

Goals: Geography, Chemistry in environment, math Plotting, Environmentalism,

Geo-Inquiry Process: Ask → Collect → Visualize → Create → Act

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	A	B	C2	E
	Asking/Collecting	Collecting	Collecting	Visualizing
Station Activity	1. Scavenger Hunt Rules (In Teams + 1 phone minimum) 2. Trash Survey (Survey 123)	Part 1. Collecting Soil (plots) and 2. Air Quality Measurement/Soil Collection	1. Stream Flow Analysis (Orange Float) With PBL problems (chemical spill analysis) 2. Collecting Water Quality Measurement Measurement Kit (5 different locations)	1. Video Storytelling about our Planet 2. Photo/Video Hunt
Station Purpose	Service Learning with Cleanup	Measuring Air/Soil	Stream Chemistry and processes	Photography
Station Location	Rotate Each Round	Rotate Each Round	Rotate Each Round	Go where other groups are not. :)
Station Adult(s)	Ragsdale/Roddiger?	Vanessa?/Brennan?	Stockert/Bell?	Gregorich/Moran
Station Materials	<ul style="list-style-type: none"> Phones with Survey123 link. QR Code in handbook. Trashbags Copy of scavenger hunt. Prizes? ForcePlate and Meter 	<ul style="list-style-type: none"> Lab supplies pH paper in bags 2 cups ruler Spoon Thermometers Strings for transect 	<ul style="list-style-type: none"> Digital Meters Oranges Rangefinder - borrow pH paper. Water sample containers. 	<ul style="list-style-type: none"> Kid phones with cameras. 360 Camera School Cameras (2) Google Site to load photos.
Station Output	Cleaner area. Understanding of human impact.	soil/air quality	Water quality and chemistry. Math!	Photos/Video of CL area
Clean-up Needed	Throw trash	Replace soil Retrieve supplies	Retrieve supplies	Retrieve cameras?

