



# Secondary Science On-Ramps: Getting Everyone Up to Speed

**Archived Information**

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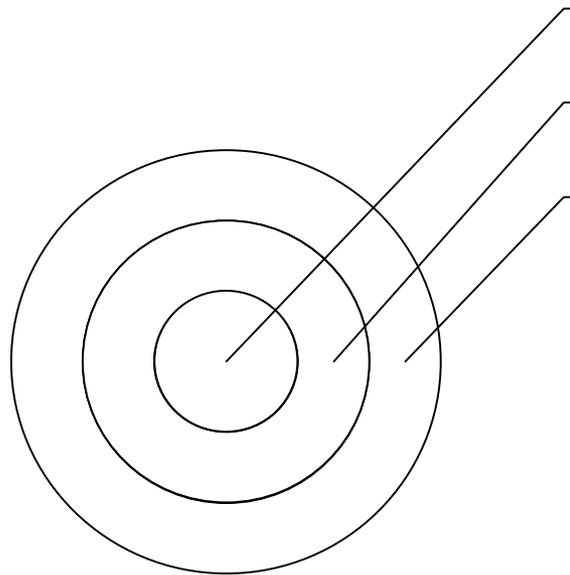




# Exploding Colors Of Milk

- Pour milk in plastic dish
- Add 5 or 6 drops of food color around milk
- Notice the colors do not diffuse much
- Add a drop of dish soap
- Observe phenomena

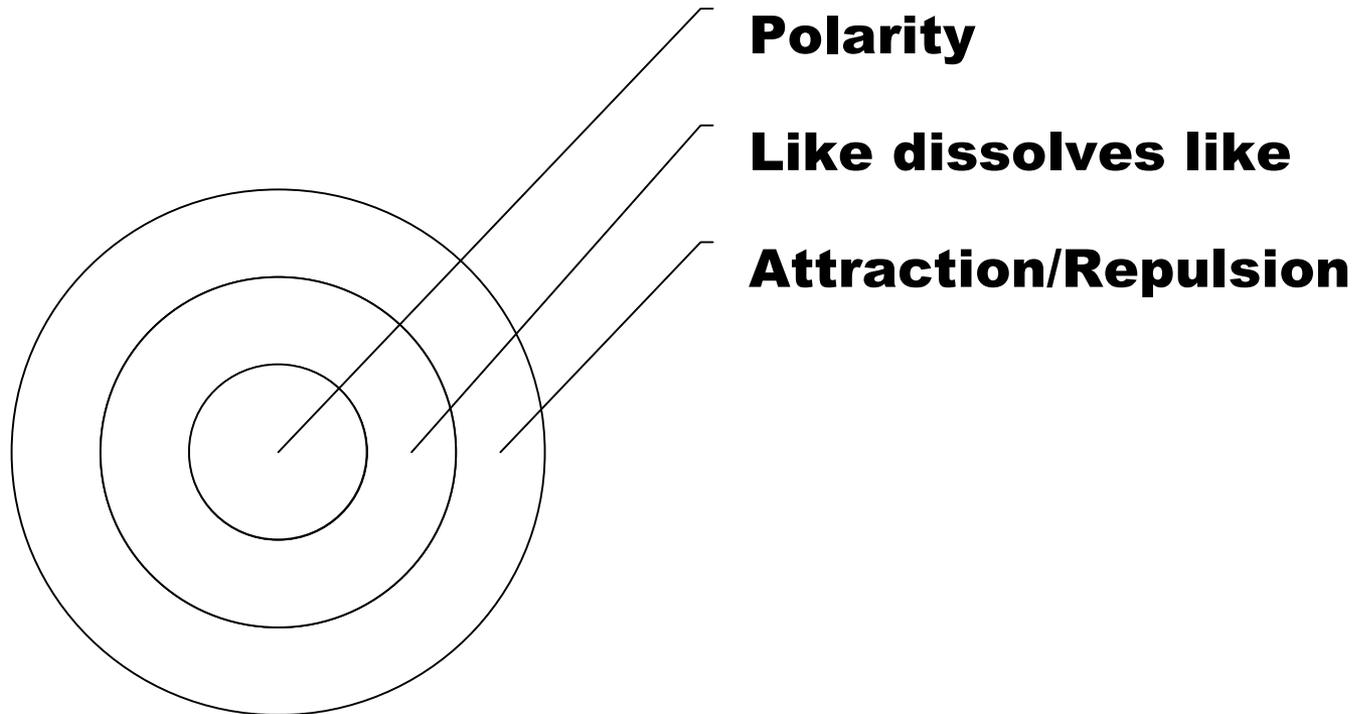
# Unpacking the Standards



**Key concept**

**Supporting conceptual information**

**Missed learning**





# Teach vs. Tell

- **Water and surface tension**
- **Attraction/Repulsion**
- **Polar and non-polar molecules**
- **Emulsifiers**
- **Diffusion**
- **Density in liquids**

