

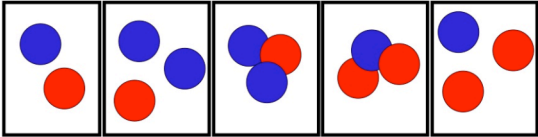


High School Lesson Instruction	Middle School Adaptation	Example									
Learning Goal: Students will use stoichiometric calculations to determine the solubility, in g/L of table salt and the six other slightly soluble salts.	<b>1. Use directions that are qualitative rather than quantitative.</b>	<b>I found this in the teacher notes.</b>  6. Which is the best drawing for Magnesium chloride in a water solution?  Mg  Cl   A B C D E									
Direction: Knowing the TOTAL force and the mass of the file cabinet, calculate its acceleration below. Hint: use Newton's 2 <sup>nd</sup> Law.	<b>2. Allow students the opportunity to explore relationships among variables.</b>  <b>5. Check for understanding as needed.</b>	<b>I changed the directions.</b>  Using the features in the sim, try to change the acceleration of the file cabinet. Write down the variables you changed and how they affected acceleration. <table border="1" data-bbox="1356 1019 1827 1166"><thead><tr><th>Variable changed</th><th>How you changed it</th><th>Affect on acceleration</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></tbody></table> Can you make some conjectures about your results?	Variable changed	How you changed it	Affect on acceleration						
Variable changed	How you changed it	Affect on acceleration									

Discussion break : Ask the students to describe what they think an ion is, differences between ions, and the relationship between different ions.	<b>5. Check for understanding as needed.</b>  <b>7. Allow time for students to collaborate.</b>	<b>I used this idea and added the extra step of allowing students to share their thoughts with their lab partners before discussing it as a class.</b>  Discuss what you think an ion is with your lab partner. Write your thoughts in your lab book.												
Directions: Lower the temperature of the source. 24. Describe the change in color of the source. 25. Describe the change in shape of the graph. 26.How does the wavelength of the maximum intensity change?  Raise the temperature of the source, 27.Describe the change in color of the source. 28.Describe the change in shape of the graph. 29.How does the wavelength of the maximum intensity change?	<b>4. Promote self-driven exploration.</b> <b>Avoid step-by-step instruction.</b>	<b>I changed the directions.</b>  Predict what you think will happen when you change the temperature of the source. Record your prediction in a data table. Be sure to explain your thinking. After you have made your predictions, use the sim to see if you were right. Make corrections as needed. <table><tr><td></td><td>Predict</td><td>Explain</td><td>Observe</td></tr><tr><td>Increase temp</td><td></td><td></td><td></td></tr><tr><td>Decrease temp</td><td></td><td></td><td></td></tr></table>		Predict	Explain	Observe	Increase temp				Decrease temp			
	Predict	Explain	Observe											
Increase temp														
Decrease temp														

Calculate Force Normal, Force Gravity, Coefficient of Friction and the acceleration of the object and record these values in the table. All calculations (\*) must be done neatly and orderly.

Location	Object	F <sub>app</sub> lied	F <sub>Fri</sub> ction Initial	F <sub>Fri</sub> on Stab ilize d	*F <sub>norm</sub> al	*Accel.
Earth	File Cab.					
Jupit.	File Cab.					
Moon	File Cab.					
Earth	Crate					
Jupit.	Crate					
Moon	Crate					
Earth	Sleepy Dog					
Jupit.	Sleepy Dog					
Moon	Sleepy Dog					

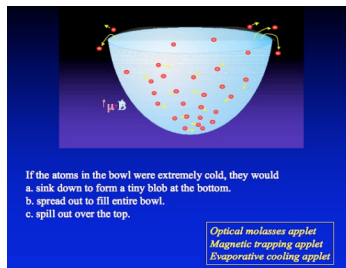
6. Shorten lessons to include only specific standards or learning goals.

I used the existing table and shortened it.

Calculate the force and the acceleration of the object at different locations and record these values in your table.

Location	Object	Force	Acceleration

Lecture Slide:



9. Use existing data charts and diagrams.

I removed some text.

