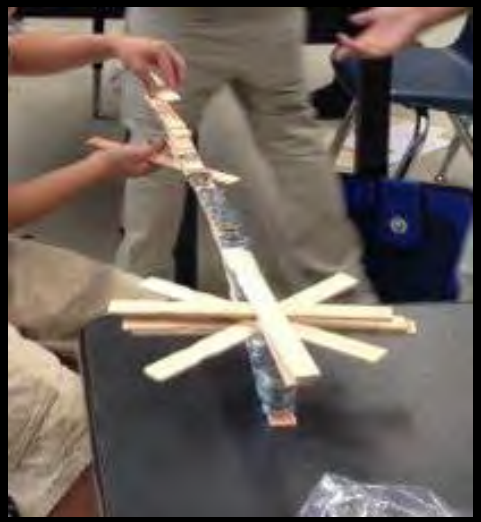
Examining, Paying Attention, Concentrating, Cooperating, Communicating, Manipulating…

What does STEM look like?

What makes learning memorable for adults?

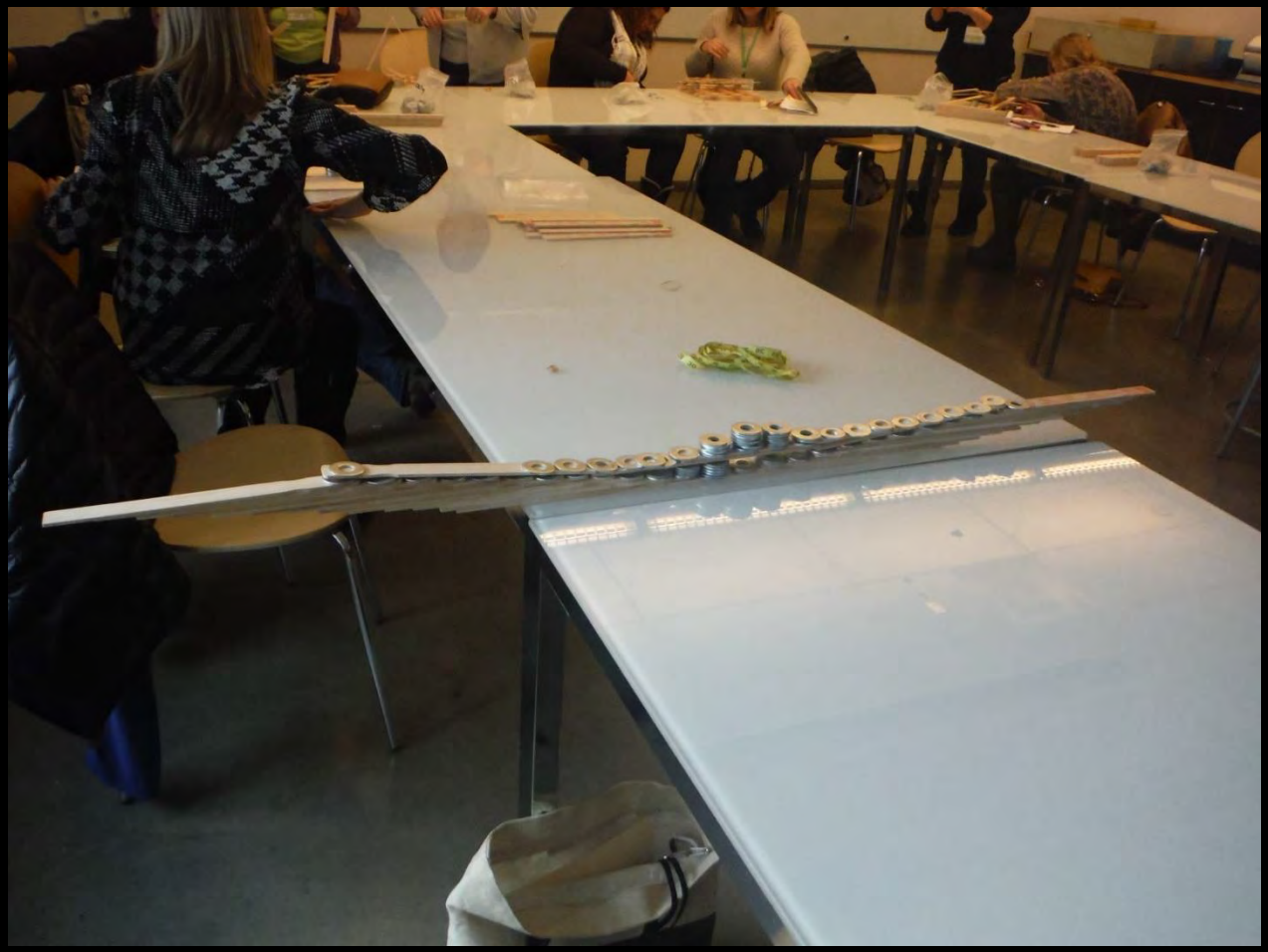
Los Angeles STEM Institute:
42 Rulers/43 inches!

STEM Family Night

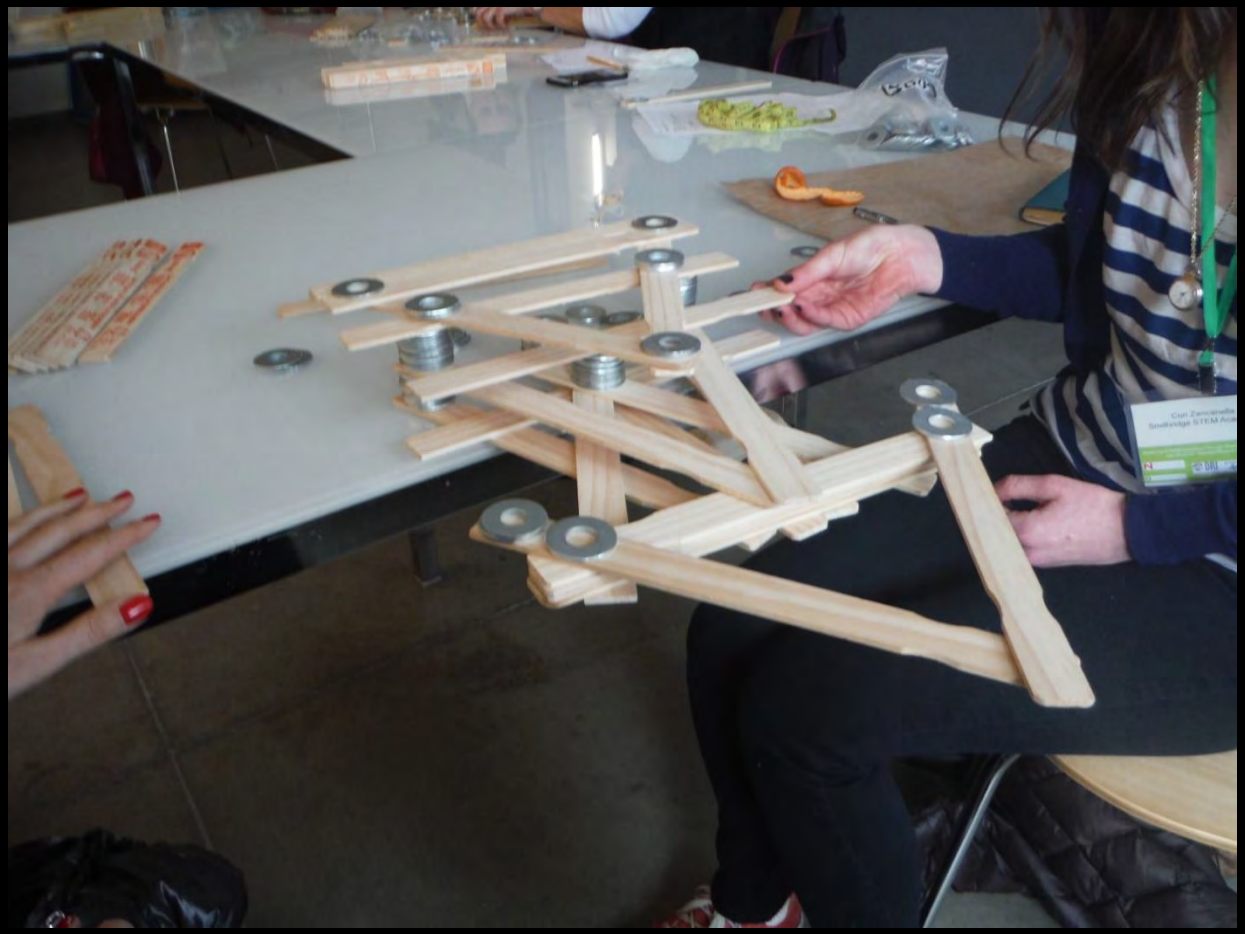


There are no limits to creative thinking (except the laws of physics)