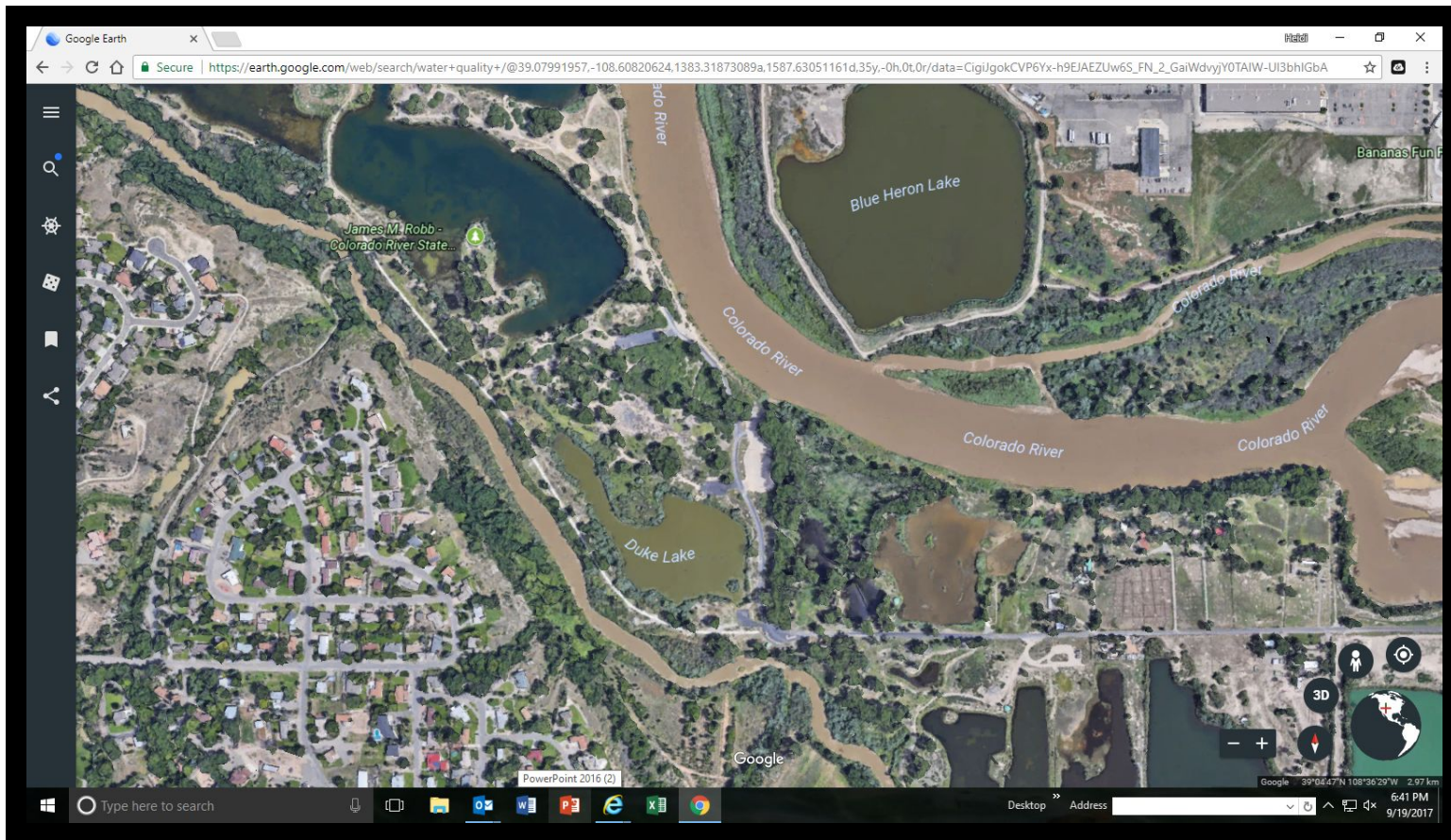
TIME	Action
735-825	1st Elective
825-845	Check in with Assigned Teacher, CNN Student News, and Page 2 in Fieldguide.
845-900	Load Busses
9-920	Drive and Unload into Science Classes
920-1010	1st Session
1015-1105	2nd Session
1105-1130	Lunch
1130 -1220	3rd Session
1220-110	4th Session
120-145	Return to West
145-240	2nd Elective

Group A	Group B	Group C	Group D
1-->2-->3-->4	2→ 3-->4-->1	3-->4-->1-->2	4-->1-->2-->3
Meet in Ragsdale's Room with Roddiger and Ragsdale	Meet in Moore's Room with Moore/Brennan	Meet in Stockert's Room with Stockert/Bell	Meet in Gregorich's Room with Gregorich and Moran
Ragsdale's 1st Block Roddiger's 3rd block Groups 1-2	Ragsdale's 2nd Block Roddiger's 3 Block Groups 3-6	Ragsdale's 3rd Block Roddiger's 4th Block Groups 1-4	Ragsdale's 4th Block Roddiger's 4th Block Groups 5-6

How do humans impact environments?

Name: _____

Science Team Members: _____



Connected Lakes State Park

October 6, 2017


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Brainstorm: How do humans impact environments?

Circle the boxes in which environmental impact could be from a chemical influence?

Station 1: Human Impacts and Scavenger Hunt Survey

Trash facts!	Trash Survey Time	Types of trash I found today.
<p>A)</p> <p>B)</p> <p>C)</p>	<p>Go to this website: goo.gl/nbJLkH</p> <p>Or</p> <p><u>Scan this QR Code:</u></p> 	<p>Total Amount of Trash:</p> <hr/>
<p><i>This means to me that</i></p>	<p><i>This means to me that</i></p>	<p><i>This means to me that</i></p>

Station 2: Soil Samples

Part 1

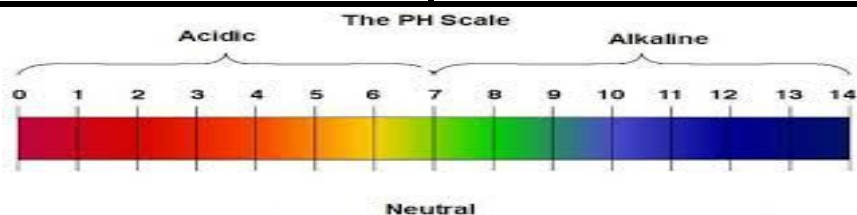
INITIAL OBSERVATIONS:

Under a Tree:

Factor	Observation
Air temp?	
Water in area?	
Plant Growth nearby:	
Coverage of Sun %:	

Not Under a Tree:

Factor	Observation
Air temp?	
Water in area?	
Plant Growth:	
Coverage of Sun %:	



Part 2:

SOIL SAMPLES	Under a tree	Not under a tree
Specific Location		
General Appearance		
Color (smudge some soil here --->)		
Smell		
Texture		
Temperature (air)	Test#1 _____ F Test #2 _____ F	Test#1 _____ F Test #2 _____ F
Temperature (topsoil)	Test#1 _____ F Test #2 _____ F	Test#1 _____ F Test #2 _____ F
Temperature (4 inches deep)	Test#1 _____ F Test #2 _____ F	Test#1 _____ F Test #2 _____ F
Predicted pH (topsoil)	Acid or Alkaline?	Acid or Alkaline?
Actual pH (topsoil)	Acid or Alkaline? pH_____	Acid or Alkaline? pH_____

*(To test the pH, for each site, use a container, add a small amount of soil, add a small amount of water and shake. Use the pH paper to test each soil solution.)
Pour out the solution when finished. Dry the containers.
Put all supplies back into baggie.*

Station 3: Water!

Stream Flow: Canal

Velocity:

Attempt one:

Distance apart in feet: _____ ft Time in seconds: _____ sec

Velocity (distance divided by time): _____ ft/sec

Attempt two:

Distance apart in feet: _____ ft Time in seconds: _____ sec

Velocity (distance divided by time): _____ ft/sec

Average velocity: (add each velocity and divide by 2)

_____ ft/sec

Width of the river/canal: _____ ft

Depth Measurement 1: _____ ft 2: _____ ft 3: _____ ft

Average depth of river/canal: (add all 3 then divide by 3: _____ ft

Formula for river discharge

$$r = v * w * d * .85$$

r=discharge in feet per second

v=average velocity in feet per second

w=average width in feet

d=average depth

What is the cubic feet of water flowing through this part of the river/canal? _____

Interesting fact: 1 cubic foot equals 7.48 gallons

An olympic size pool is 660,000 gallons. How long would it take this river/canal to fill the pool?

_____ seconds

Stream Flow: River

Velocity:

Attempt one:

Distance apart in feet: _____ ft Time in seconds: _____ sec

Velocity (distance divided by time): _____ ft/sec

Attempt two:

Distance apart in feet: _____ ft Time in seconds: _____ sec

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Interesting fact: 1 cubic foot equals 7.48 gallons

An olympic size pool is 660,000 gallons. How long would it take this river/canal to fill the pool?

_____ seconds

If there was a chemical spill in the river near Palisade, how long would it take the spill to reach Fruita 25 miles away if the river was running the same speed as was where you tested it?

Station 4: Photography and Change

Tips for Great Photography!	Our Team's photos today.	Potential Ideas for our own awareness video/PSA:					
<p>5 Rules for Great Photography!</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="height: 40px; vertical-align: top;">A.</td></tr> <tr><td style="height: 40px; vertical-align: top;">B.</td></tr> <tr><td style="height: 40px; vertical-align: top;">C.</td></tr> <tr><td style="height: 40px; vertical-align: top;">D.</td></tr> <tr><td style="height: 40px; vertical-align: top;">E.</td></tr> </table>	A.	B.	C.	D.	E.	<ol style="list-style-type: none"> 1. 2. 3. 4. 5. <p><i>(Store these in your google drive, phone's photos, or send to hbrungar@d51gapps.org) You will need these at the end of the unit.</i></p>	
A.							
B.							
C.							
D.							
E.							
<p><i>This means to me that</i></p>	<p><i>This means to me that</i></p>	<p><i>This means to me that</i></p>					

Final Reflection:

What are some of the direct connections from your experience today, that tell you how humans impact local ecosystems? Draw a picture with labels.