# Teaching 3 X deep



	1 X	2X	3X
<b>Surface Tension</b>	<b>Sinkin' Lincoln</b>	<b>Pennies in a glass of water</b>	<b>Model on the board</b>
<b>Check for conceptual understanding</b>	<b>Explain to partner</b>	<b>Explain in writing</b>	<b>Formative assessment</b>



# Identify the Speed Bumps

- **Mathematical understandings**
- **General skills**
- **Complex understandings**
- **Left field**



# On-Ramps

- **Move faster, not slower**
- **Have tighter content focus than other parts of lesson**
- **Are filled with feedback and formative assessments**
- **Are “learning styles” based**
- **Have 3 levels if needed (not all levels are used)**
- **Should not be viewed as remediation...just a helpful nudge**
- **Group when appropriate**
- **Resist the urge to spoon feed**



# Lab Report as Exit Assessment

- **2 grades: process and content**
- **Argues from evidence**
- **Consistency of data**
- **Strong links between data and conclusions**
- **Opportunities for revision**
- **Focus is on learning at deeper level**
- **Illustrate points with tricks of the trade (graphs, charts, diagrams...)**



# Links to the Standards

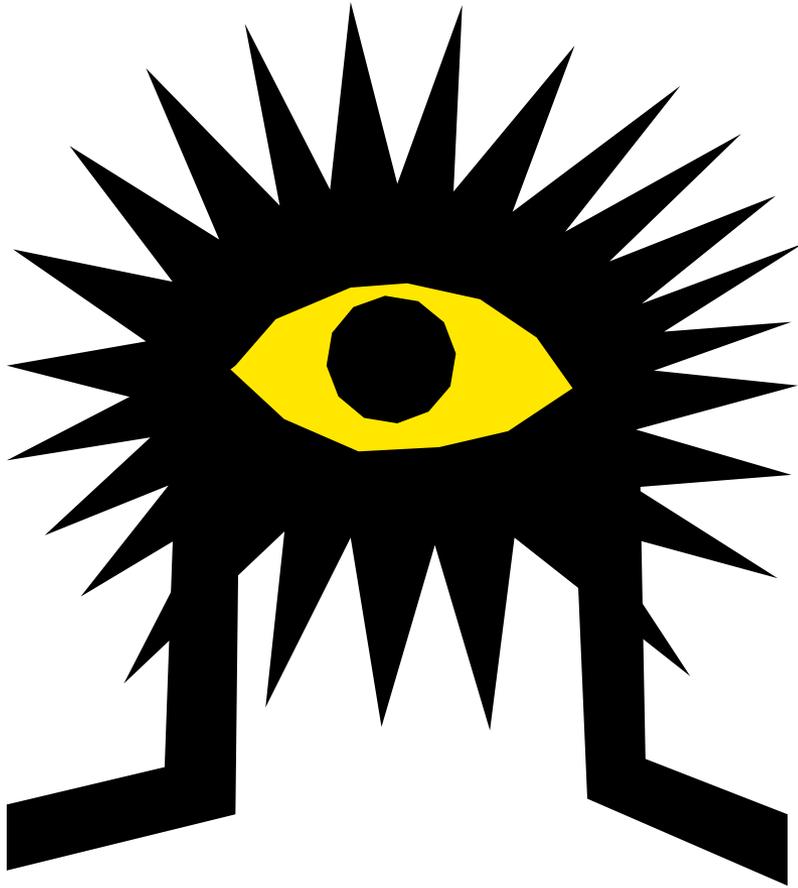
- **Properties of objects and materials**
  - Objects have observable properties
  - Objects can exist in different states
  - Characteristic properties of materials help identify them (5-8)
  
- **Position and motion of objects**
  - The position of an object can be described by its location relative to another object



# Trying It On Your Own

- **Select a lesson that is content rich**
- **Briefly describe it**
- **Unpack the standards**
- **ID teach vs. tell**
- **ID speed bumps to understanding**
- **Design on-ramps**
- **Construct an acceptable conclusion**
- **Example...example...example!**
- **Teach, revise, teach, assess**

# Proof is in the Pudding



- **Examining student work**
  - Why a 4 point scale?
  - Above the bar
  - Below the bar
- **Explaining 3 deep**
- **Models and analogies/metaphors**
- **Giving feedback**
  - Preserving your sanity
  - Student peer assessment
  - Parents as assessors



# The Path to Success For All

- **Identify the content clearly**
- **Find a great activity that illustrates the content**
- **Explore with the kids (lots of questions)**
- **Tighten up connections in examples**
- **Ask more questions**
- **Do not go too far...keep it tied to content level**
- **Let kids wrap it up**