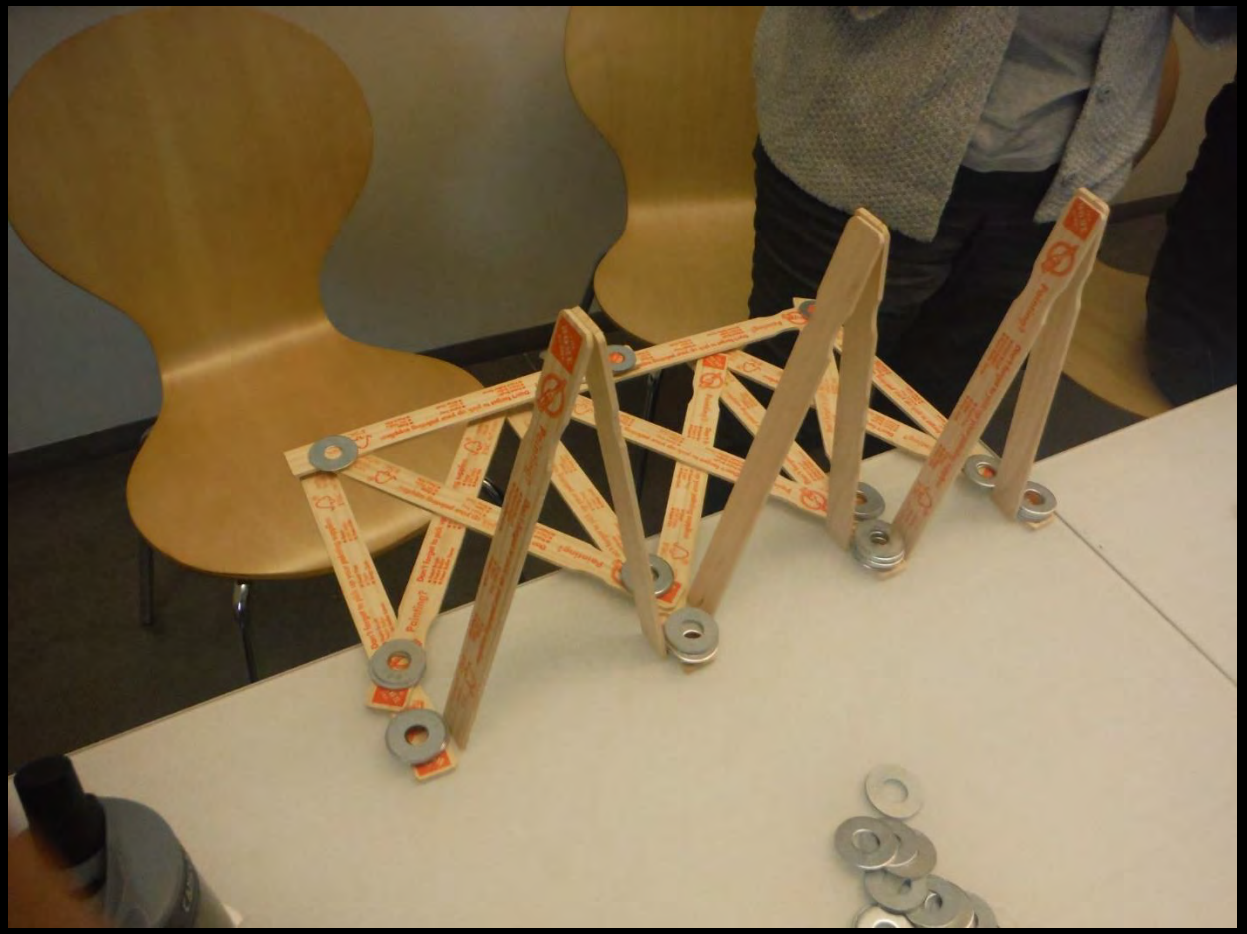
STEM Family Night



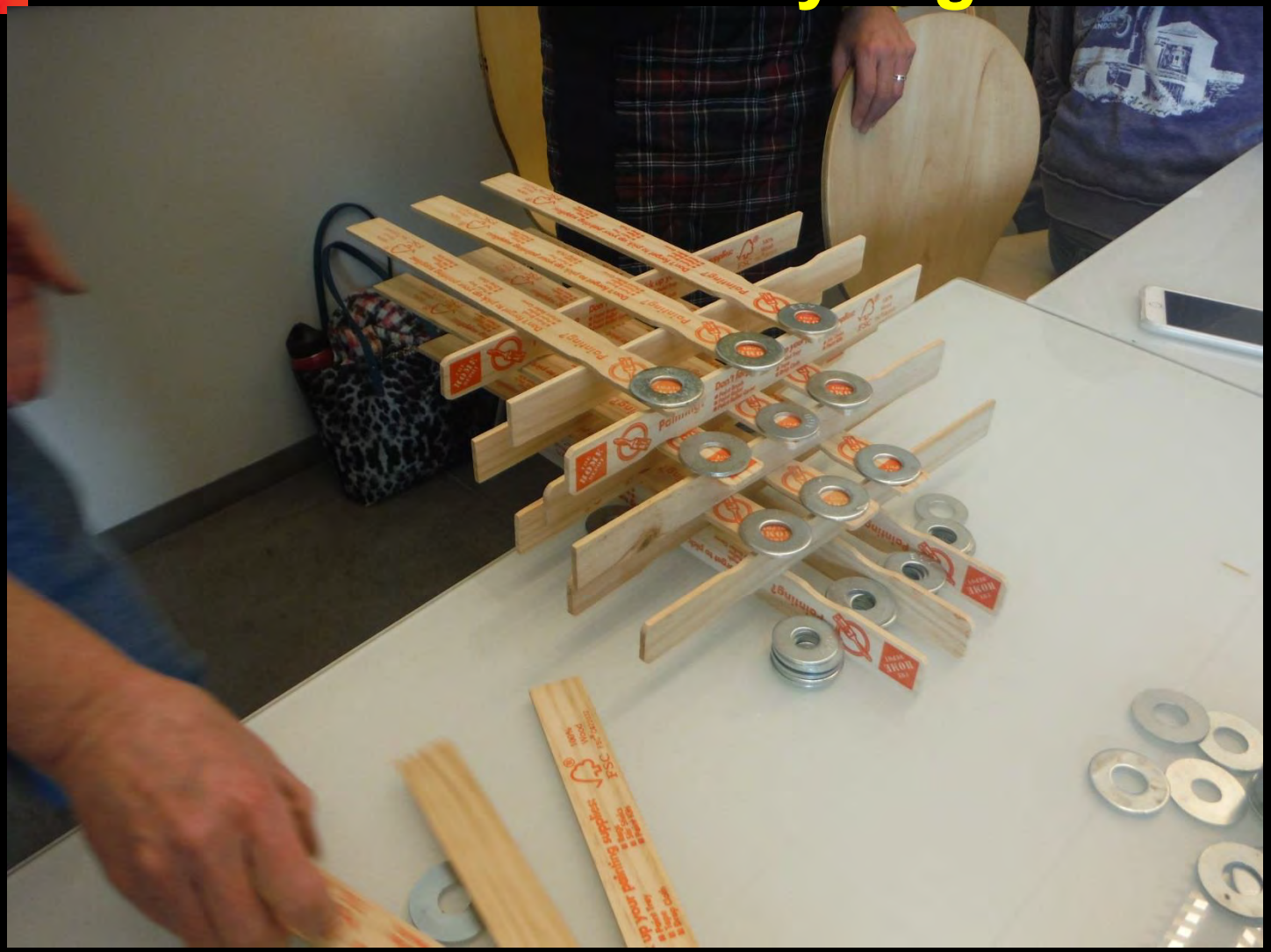
STEM Family Night



STEM Family Night

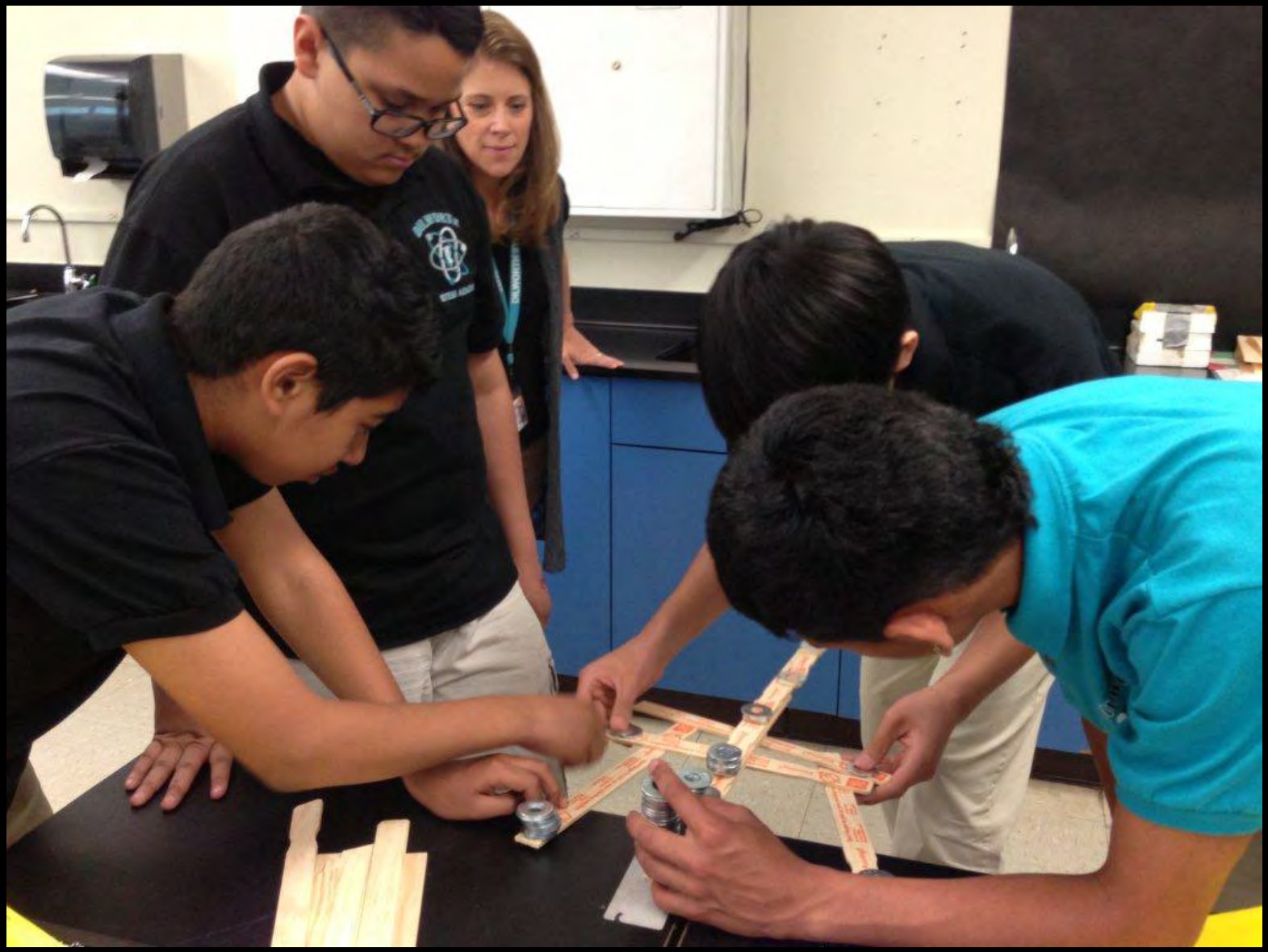


STEM Family Night



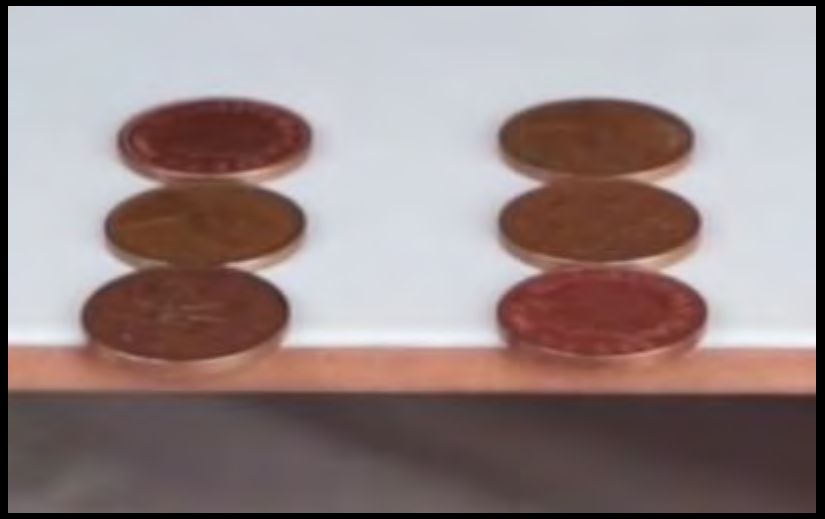
What makes a concept memorable?

Active learning experiences where the concept is *personally* discovered!



Working together at home or at school prepares young learners for working in the real world with others

Can you make cantilever bridges with pennies?



Make two rows of three pennies

Can you make cantilever bridges with pennies?

Stack two pennies on top of them

Can you make cantilever bridges with pennies?

Place one penny on top of them all (pyramid)

Building A Cantilever Bridge With Pennies

Place one more penny at either end and build a pyramid again

Building A Cantilever Bridge With Pennies

Add one more penny at either end. Turn the pennies at the end (over the edge) towards one another creating a “U-shape”.

Building A Cantilever Bridge With Pennies

Building A Cantilever Bridge With Pennies

Building A Cantilever Bridge With Pennies

Front view of the penny cantilever bridge

Where Can I See Cantilever Bridges in the Real World?

Where Can I See Cantilever Bridges in the Real World?

Making a Hovercraft With Old CDs

Take an old CD

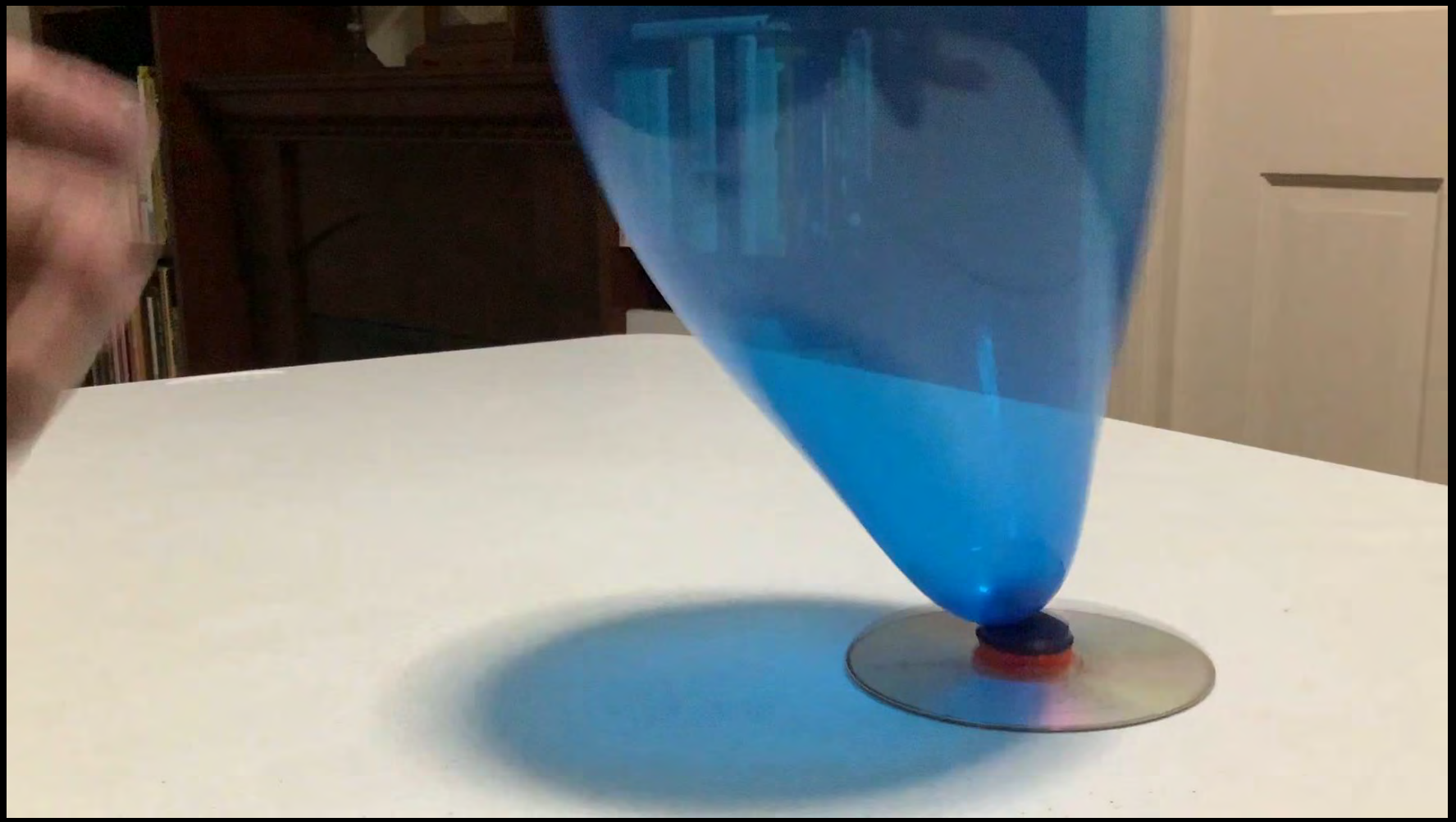
Making a Hovercraft With Old CDs

1. Find a plastic bottle cap
2. Drill a small hole into its top.
3. Glue the bottle cap onto the CD.

Making a Hovercraft With Old CDs

Last, you will need a balloon
(and maybe a balloon pump)

