



# Science Teachers at KJH Science PTSA Presentation

**Susan Buyarski-Crauer**

7<sup>th</sup> Grade Science and Biology

**Kathy Colombo**

7<sup>th</sup> Grade Science and 8<sup>th</sup> Grade Science

**Mike Cummings**

8<sup>th</sup> Grade Science and 9<sup>th</sup> Grade Science

**Ryan Palmer**

8<sup>th</sup> Grade Science and 9<sup>th</sup> Grade Science



# Overview of Science Program

- **Inquiry**

- Constructing Knowledge
- Hands-On, Minds-On Activities

- **Content**

- Physics(Physical Science), Life Science, Earth Science

- **Literacy**

- Communication(written, speaking, reading)

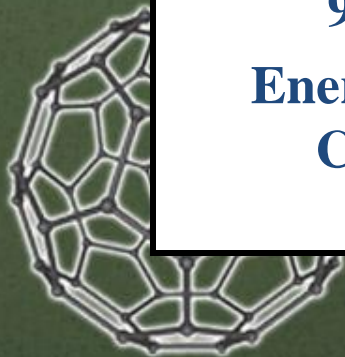
- **Application**

How does this relate to me?

# What is Integrated Science?

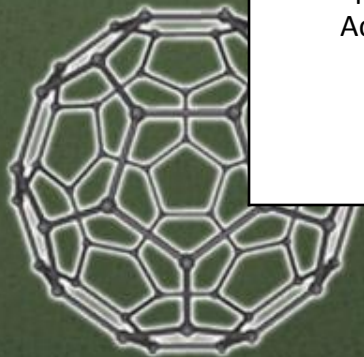
- ❑ LWSD adopted materials
- ❑ Each grade level experiences Physical Science, Earth Science and Life Science.
- ❑ What it looks like in 7<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup> Grade:

<b>Physical Science</b>	<b>Earth Science</b>	<b>Life Science</b>
<b>7<sup>th</sup> Grade Energy and Motion</b>	<b>7<sup>th</sup> Grade Catastrophic Events</b>	<b>7<sup>th</sup> Grade Populations and Ecosystems</b>
<b>8<sup>th</sup> Grade Properties of Matter</b>	<b>8<sup>th</sup> Grade Earth in Space</b>	<b>8<sup>th</sup> Grade Human Body</b>
<b>9<sup>th</sup> Grade Energy, Motion, Chemistry</b>	<b>9<sup>th</sup> Grade Geological History of Pacific NW, Astronomy</b>	<b>9<sup>th</sup> Grade None</b>



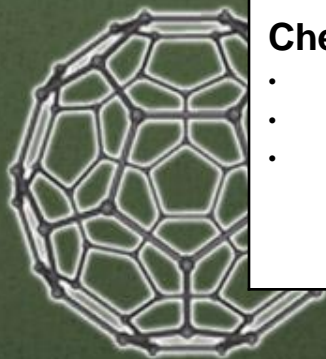
# 7<sup>th</sup> Grade Curriculum Based Upon Standards

Physical Science	Earth Science	Life Science
<i>Energy and Motion</i>	<i>Catastrophic Events</i>	<i>Populations and Ecosystems</i>
<p><b>Energy</b></p> <ul style="list-style-type: none"> <li>▪ Forms of energy</li> <li>▪ Energy Transfers and Transformations</li> <li>▪ Work</li> </ul> <p><b>Forces</b></p> <ul style="list-style-type: none"> <li>▪ Balanced and Unbalanced</li> <li>▪ Gravity, Elastic, Friction, Support</li> </ul> <p><b>Motion</b></p> <ul style="list-style-type: none"> <li>▪ Unbalanced and Unbalanced forces affect on motion</li> <li>▪ Speed (Constant and Acceleration)</li> </ul>	<p><b>Causes and Effects of natural events; risks</b></p> <p><b>Storms</b></p> <ul style="list-style-type: none"> <li>▪ Heat(thermal energy), wind, air pressure, water cycle</li> <li>▪ Air masses</li> <li>▪ Ocean currents</li> <li>▪ Global weather patterns</li> </ul> <p><b>Earthquakes</b></p> <ul style="list-style-type: none"> <li>▪ Waves and Energy</li> <li>▪ Plate tectonics/Earth's structure</li> <li>▪ Internal &amp; surface features</li> </ul> <p><b>Volcanoes</b></p> <ul style="list-style-type: none"> <li>• Constructive and destructive effects</li> <li>▪ Magma vs. lava</li> </ul>	<p><b>Populations, Communities, Ecosystems</b></p> <ul style="list-style-type: none"> <li>▪ Organisms &amp; habitats</li> <li>▪ Food webs/chain</li> <li>▪ Sunlight, photosynthesis and energy transfer</li> <li>▪ Genes, reproduction, heredity</li> <li>▪ Biological diversity-adaptation-variation</li> </ul>