What are 5-6 ways that West Middle School can be more aware of and responsive to our own use of plastics (Reduce, reuse, recycle) within our school?

TEACHER


STATION

DIRECTIONS

Station 1: Human Impacts and Scavenger Hunt Survey

PURPOSE	
MATERIALS	
ACTIVITY	<p><i>INTRO: (minutes)</i> <i>Trash Facts:</i> <i>A. Reduce Recycle Reuse!</i> <i>B.</i> <i>C.</i></p> <p><i>MAIN ACTIVITY: (minutes)</i> <i>WRAP UP: (minutes)</i></p>
STUDENT JOURNAL ENTRIES	<p><i>List what the kids will list in their journals.</i></p>

Station 1: Human Impacts and Scavenger Hunt Survey

Trash facts!	Trash Survey Time	Types of trash I found today.
A) B) C)	Go to this website: https://survey123.arcgis.com/share/4416c27afc3a447faa813acfa02b3037 Or scan this QR Code: 	
This means to me that	This means to me that	This means to me that

Station 2: Soil Samples

PURPOSE					
MATERIALS					
ACTIVITY	<i>INTRO: (minutes)</i> <i>MAIN ACTIVITY: (minutes)</i> <i>WRAP UP: (minutes)</i>				
STUDENT JOURNAL ENTRIES	<p><i>List what the kids will list in their journals.</i></p> <p style="text-align: center;"><i>Station 2: Soil Samples</i></p> <table border="1" data-bbox="428 711 1423 1344"><thead><tr><th data-bbox="428 711 926 756"><i>Part 1</i></th><th data-bbox="926 711 1423 756"><i>Part 2: Historical Gravel Pits</i></th></tr></thead><tbody><tr><td data-bbox="428 756 926 1344"></td><td data-bbox="926 756 1423 1344"></td></tr></tbody></table>	<i>Part 1</i>	<i>Part 2: Historical Gravel Pits</i>		
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Station 3: Water!

PURPOSE	
MATERIALS	
ACTIVITY	<i>INTRO: (minutes)</i> <i>MAIN ACTIVITY: (minutes)</i> <i>WRAP UP: (minutes)</i>
STUDENT JOURNAL ENTRIES	<i>List what the kids will list in their journals.</i>

Station 3: Water!

Stream Flow	Water Quality								
<p>Velocity is _____. The velocity of the stream is: _____.</p>	<p>Location: _____ pH Means: _____ Turbidity means: _____ Dissolved Oxygen means: _____</p> <table border="1" data-bbox="1010 391 1572 526"><thead><tr><th data-bbox="1010 391 1152 453">Temp</th><th data-bbox="1152 391 1293 453">Dissolved Oxygen</th><th data-bbox="1293 391 1434 453">Turbidity</th><th data-bbox="1434 391 1572 453">pH</th></tr></thead><tbody><tr><td data-bbox="1010 453 1152 526"></td><td data-bbox="1152 453 1293 526"></td><td data-bbox="1293 453 1434 526"></td><td data-bbox="1434 453 1572 526"></td></tr></tbody></table>	Temp	Dissolved Oxygen	Turbidity	pH				
Temp	Dissolved Oxygen	Turbidity	pH						

Mock Chemical Spill #1:
There has been a hazardous spill in the

Mock Chemical Spill #2:

Station 4: Photography and Change

PURPOSE	
MATERIALS	
ACTIVITY	<i>INTRO: (minutes)</i> <i>MAIN ACTIVITY: (minutes)</i> <i>WRAP UP: (minutes)</i>
STUDENT JOURNAL ENTRIES	<i>List what the kids will list in their journals.</i>

Station 4: Photography and Change

<i>Tips for Great Photography!</i>	<i>My photos today.</i>	<i>Potential Ideas for our own awareness video/PSA:</i>
	1. 2. 3. 4. 5.	
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Scenario 1	Scenario 1	Scenario 1	Scenario 1