Making a Hovercraft With Old CDs



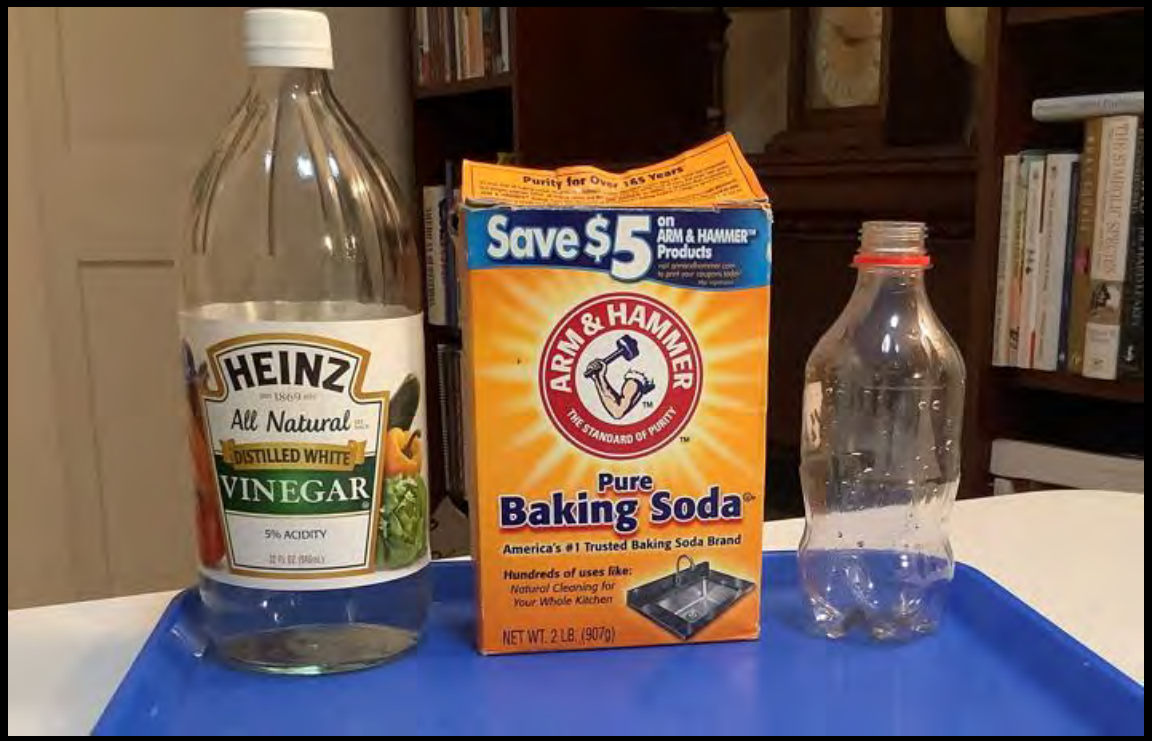
Fill the balloon with air and release it

At-home Science: Kitchen Chemistry

Cooking teaches:

- **Mathematics** (counting, measuring, whole-parts, fractions
- **Science** (chemistry, chemical reactions)
- **Following directions** (reading, sequence/procedures, logic, cause-and-effect)

At-home Science: Kitchen Chemistry



You will need vinegar, baking soda and an empty bottle

At-home Science: Kitchen Chemistry

You will need vinegar, baking soda, an empty bottle, a spoon, and a balloon

At-home Science: Kitchen Chemistry

Placing the baking soda inside the balloon – a challenge. Cut of the top of a water bottle = funnel.

At-home Science: Kitchen Chemistry

Placing the baking soda inside the balloon – a challenge. Cut of the top of a water bottle = funnel.

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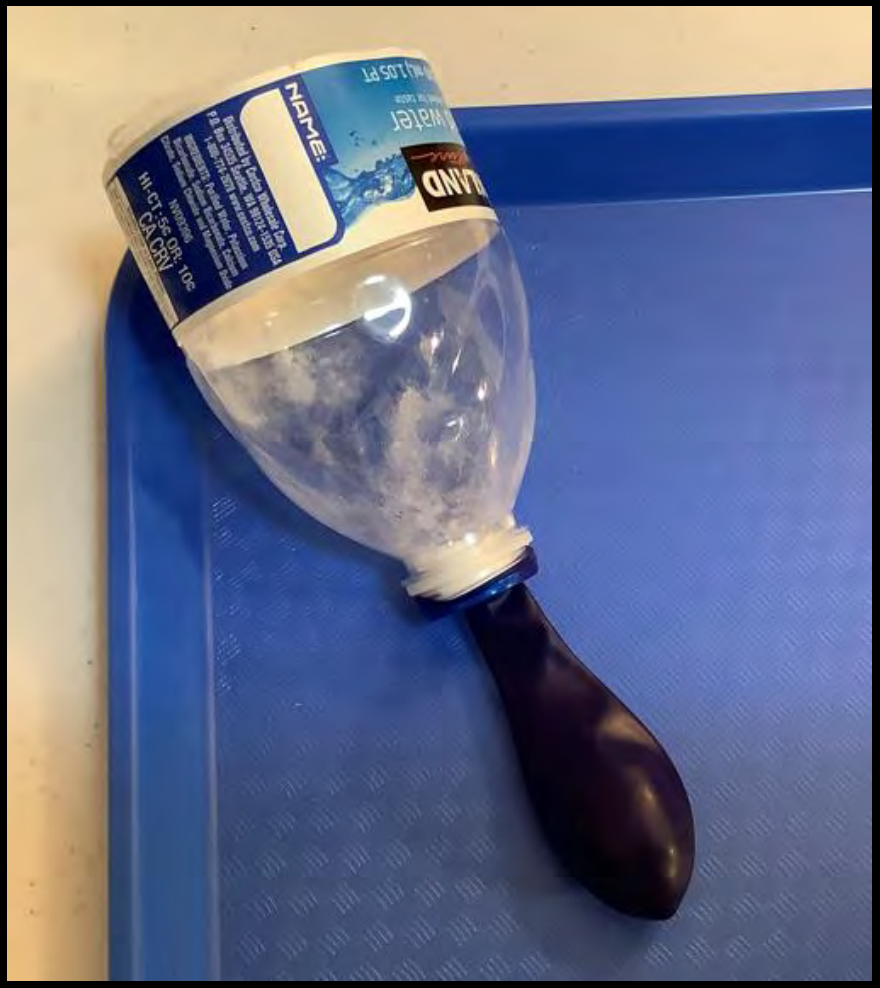


At-home Science: Kitchen Chemistry

Turn the balloon upside down pouring the baking soda into the vinegar

Once your pour the baking soda into the vinegar → chemical reaction

At-home Science: Kitchen Chemistry

Can Oil become a cloak of invisibility?

1. One pyrex beaker with water
2. One pyrex beaker: ½ water and ½ Wesson oil
3. One pyrex beaker with Wesson oil
4. 3 glass stirring rods
5. 3 pryex stirring rods

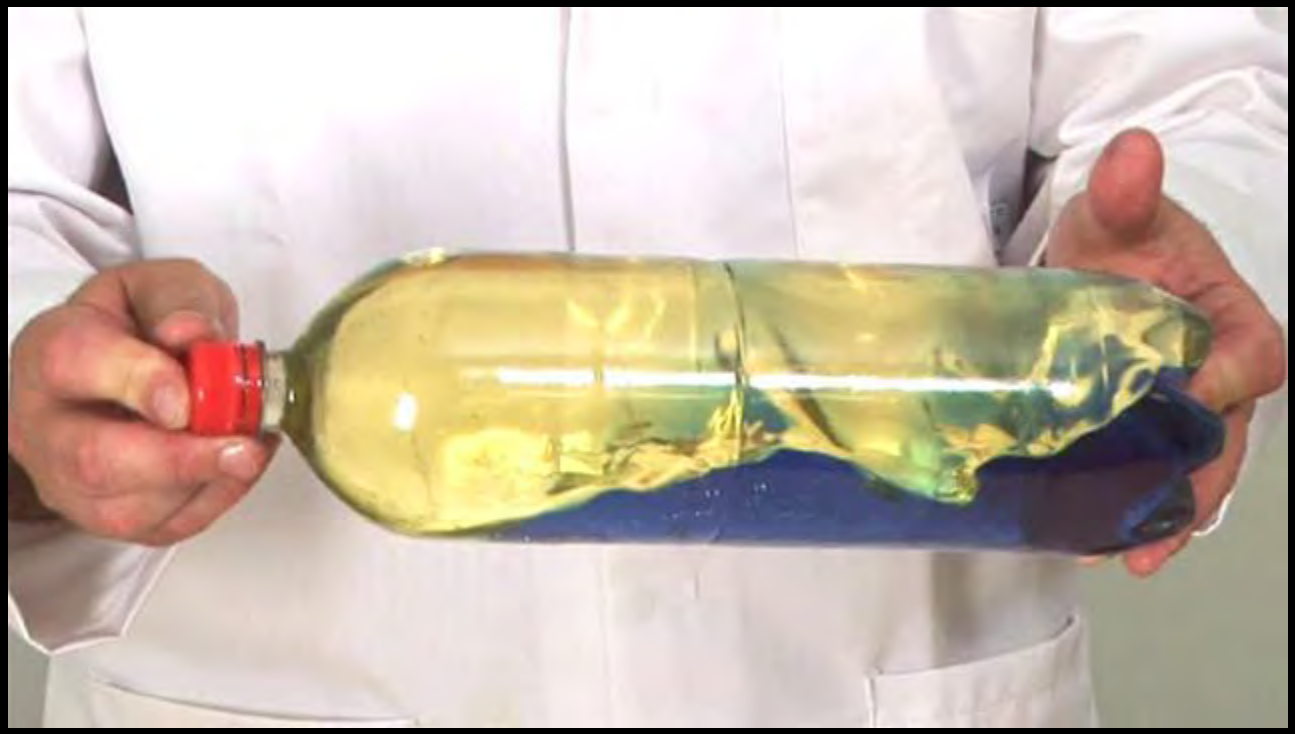
Can Oil become a cloak of invisibility?

Can Oil become a cloak of invisibility?

Can Oil become a cloak of invisibility?

Light travels through vegetable oil and pyrex glass at the same rate of speed → they have the same refractive index.

At-home Science: Kitchen Chemistry



Water waves (ocean waves model)

NGSS: The Nature of Waves

Wave-like motions
Gamma waves
Sound waves
Radio waves
Acoustic waves
Gravitational waves
Seismic waves
Electromagnetic waves
Longitudinal waves
Surface wave

Water waves (ocean waves)
Light waves
Light waves
Microwaves
Tidal waves
Brain waves
Shockwaves
Mechanical waves
Transverse waves

At-home Science: Making a Lava Lamp

You will need 3 vials, a cup of water, Alka seltzer, food coloring, a flashlight, and Wesson Oil (a tray)

At-home Science: Making a Lava Lamp

2/3 vial of Wesson Oil

At-home Science: Making a Lava Lamp

1/3 water filling up the vial

At-home Science: Making a Lava Lamp

Add 12-15 drops of food coloring

At-home Science: Making a Lava Lamp

Place ½ tablet of Alka seltzer into each vial

At-home Science: Making a Lava Lamp

Place ½ tablet of Alka seltzer into each vial

Making a Lava Lamp

Materials and ingredients:

- Wesson Oil
- Water
- Colored dye (three colors)
- Alka-Seltzer tablets
- Flashlight

Procedure:

Pour 1/3 water 2/3 oil into a container. Let the mixture settle. Pour 12-15 drops of colored dye into the container. Add ½ tablet of Alka-Seltzer.