# 8<sup>th</sup> Grade Curriculum Based Upon Standards

Physical Science	Earth Science	Life Science
Properties of Matter	Earth in Space	Human Body Systems
<p><b>Characteristic Properties of Matter</b></p> <ul style="list-style-type: none"> <li>• What is matter?</li> <li>• Determining density of solids, liquids, gases</li> <li>• Phase Changes- Heat(Thermal Energy)</li> </ul> <p><b>Mixtures and Solutions</b></p> <ul style="list-style-type: none"> <li>• Pure substance vs. Mixture</li> <li>• Solubility</li> <li>• Separation techniques of a mixture</li> </ul> <p><b>Chemical Reactions</b></p> <ul style="list-style-type: none"> <li>• Compound</li> <li>• Element</li> <li>• Periodic Table of Elements</li> </ul>	<p><b>Sun-Earth-Moon System</b></p> <ul style="list-style-type: none"> <li>• Observations from earth:               <ul style="list-style-type: none"> <li>• Shadows</li> <li>• Seasons</li> <li>• Lunar Phases</li> <li>• Eclipses</li> <li>• Tides</li> </ul> </li> </ul> <p><b>Solar System</b></p> <ul style="list-style-type: none"> <li>• Gravity and Orbital Motion</li> <li>• Scale</li> <li>• Position</li> </ul> <p><b>Earth's History as a Planet</b></p> <ul style="list-style-type: none"> <li>• Asteroids, Comets, Meteoroids</li> <li>• Exploring Space</li> </ul>	<p><b>Digestive System</b></p> <ul style="list-style-type: none"> <li>• Mapping and understanding our Body's Systems</li> <li>• Digestion:               <ul style="list-style-type: none"> <li>• Mouth stomach</li> <li>• Absorption, Diffusion and Active Transport</li> </ul> </li> </ul> <p><b>Respiratory and Circulatory Systems</b></p> <ul style="list-style-type: none"> <li>• Cellular Respiration</li> <li>• Releasing Energy from food</li> <li>• Interdependency</li> </ul>



# 9<sup>th</sup> Grade Curriculum Based Upon Standards

## Physical Science

### Nature of Science

- What is the scientific method?
- How has science influenced society (history and culture)

### Motion

- What are speed, velocity, and acceleration?
- Time vs. Position graphs
- Newton's 3 laws of motion

### Energy

- Energy of motion (kinetic) vs. energy of position (potential)
- Conservation of Energy
- Thermal Energy and how heat moves from one object to another

### Chemistry

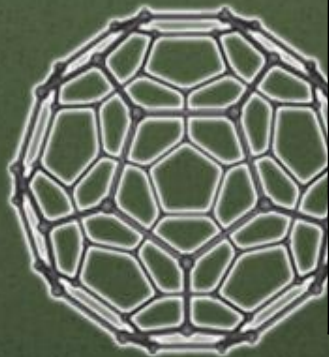
- Atoms and atomic structure
- Periodic Table of Elements (in-depth)
- Chemical Bonds and compounds
- Chemical equations
- Types of chemical reactions