Making a Lava Lamp

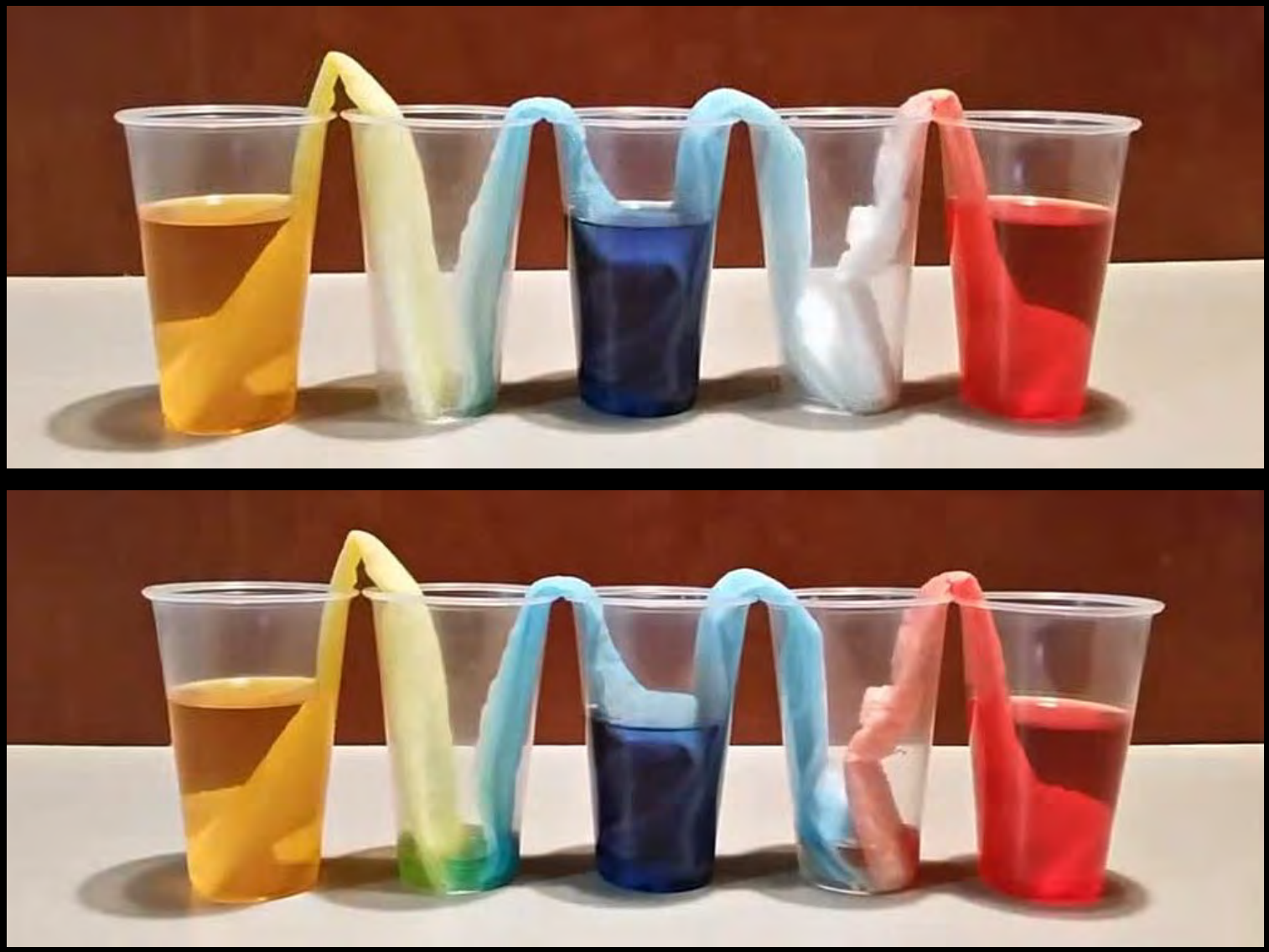
Teaching Absorption At Home

Materials: 5 plastic cups and 4 rolled-up paper towels

Procedure:

1. Pour water and food coloring into each of three cups leaving 2 cups in between these cups empty
2. Place a rolled-up paper towel into each pair of adjacent cups (academic language)

Absorption



Write down (or describe) your observations of the changes occurring

Absorption

Write down (or describe) your observations of the changes occurring

1. **What happened?**
2. **Why?**

Developing Early Literacy through Active Learning

Reading comprehension skills that can be reinforced during active STEM/science instruction:

- prediction
- clarifying
- making inferences
- summarizing
- activating background knowledge
- questioning
- imagery

The Water in Our Environment:

Pollution: Understanding Parts Per Thousand

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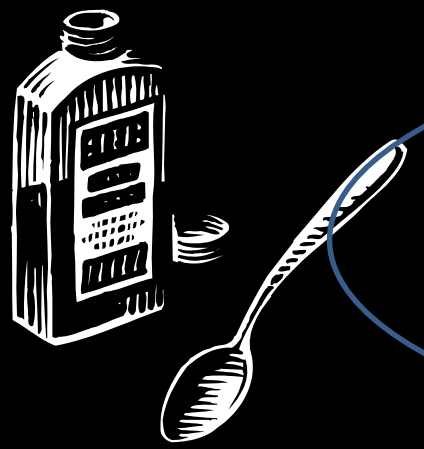
Startling Facts

- **25%** of adults in the United States cannot understand their pay stub.
- **58%** cannot determine the differences between two medical benefit options.
- **78%** of adults in the United States cannot figure out how much interest is paid on a loan.
- **71%** cannot figure how many miles per gallon their vehicle gets.
- **55%** of adults in the United States cannot determine the correct dosage of liquid aspirin substitute to administer to their child, given a label with ages and weights.



From the 1992 NAAL, similar results for 2003 NAAL

TYLENOL (acetaminophen) - administered orally.

TABLE 4. Recommended pediatric dosing of acetaminophen by weight and age (adapted from reference 47, with permission)*

WEIGHT		AGE[A]	DOSE[B] (MG)	SINGLE RECOMMENDED DAILY DOSE (MG)
LB	KG			
6-11	2.0 - 5.4	0-3 monthsc	40	200
12 -17	5.5 - 7.9	4-11 months	80	400
18 -23	8.0 - 10.9	12 - 23 months	120	600
24-35	11.0 - 15.9	2-3 years	160	800
36-47	16.0 - 21.9	4-5 years	240	1200
48-59	22.0 -26.9	6-8 years	320	1600
60-71	27.0 - 31.9	9-10 years	400	2000
72-95	32.0 -43.9	11 years	480	2400

* Refer to package label for more specific information related to dosing.

[a] For adults and children 12 years of age and older see Table 2.

[b] Doses may be repeated every 4 hours but not more than five times daily

-phen
o-phen
min-o-phen
a-min-o-phen
cet-a-min-o-phen
a-cet-a-min-o-phen

The Internet – You Tube

“Pollution”

Water Pollution

CNN U.S. + Live TV

Michigan governor: Flint water crisis could affect 'many more' kids


By Mariano Castillo and Catherine E. Shoichet, CNN

Updated 10:23 PM ET, Wed January 27, 2016

Water Pollution

Water Pollution

Michigan Residents An Hour Away From Lake Huron Still Struggle To Find Clean Drinking Water

Mar 6, 2015 04:59 PM By Lecia Bushak

Water Pollution

If this is what happened to the lead pipes underground, what is happening inside the bodies of young Flint children?

Materials for Investigating:

Pollution in Our Environment

100 mL beaker
100 mL cylinder
100 mL water
Tray
White gravel
Small plastic cups
Optional: Time indicator tabs and Digital Camera / camera phone

Models: Pollution

The pollution that we see

The pollution that we ***don't see*** until its damage may be irreversible

Guest Editorial

Minds, Models, and Maps

By Kenneth Wesson

"Every child is an artist. The problem is how to remain an artist once he grows up."

— Pablo Picasso

The solar system is too large to bring to school. Mammalian life cycles stretch well beyond the academic year, and tiny organisms are too small to examine closely. Prehistoric animals are, well, "prehistoric." However, the forever fascinating world of science from the massive to the minute, of today and of years long gone, opens immediately to all students by way of sketches, models, simulations, maps, and other visual learning devices. Collectively, they allow young learners to make cognitive leaps from the intangible to the comprehensible.

learning. Once we "recognize" an object, separating image from name and the name from function becomes next to impossible. Vision is so central to factual certainty that our initial sensory impressions, and eventually our overall cognition, are validated by our eyesight. As we so often hear, children assure others that "I saw it with my own eyes!" underscoring a pinnacle in experiential confidence that cannot be humanly exceeded.

Visualizing is integral to reading for comprehension. To understand what they read, students must rely heavily on the "picture-making" mechanisms in the visual cortex in order to extract meaning from the text. The association cortex is charged with the task of making sense of the incoming visual information. Learners can only make sense of abstract information based on preexisting internal

(This issue of *Science and Children* received **the 2011 *Distinguished Achievement Award*** recognizing it as **the Best "One-Theme Issue"** for an American Educational Journal in 2011)

Our Models of the Environment Being Impacted by 2 - 12 Parts /1000

- The back of the cup, represents a hillside including the soil that naturally *filters* liquids before they reach the *water table* underground.
- From the front view, the standing water = lake.
- Observational record-keeping: Take 2 digital photographs of *each* of the 6 models at 5-, 10-, 15-, 20-, 25- 30- 45- and 60-minute intervals.

How do you conceptualize (chemical) relationships?

2 Parts per thousand

4 Parts per thousand

6 Parts per thousand

8 Parts per thousand

10 Parts per thousand

12 parts per thousand

Our Models of the Environment Being Impacted by 2 - 12 Parts/1000

- Make predictions:
  1. Each dosage will appear "harmless" from the lake view for a while. Predict how many minutes will it take for your dosage to become visible in the "lake" to the naked eye? How many minutes for the other dosages (not yours) of 2, 4, 6, 8, 10 or 12 parts/1,000?
  2. Which dosage will reach the lake first, last, or will they all take equal durations of time?
  3. Which dosage will pollute the lake the most?
  4. Begin your observational record-keeping (with a stopwatch and camera)

Our Models of the Environment Being Impacted by 2 - 12 Parts/1000

- We are going to create a model. (Discuss what a “model” is intended to do.)
- Number each translucent plastic cup with the number of drops/1000 (“dosage”) placed into it the cup.
- Measure 100 mL of white aquarium gravel into a small beaker.
- Pour 50 mL of water into your translucent plastic cup. (20 drops per 1 mL of water)

Our Models of the Environment Being Impacted by 2 - 12 Parts/1000

- Tilt the cup towards the side where the dosage is indicated until the top of the water is near the lip.
- Push the gravel (with a spoon or fingers) towards the lip area to simulate an environment composed of a "hillside," "coast" (beach), and "lake."
- The dosage should be visible (from behind the hillside).

- After 30 mins., tilt the cup again to dislodge any evidence of residue observed on the top surface of the hillside.

12

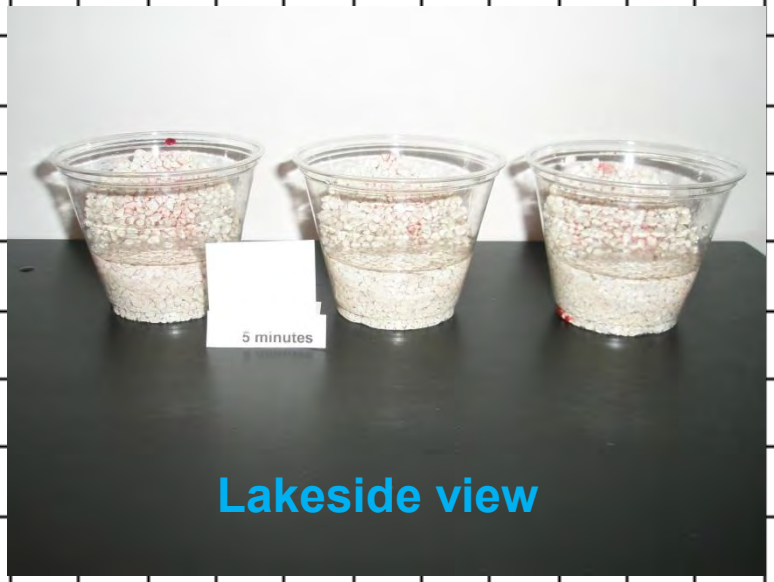
10

8

6

4

2



cross-comparison data

Observational Data – 5 Minutes

12

10

8

6

4

2

cross-comparison data

Observational Data – 20 Minutes

12

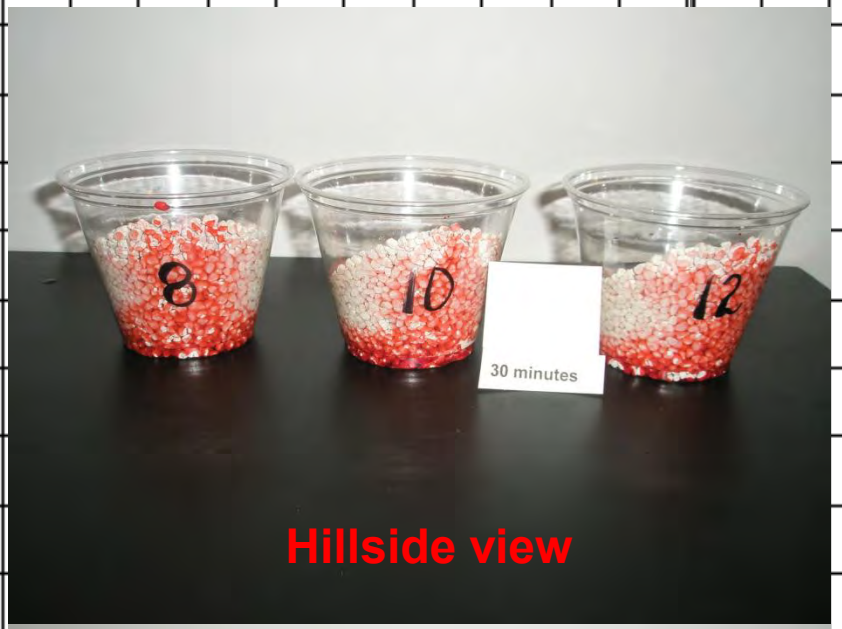
10

8

6

4

2



cross-comparison data

Observational Data – 30 Minutes

12

10

8

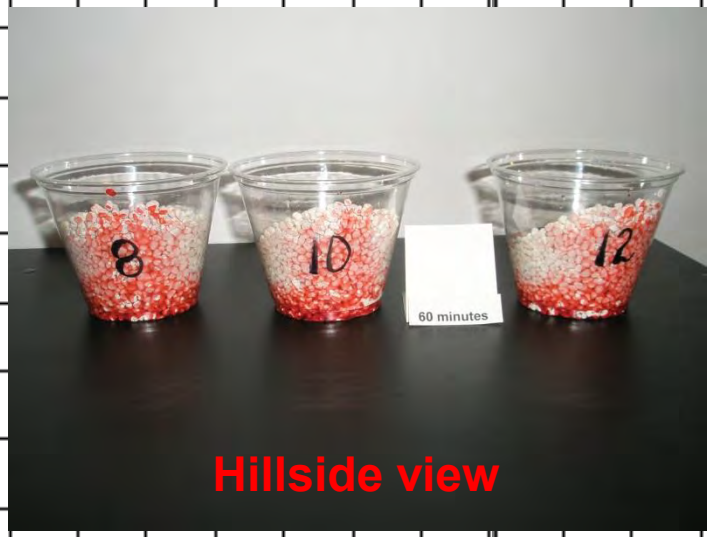
6

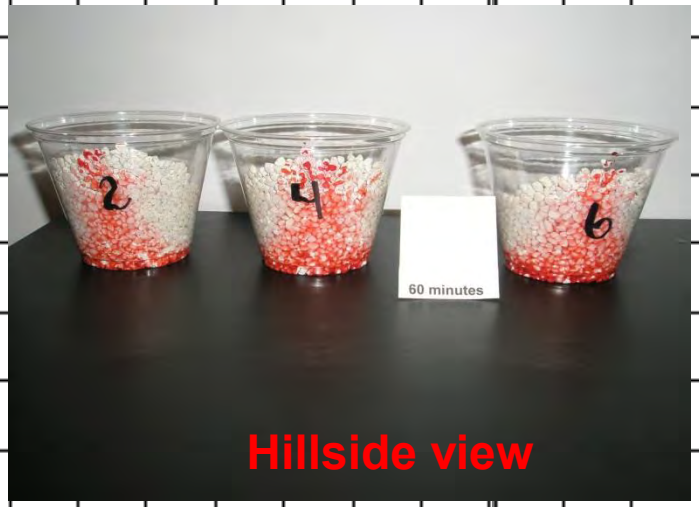
4

2

cross-comparison data

Observational Data – 45 Minutes





cross-comparison data

Observational Data – 60 Minutes

Lakeside view

8, 10 and 12 drops/1000

Lakeside view

cross-comparison data

Observational Data – 60 Minutes

Next Generation Science Standards

Students compare their water quality findings → a discussion about environmental conditions

2 drops = dead insects
4 drops = dead mice and birds
8 drops = dead small mammals
12 drops = deformities in birds and mammals, abbreviated lifespans, increase in illnesses, fatal cancers, and premature deaths

Giving students the opportunity to engage in dialogue and discourse → discover answers for themselves (represents teaching in its most powerful form).

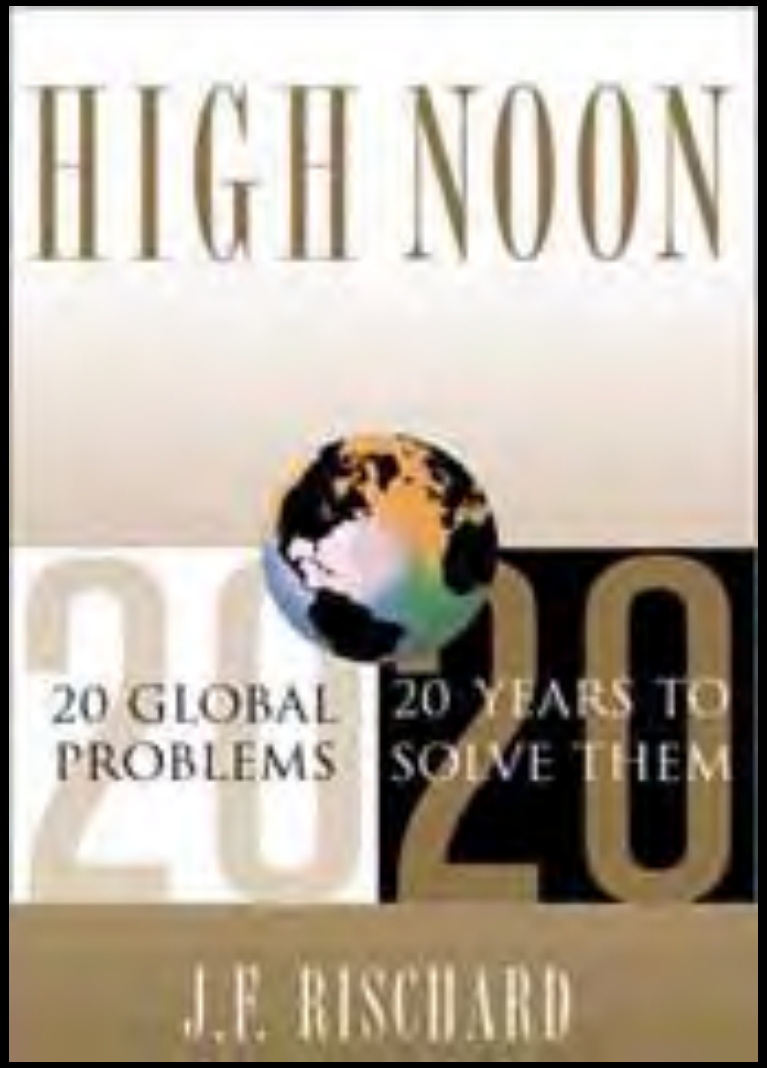
Eight children with terminal-limb deficiencies represent dozens with the same birth defect whose homes are clustered in a few Moscow neighborhoods contaminated by industrial pollution.

SCIENTIFIC AMERICAN™

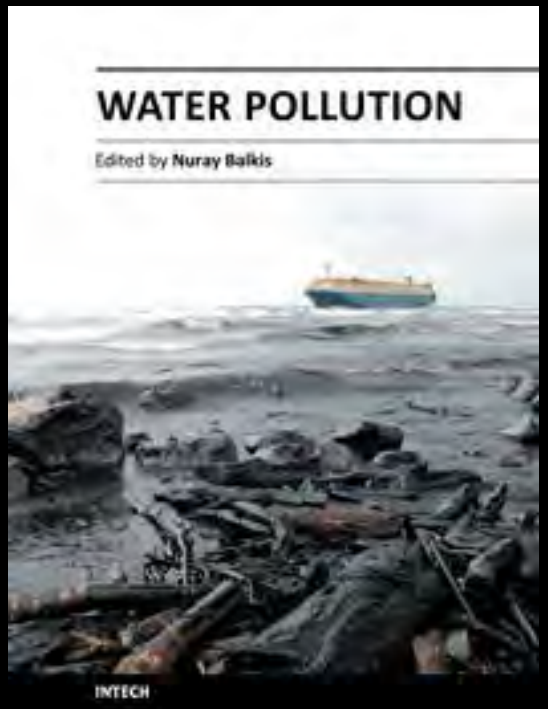
Drugs Contaminate Lake Michigan

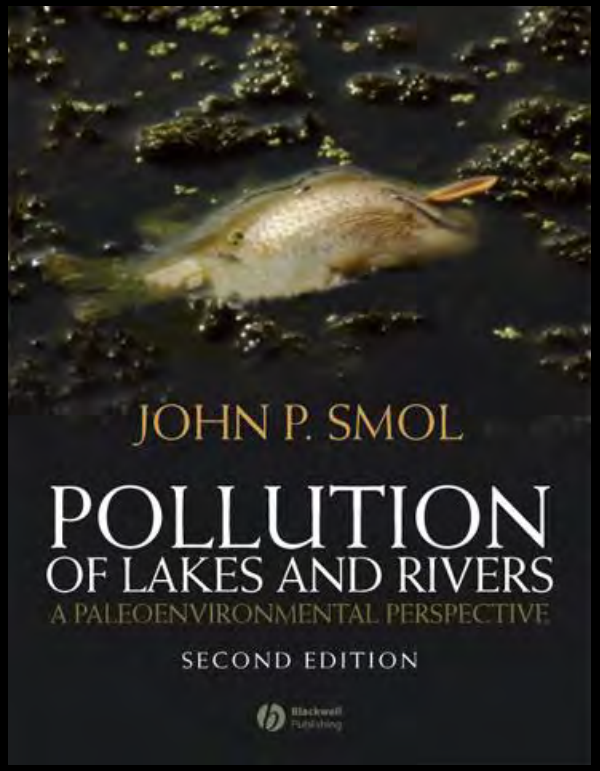
Prescription drugs have been found far from Milwaukee's sewage outfalls, suggesting the lake is not diluting the compounds as scientists expected

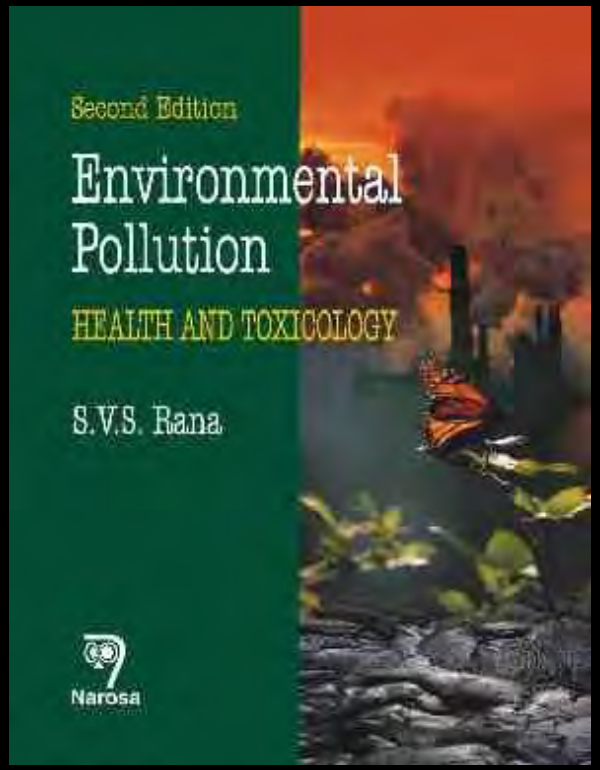
By Brian Bienkowski and Environmental Health News | Thursday, September 5, 2013 | 5



…not merely "*academic* problems" for the purpose of intellectual development, but global challenges to the very *survival* of our planet and our species. They will require new approaches, novel ideas, new solutions, and the complex merging of multiple disciplines.


WATER POLLUTION
Edited by Nuray Balkis
INTECH


JOHN P. SMOL
POLLUTION
OF LAKES AND RIVERS
A PALEOENVIRONMENTAL PERSPECTIVE
SECOND EDITION


Second Edition
Environmental Pollution
HEALTH AND TOXICOLOGY
S.V.S. Rana
Narosa

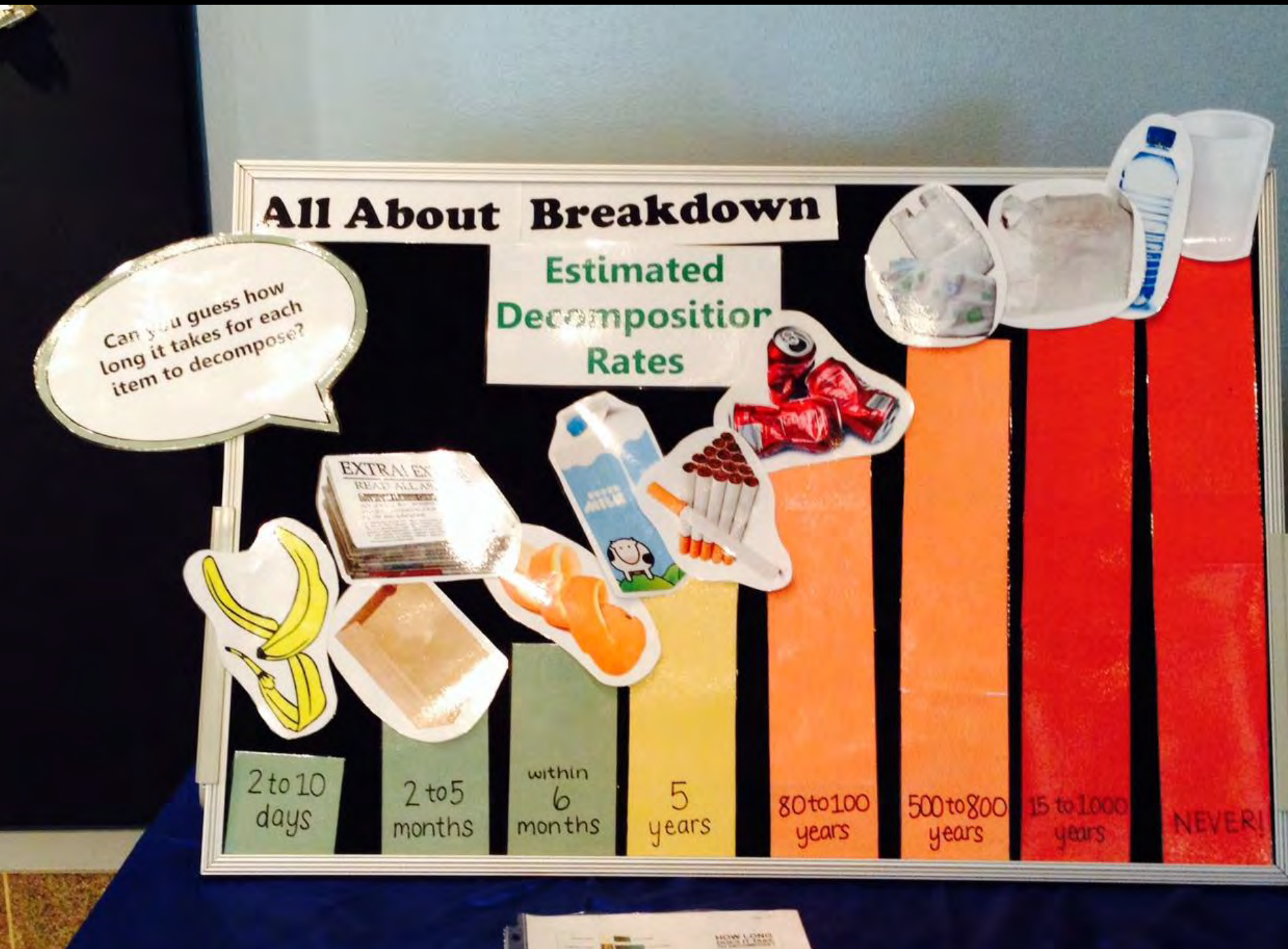
Pollution: “Re-purposing” – Milk Cartons