### Earth Science

- Geological History of Pacific Northwest

### Astronomy

- Waves and the Electromagnetic Spectrum
- Stars: What they are and how they are born, live, and die
- Galaxies and Black Holes
- Big Bang Theory
- Rockets





# Literacy

## Writing:

- Lab Reports(FLR)
- Journal
  - ✓ Reflections
  - ✓ Vocabulary

## Reading:

- Informational text
- Research

## QSR Level 5 Science Rubric: Formal Lab Report

QSR Level 5 Science Rubric: Formal Lab Report					
Proficiency		Name			
<input type="checkbox"/> Proficient <input type="checkbox"/> Not proficient					
Student must meet proficiency in all categories					
		Assignment Title			
		Date		Subject	
Teachers: Circle proficient or not proficient for each category and <u>underline</u> or highlight the not proficient indicators in each category				Teacher	
Introduction and Purpose		Supplies, Equipment, and Procedure		Observations, Data, and Calculations	
Proficient	Not Proficient	Proficient	Not Proficient	Proficient	Not Proficient
<ul style="list-style-type: none"> <li>States a complete purpose and/or hypothesis with explanation</li> <li>Provides background information for all key concepts and processes involved</li> </ul>		<ul style="list-style-type: none"> <li>Includes a complete bulleted list of equipment and supplies including measuring tools, if used</li> <li>Identifies variables (controlled, responding and manipulated) when appropriate</li> <li>Includes appropriate bullets, numbers, headers and paragraphs</li> <li>Numbered procedure is written correctly:                             <ol style="list-style-type: none"> <li>Summarizes the procedure when replicating a Teacher-Designed experiment</li> <li>Clearly explains the steps in a Student-Designed experiment so that the experiment can be replicated</li> </ol> </li> </ul>		<p><b>Observations and Data:</b></p> <ul style="list-style-type: none"> <li>Displays observations and data appropriately in charts, tables, and graphs</li> <li>Records measurements with correct precision</li> <li>Labels all measurements with correct units</li> <li>Provides adequate detail in diagrams or sketches of observations</li> </ul> <p><b>Calculations (Physical: required, Life: when appropriate):</b></p> <ul style="list-style-type: none"> <li>Uses correct equations</li> <li>Calculates accurately</li> <li>Shows each step of a calculation or algebraic manipulation with correct units</li> </ul>	
Conclusion		Analysis		Presentation	
Proficient	Not Proficient	Proficient	Not Proficient	Proficient	Not Proficient
<ul style="list-style-type: none"> <li>Correctly interprets and summarizes all observations, data, and calculations included in the lab</li> <li>Cites data and/or calculations to justify conclusions</li> <li>Links conclusions directly to the purpose and/or hypothesis</li> </ul>		<ul style="list-style-type: none"> <li>Discusses potential sources of error and how they may have influenced the results</li> <li>When appropriate, mathematical models are used to accurately evaluate validity of results (e.g. % yield, % error, or % difference)</li> <li>Addresses number of trials and how it affects validity of results</li> <li>Analyzes experimental design and offers suggestions for improvement when appropriate</li> <li>Identifies unanswered questions and offers suggestions for future research, when appropriate</li> </ul>		<ul style="list-style-type: none"> <li>This presentation (spelling, punctuation, capitalization, correct grammar and usage, and appropriate sentence structure) does not distract from the communication of the ideas.</li> <li>Logical paragraphing</li> <li>Appropriate voice</li> <li>Appropriately displays scientific symbols, expressions and equations</li> <li>Includes a title and appropriate headings</li> </ul>	
<p><b>Teacher Comments:</b></p>					
				<p><b>Proficiency</b></p> <input type="checkbox"/> Proficient <input type="checkbox"/> Not Proficient	