Pollution: “Re-purposing” – Water Bottles

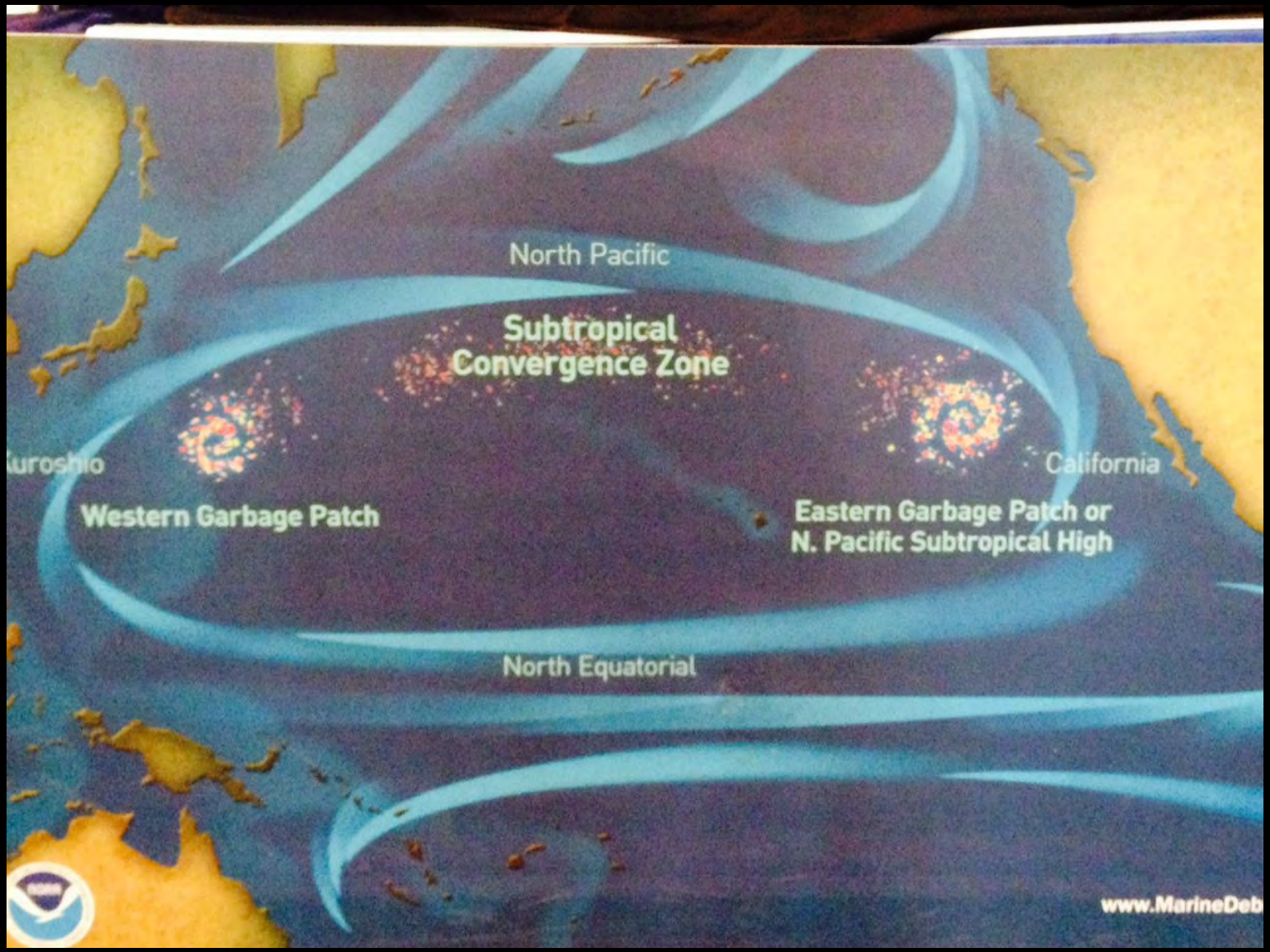
Houston Zoo

Pollution: “Re-purposing” – Water Bottles

Houston Zoo


All About Breakdown
Estimated Decomposition Rates
Can you guess how long it takes for each item to decompose?
2 to 10 days
2 to 5 months
within 6 months
5 years
80 to 100 years
500 to 800 years
15 to 1000 years
NEVER!

Why are recycling and re-purposing efforts important?

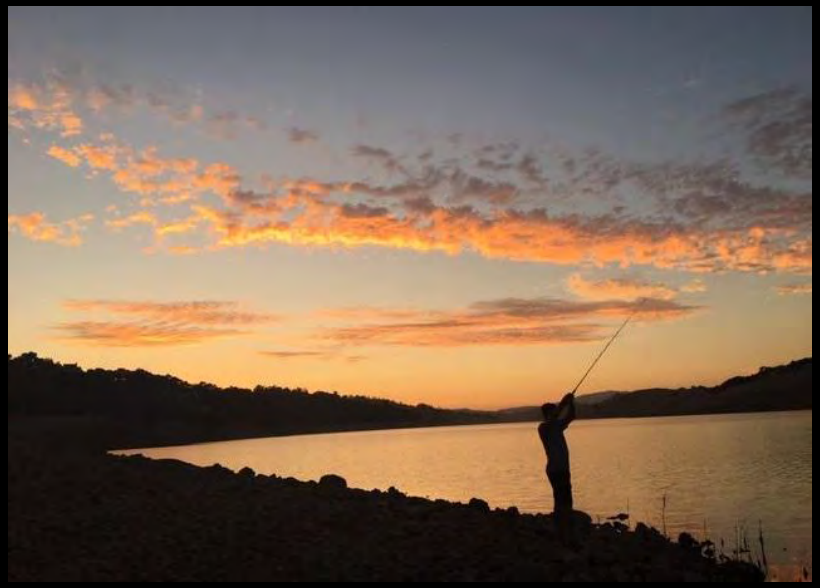


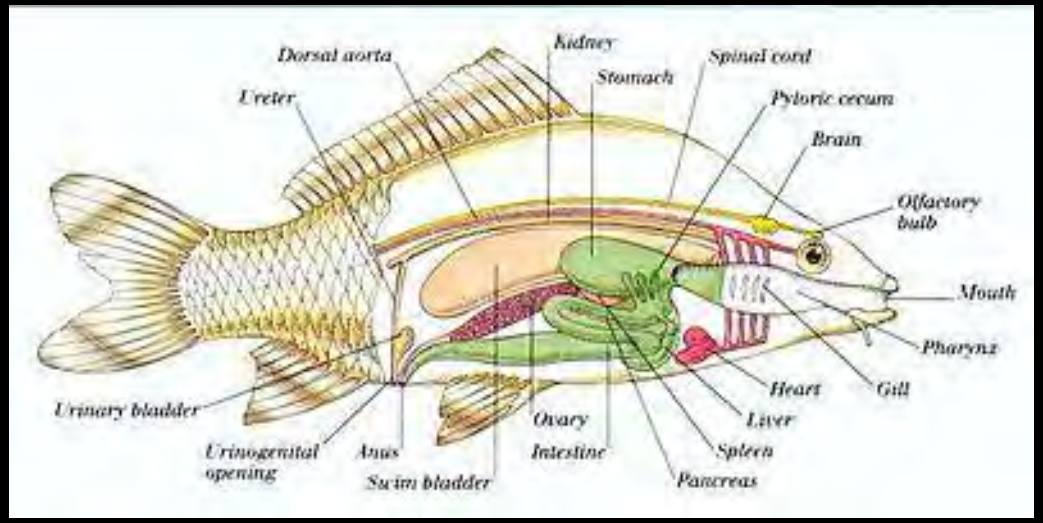
What happens to our discarded plastics?

Re-purposing Old Furniture to Help His Arthritic Dog

Your neighbors' dog is getting old and has arthritis. It is painful for him to bend his joints. What could you design and engineer to make life easier for their dog by reducing some of the daily bending?

Life Science





Life Science: Biology and Art

Life Science: Biology

Use a digital camera to capture different phases of plant growth.

Creating a Digital Science Story

Use a digital camera to capture different phases of plant growth.

Check student work for:

1. Content (scientific accuracy) as they describe the phases of growth
2. Creativity
3. Storyboard (significant events)
4. Photography/videography

Limited Space?