Science Rubric: Formal Lab Report						
Proficiency		Name				
<input type="checkbox"/> Proficient	<input type="checkbox"/> Not proficient					
Student must meet proficiency in all categories						
		Assignment Title				
		Date			Subject	
Teachers: Circle proficient or not proficient for each category and <u>underline</u> or highlight the not proficient indicators in each category					Teacher	
Introduction and Purpose		Supplies, Equipment, and Procedure		Observations, Data, and Calculations		
Proficient	Not Proficient	Proficient	Not Proficient	Proficient	Not Proficient	
<ul style="list-style-type: none"> <li>States a complete purpose and/or hypothesis with explanation (If..then..because)</li> <li>Provides background information for the big idea, key concepts and processes involved</li> </ul>		<ul style="list-style-type: none"> <li>Includes a complete bulleted list of equipment and supplies including measuring tools</li> <li>Identifies variables (controlled, responding/dependent and manipulated/independent)</li> <li>Includes appropriate bullets, numbers, headers and paragraphs</li> <li>Procedure is written correctly in numbered steps:               <ol style="list-style-type: none"> <li>Summarizes the procedure when replicating a Teacher-Designed experiment</li> <li>Clearly explains the steps in a Student-Designed experiment so that the experiment can be replicated</li> </ol> </li> </ul>		<p><b>Observations and Data:</b></p> <ul style="list-style-type: none"> <li>Displays observations and data appropriately in tables/charts and graphs</li> <li>Records and labels all measurements with correct units</li> <li>Provides adequate detail in diagrams or sketches of observations</li> </ul> <p><b>Calculations (Physical: required, Life: when appropriate):</b></p> <ul style="list-style-type: none"> <li>Uses correct equations/formulas</li> <li>Calculates accurately</li> <li>Shows each step of a calculation with correct units</li> </ul>		
Conclusion		Analysis		Presentation		
Proficient	Not Proficient	Proficient	Not Proficient	Proficient	Not Proficient	
<ul style="list-style-type: none"> <li>Correctly answers the investigative question/hypothesis</li> <li>Correctly interprets and summarizes all observations, data, and calculations included in the lab to support conclusive statement</li> <li>Links conclusions directly to the purpose and/or hypothesis</li> <li>Links background in the discussion of the data</li> <li>Cites data and/or calculations to justify conclusions</li> </ul>		<ul style="list-style-type: none"> <li>Discusses potential sources of error and how they may have influenced the results</li> <li>When appropriate, mathematical models are used to accurately evaluate validity of results (e.g. % yield, % error, or % difference)</li> <li>Addresses number of trials and how it affects validity of results</li> <li>Analyzes experimental design and offers suggestions for improvement when appropriate</li> <li>Identifies unanswered questions and offers suggestions for future research, when appropriate</li> </ul>		<ul style="list-style-type: none"> <li>This presentation (spelling, punctuation, capitalization, correct grammar and usage, and appropriate sentence structure) does not distract from the communication of the ideas.</li> <li>Logical paragraphing</li> <li>Appropriate voice</li> <li>Appropriately displays scientific symbols, expressions and equations</li> <li>Includes a title and appropriate headings</li> </ul>		
<b>Teacher Comments:</b>						