Life Science

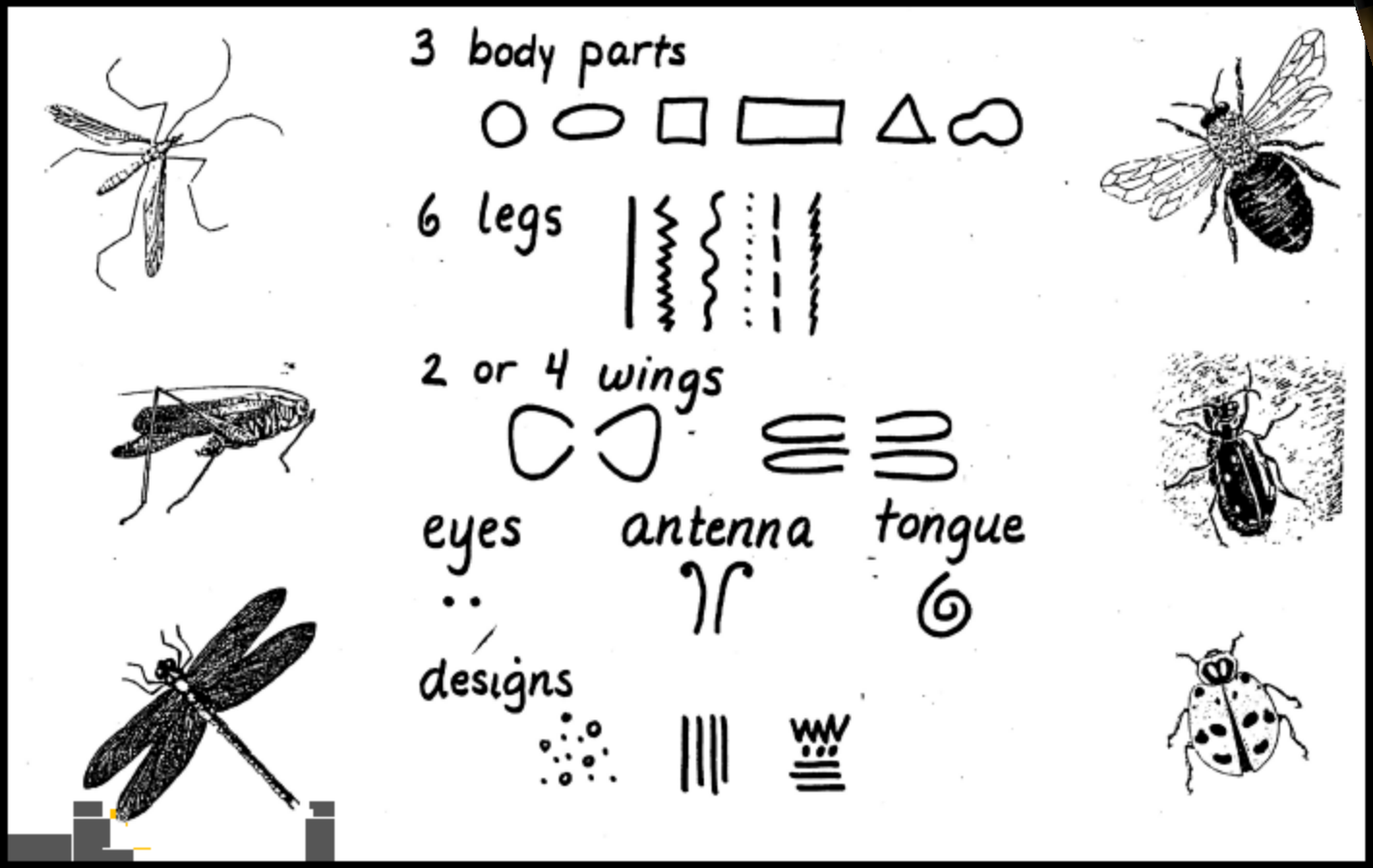
Insect Body Parts and Structures

A familiar subject from the real world

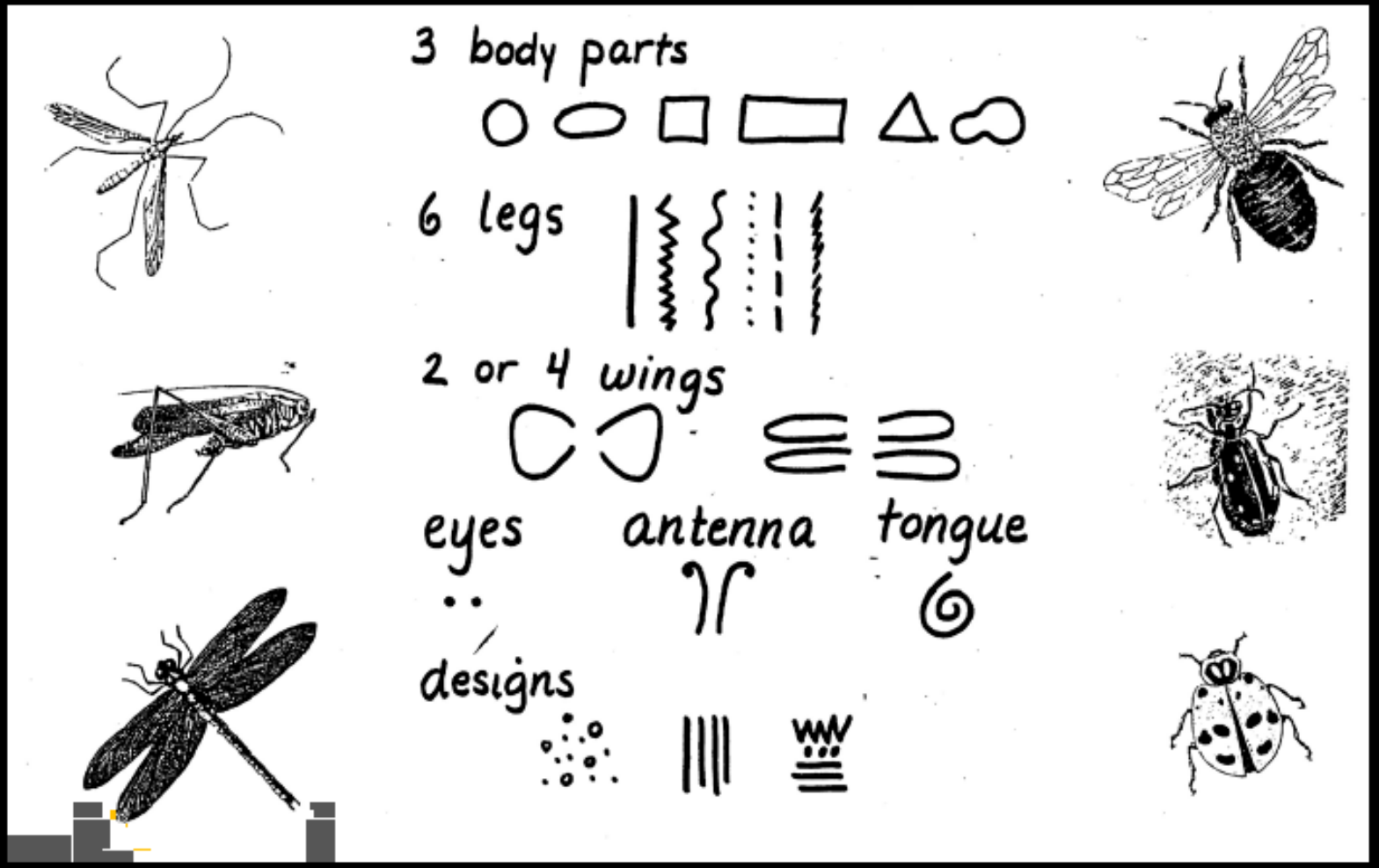
- Both teachers and children have had encounters with insects.
- All insects have certain characteristics in common.
- Insects are infinitely varied.

Life Science

Shared Characteristics of All Insects



Given the Known Characteristics of Insects,
Create a *New* Insect



Life Science and Writing
(#1 Literary Genre: Science Fiction)

Write a story about "A Day in the Life of a _____ insect."

Writing, Drawing and Learning

- Students can **listen** ***without thinking.***
- They can **sit** without listening ***or thinking.***
- We all can ***read*** without ***thinking, concentrating or remembering*** **very much at all.**

However,

- One **cannot** ***solve problems*** **without thinking.**
- One **cannot** ***write*** **without thinking.**
- One **cannot** ***draw*** **without thinking.**

(writing and drawing are how we make our thinking visible and actionable)

Students who lack ability . . .

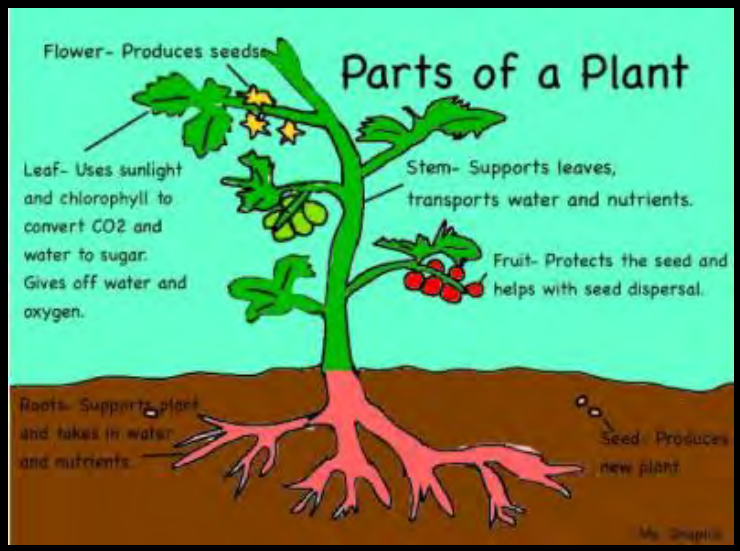
to create visual images when reading, often experience comprehension difficulties.

They cannot describe the pictures in their minds as they read.

Learners who were instructed to create mental images of events…learned two to three times as much as learners who read aloud the sentences repeatedly. (Anderson, 1971)

When Did Humans Start STEM/STEAM ?

- Human beings were (and still are) engaged in STEM/ STEAM experiences *before* we had the new acronyms.
- All human advancements that we enjoy today depended on (1) an understanding of science – knowing
  (2) visualizing a method of problem solving
  (3) creating tools or processes to satisfy our human needs (and curiosities.)



Design and Engineering

Goodwill Engineering
Materials Engineering

Materials Engineering Arguments and Evidence

- Our corporation, “STEM Games” will produce a new stress-relieving hover target game for California executives. We will need to identify the right (kind and size) ball that will float 8-10 inches (20-25cm) in mid-air *(criteria)* when placed above one of the five air vents on our air-blowing machines (below).

Design and (Goodwill) Engineering

- ***Design challenge:***

1. **Design a device that will allow you to test, measure and compare how high each of the eight different balls (below) will float in the air.**

2. **With your ball-suspension device, investigate the impact that forced air has on the distance that the eight different types of balls float in the air.**

Design and Engineering

Materials:

1. Shoebox

Design and Engineering

Materials:

2. Old hair dryer
3. Duct tape

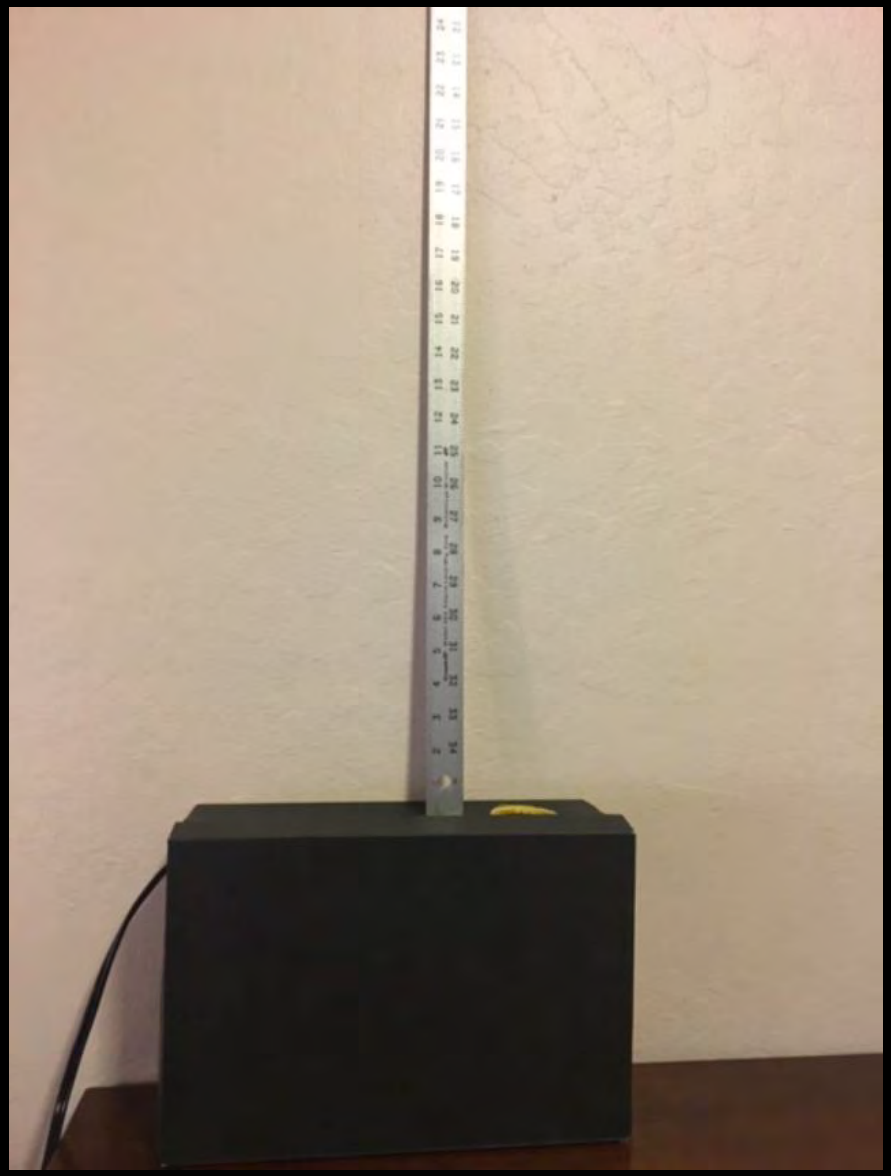
Materials Engineering

Materials:

4. An assortment of (eight) balls of:

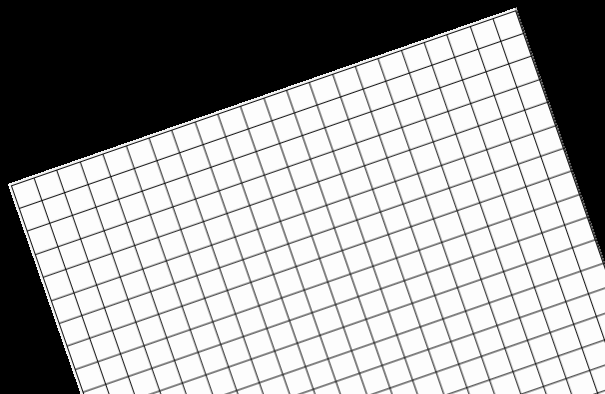
- different **sizes**
- composed of different **materials**
- different **mass**
- different **weight**

Materials Engineering



Materials:

5. Ruler
6. Graph paper



Design and Engineering

Arguments and Evidence

Predict the order in which the 8 different types of balls will float from *highest to lowest.*

More Information/New Questions
(Decision-making with data/information)

1. Smooth table tennis ball - 13 cm (cir.); 2.3 *g*

2. white dimpled plastic golf ball – 14 cm (cir.); 7.3 *g*

3. white perforated plastic ball 13 cm (cir.); 5.3 *g*

4. Small white Styrofoam ball 7.5 cm (cir.); 0.2 *g*

5. Green smooth hollow rubber ball 15.5 cm (cir.); 4.4 *g*

6. Dimpled plastic-covered Styrofoam - 15.5 cm (cir.); 4.4 *g*

7. Large red plastic ball – 24 cm (cir.); 4.3 *g*

8. Large white Styrofoam ball - 20 cm (cir.); 4.0 *g*

A. What order
B. Why?

More Information/New Questions

Arguments and Evidence: Qualia

Attributes of the eight floating balls

1. Color
2. Circumference
3. Radius
4. Solid/perforated
5. Texture (Smoothness/ roughness of surface)
6. Composition (material)
7. Softness/hardness
8. Dimples
9. Other attributes?

Materials Engineering
Arguments and Evidence

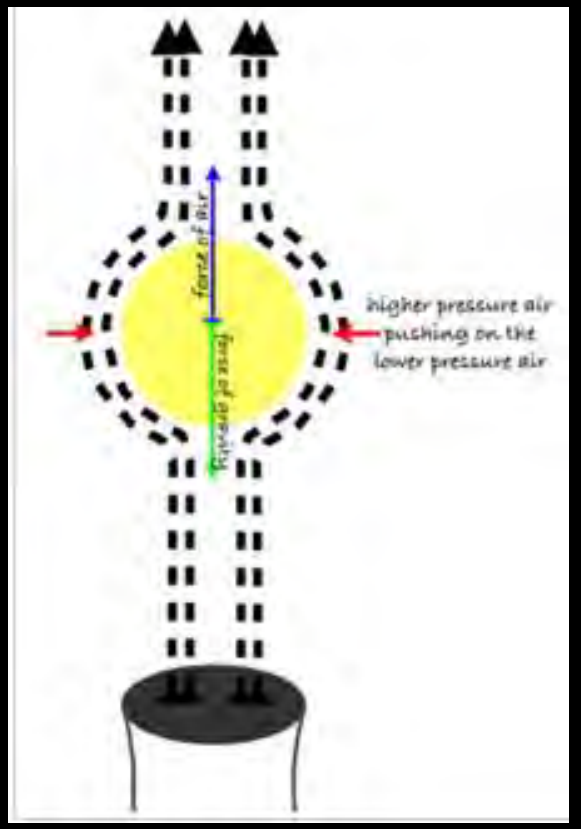
"We predict that …"

1. _____ will float the highest because_____ .
2. _____ will float the 2nd highest because_____.
3. _____ will float the 3rd highest because_____
4. _____ will float the 4th highest because_____
5. _____ will float the 5th highest because_____
6. _____ will float the 6th highest because_____
7. _____ will float the 7th highest because_____
8. _____ will float the least because_____

Materials Engineering

Gravity & Balance: Floating in Mid-air?

- Place the upper portion of a plastic bottle on the end of a **hairdryer.**
- The **air stream** is funneled into a smaller area → forced air moves **faster.**
- The fast-moving air **moves around the surface of the ball** → creating an area of lower air pressure.
- The air stream has more pressure than the air surrounding the ball and keeps the ball snuggled inside of the air stream → ball to reach **a point of balance.** The force of **gravity pushing the ball down = the force of the air pushing the ball up** from the hair dryer → the ball appears to float in mid air (Bernoulli's principle)



Designing a Cardboard Slot Machine

Everyone's a Winner at

Maria's Slot Machine!

- You can win $1.00 easily!
- Only 25¢ to play!

How would Maria design her slot machine so:

1. The game is a **fair** one?
2. Everyone **wins**?
3. Everyone **loses**?
4. Players can only win **10¢?**
5. There are only *occasional* **$1.00** winners?
6. How could Maria calibrate win/loss ratios so she (the proprietor) doesn't lose $$? (write a research plan – focus groups; conduct experiments; modify the design; intermittent reinforcement studies, etc.)

Play/STEM!

Designing a Charity Cardboard (Slot Machine) Game

Game A

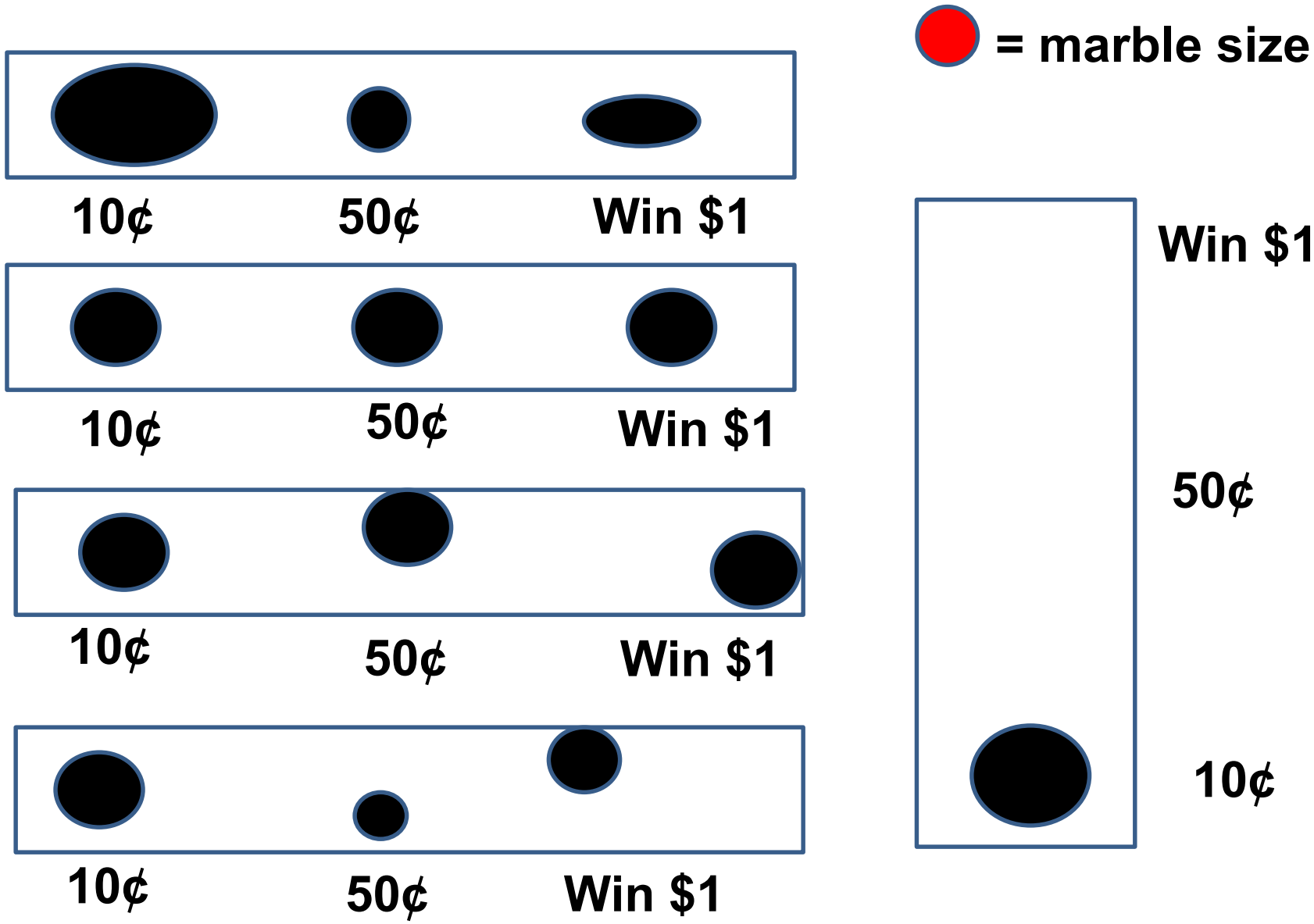
Game B

If the holes on drop shelf #4 are all the same size, which game (A or B) would you want to play and why?

Drop shelf #4

Designing a Charity Cardboard (Slot Machine) Game:

Design of Shelf #4



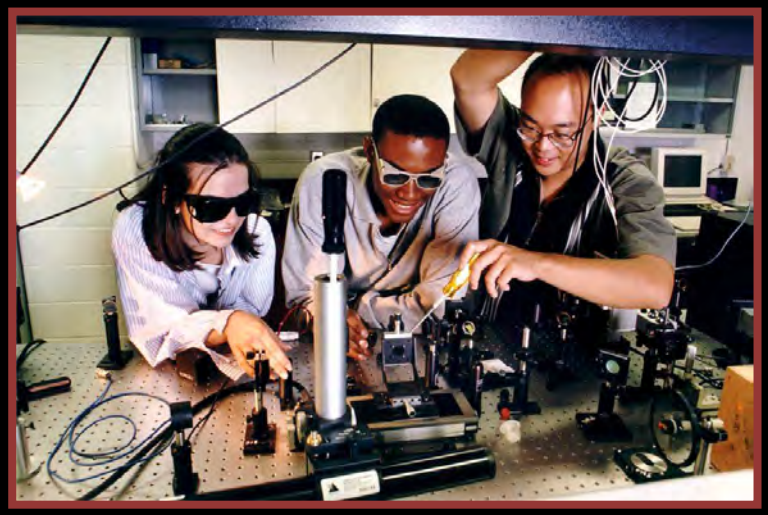
Goodwill Engineering

Garage sales, Thrift shops, Goodwill, basements, etc.

1. Remove two parts and reassemble.
2. Remove four parts and reassemble.
3. Remove six parts and diagram, name the parts and illustrate the interior of the object.
4. Write assembly instructions (engineer) to re-assemble the six parts that were removed.
5. Remove all of the parts, draw the complete interior, write assembly instructions, and have another group reassemble entire device using your group's instructions
6. Test to see if the object is (still) operational! Did it work?

Thinking, Problem-Solving, and Creativity

Our educational system in many ways continues to guide students through the same career preparation that was initially designed for *their parents* (assembly-line workers for the Industrial Age), rather than guided by current 21st century demands of the ~~Information Age~~ ***Innovation Age.***



Equity and Excellence

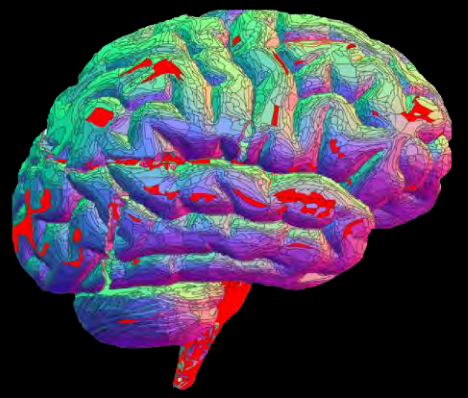
Experience

"~~Education,~~ beyond all other devices of human origin, is the great equalizer of the conditions of men — the balance wheel of our social machinery."

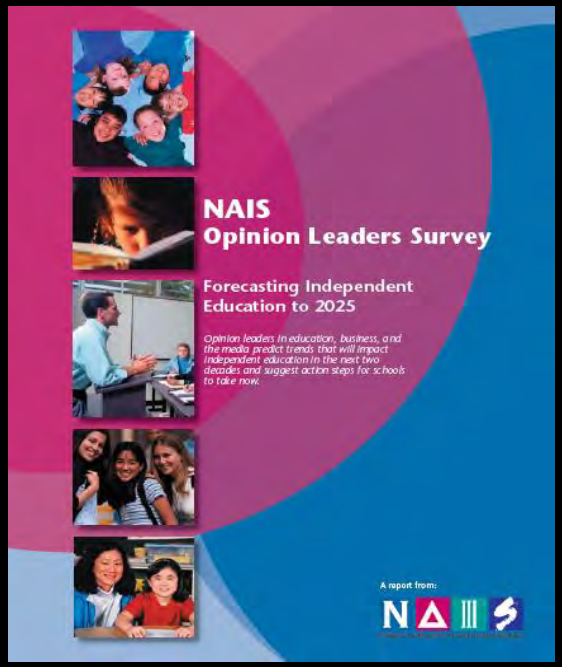
-- Horace Mann

Science At Home

- **Investigating science at home** creates **experiences** that literally **change the brain.**
- Like **jazz:** We know **where** it starts. We know ***when*** it will end. Everything in the middle is ***what*** the audience came for. What happens at the **end** helps us appreciate the connection to its **beginning.**
- **Experiences** have a **life-long impact** on our children, because their learning experiences will carry them forward for a lifetime!



NATIONAL ASSOCIATION OF INDEPENDENT SCHOOLS



Each year, new findings in cognitive psychology and neuroscience will be infused into teacher preparation, curriculum, instruction, student assessment, and the classroom environment. The works of **Howard Gardner** *("Multiple Intelligences")*, **Daniel Goleman** *("Emotional Intelligence")*, **Kenneth Wesson** *("Brain-considerate Learning")*, and others have already been influential in reshaping the independent school classroom, while programs like **Mel Levine's** *Schools Attuned* are assisting educators in using neurodevelopmental content in their classrooms to create success at learning and to provide hope and satisfaction for all students.

Forecasting Independent Education to 2025

-- NAIS

Science At Home Is Where It Starts: Time-Life Books

A microscope for every child!

"Reflect and Connect"

"We don't *learn* from experience, we learn by *reflecting* on it."

-- John Dewey

- What was the **most valuable** idea that *you learned* from this afternoon?

- Please write down 2 "I will statements": How will you **use** the information shared today at home or with your students on-line?

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