# **Formal Lab Report**

## ***Conclusion Writing***

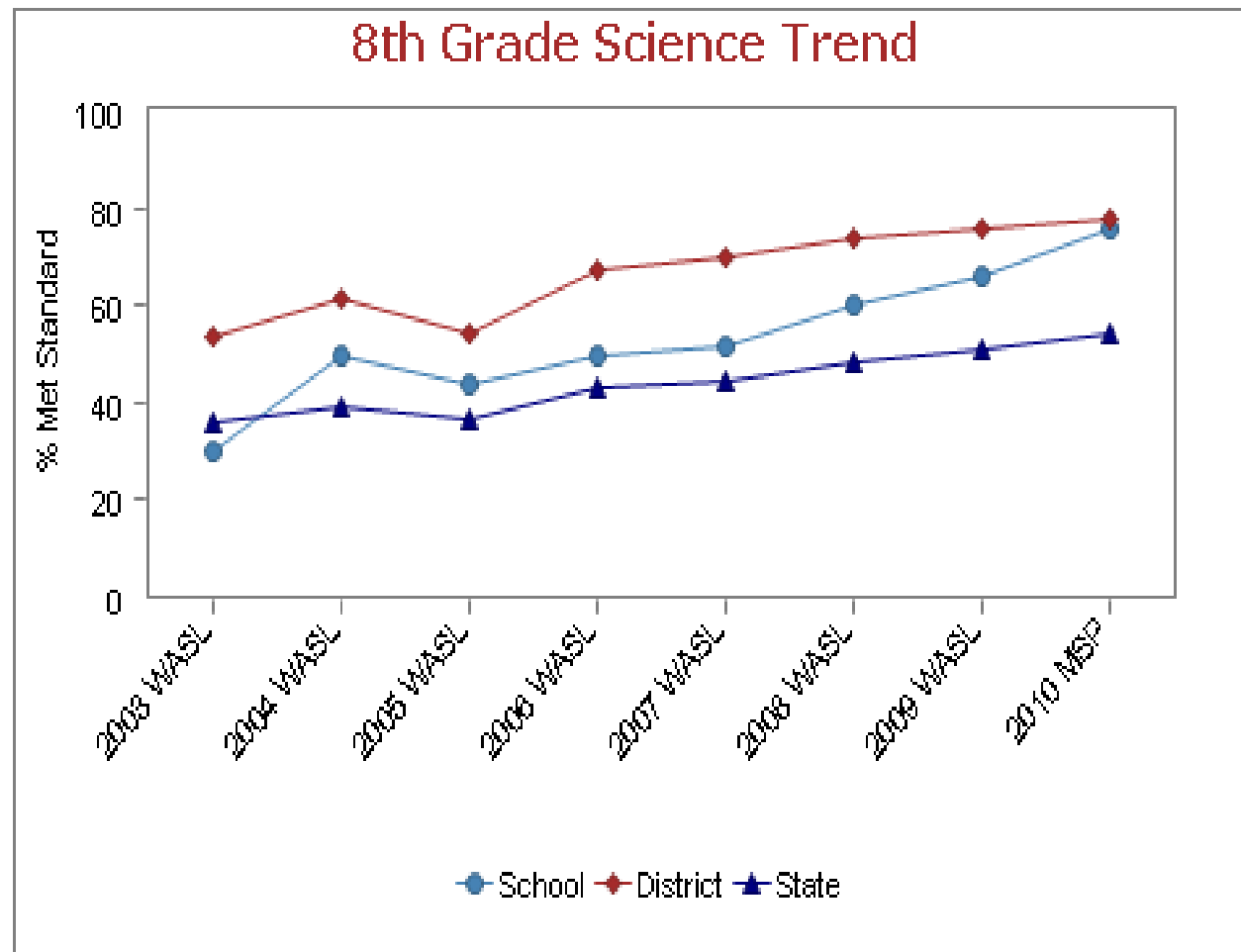
- **Answer investigative question**  
Make a Claim
- **Provide evidence from results**  
How do you know?
- **Explain the connection between evidence and conclusive statement**  
Why does this phenomena happen?



# Measurement of Student Progress (MSP) 8<sup>th</sup> Grade

## 8th Grade Science

Year	School	District	State
<u>2002-03 WASL</u>	30.1%	53.7%	35.8%
<u>2003-04 WASL</u>	49.7%	61.2%	39.4%
<u>2004-05 WASL</u>	43.5%	54.3%	36.4%
<u>2005-06 WASL</u>	49.4%	67.4%	42.9%
<u>2006-07 WASL</u>	51.5%	70.0%	44.6%
<u>2007-08 WASL</u>	60.2%	73.6%	48.2%
<u>2008-09 WASL</u>	66.1%	75.5%	51.1%
<u>2009-10 MSP</u>	76.0%	77.8%	54.5%



# **What Can I Do to Help My Child Be Successful?**

- **Check Binder, Journal, Planner, Standards Score, and Websites**
- **Ask questions about the world to encourage questioning**
- **Provide a quiet place at home to complete work**
- **Try to have your child here everyday, ready to learn**
- **Contact us with questions, concerns, and/or support**
- **Encourage your child to develop a relationship with their teacher so we can help him/her become an advocate for themselves**





# Thank you

