

**"Water, water, everywhere, / Nor any drop to drink":
Flint, Its Water Crisis, and Our Classrooms**



**Gregory J. Dykhouse, Black River Public School (Holland, MI)
June 2020**

The University of Michigan's "Center for Middle Eastern, North African, and Southeast Asian (MENA-SEA) Studies" launched an initiative for the 2019-2020 academic year, a "Teacher Program," to introduce and present an array of topics for secondary teachers, in support of their instruction within their schools and districts.

Topics, all connecting to geographical regions of the Middle East, North Africa, and Southeast Asia, were wide ranging: general histories of the regions; ethnic and religious minorities; narratives and diasporas; "the Arts"; genocide, historical memory, and justice; anthropology of religion; gender; literature, graphic novels, and film documentary.

These topics may align comfortable with the academic objectives for most disciplines, such as Language Arts or other fields connected to the Humanities. The material, though, meets with unique challenges for teachers of History, both in terms of content and skills. For them, the MENA-SEA Program provides content material that supports the aims of state and national academic standards; however, teachers will need to harness this important content with the "reigns" of new skill applications that appear in both state and national frameworks.

Students in secondary education today (grades 6-12) have specific targets, both content and skill, highlighted in academic standards. Content includes World Geography, Ancient World Societies and Civilizations, US History, Modern World History, US Government and Politics (Civics), and Economics. These categories appear all-encompassing, but case studies that connect to the Middle East, North Africa, and Southeast Asia number few.

Guidance in "skill" applications has received greater definition during recent years. Both the state of Michigan and the College Board's Advanced Placement Program share impressive identification of authentic skills, the actual work of historians, within their respective frameworks of academic standards and benchmarks. These frameworks reveal themselves essentially as a process of "Historical Inquiry," which is ordered as posing a question ("How/Why" questions appear most useful); conducting research; formulating a position statement (argument or thesis); and supporting the position with specific evidence. This process of inquiry is supported in the Common Core Standards for Reading and Writing (<http://www.corestandards.org/ELA-Literacy/CCRA/R/>; <http://www.corestandards.org/ELA-Literacy/CCRA/W/>).

Evidence is not merely applied as support, but it is analyzed through an array of criteria. The analysis of evidence is also directed to connect with various “historical thinking skills” that Historians employ in the work: contextualization, causation, compare/contrast, change/continuity over time. With the identification process and tools reflective of the actual work of Historians, it seems that teachers are positioned to explore topics with students in a manner employed by Historians, rather than merely provide worksheets that are detachments from authentic practice. Furthermore, the application of “Historical Inquiry” and “Historical Thinking Skills” bridges a chasm for young learners, allowing them to learn outside of their frame of reference, to grow as students, budding scholars, and young people, and to discover creative pursuits beyond secondary education.

With this reappraisal of skills, *how should a history teacher align activities and explorations of content material and authentic skills?*

Connect Distant or Otherwise “Abstract” Material to a Personal Frame of Reference.

Most Michigan students have no personal connection to regions of the Middle East, and even fewer may ever travel there. How are students of Michigan connected with the history and culture of the Middle East?

One opportunity to identify a connection is to read the recent publication from Dr. Mona Hanna-Attisha, a Flint pediatrician who was born in Iraq; her best-selling books is *What the Eyes Don't See. A Story of Crisis, Resistance, and Hope in an American City*. “Hanna-Attisha is the founder and director of the Michigan State University and Hurley Children’s Hospital Pediatric Public Health Initiative, an innovative and model public health program in Flint. Currently an associate professor of pediatrics and human development at the MSU College of Human Medicine, she has been named one of Time magazine’s 100 Most Influential People in the World for her role in uncovering the Flint water crisis and leading recovery efforts. She was one of the first to question if lead was leaching from the city’s water pipes after an emergency manager switched the city’s water supply to the Flint River in 2014. She also is committed to increasing literacy in Flint and elsewhere” (“Dr. Mona Hanna-Attisha’s Book, *What the Eyes Don't See*, Chosen as This Year’s Great Michigan Read”).

Rationale

Why read Dr. Mona Hanna-Attisha’s book *What the Eyes Don't See. A Story of Crisis, Resistance, and Hope in an American City*? This book reveals how government actions led to human suffering and fatality, of the most vulnerable citizens. Additionally, the book shares how human understanding is not static, for it changes over time (as an example, our understanding of the element of lead). Furthermore, the book directs readers to consider how human collective learning, the knowledge of the wider world, is to be harnessed and applied in advocacy for the betterment of individuals, societies, and the natural world.

Rarely do young learners read a work of non-fiction, from cover-to-cover. This book provides these readers with opportunities to construct meaning from narrative; to explore a specific story (water crisis in Flint) and consider how the account compares or contrasts to stories on larger scales over time and space (industrialization, urbanization, immigration); to learn how specific disciplines (biology, chemistry, history, public health, government agencies, among others) work together to unveil deeper and new understanding of a topic; to identify how discoveries and inventions accelerate necessities for change for us and other life species, as we work to sustain a quality of life for our future; and to test claims and arguments presented in the text.

Introduction to the Flint Water Crisis

Have your students locate Flint, Michigan, on a map, then determine the distance between Flint and their home. Ask students if they have been to Flint; ask them if there are any connections between Flint and their home town.

Two online programs serve as fine introductions to the Flint water crisis, a CBS Sunday Morning article and a PBS Nova program (“Exposing the Flint water crisis,” 10 min., https://www.youtube.com/watch?v=pd2qxi2mF_4; “NOVA: Poisoned Water,” 54 min., <https://www.pbs.org/video/poisoned-water-jhhegn/>). Ask the students to write down ideas that interest them from the CBS Sunday Morning program (What stands out? What more would students like to learn?). Then view together the PBS NOVA program together (questions for discussion may be found under “Other Material”).

Introduction with the Target Book

How do young students read a work of non-fiction, cover-to-cover, and construct understanding from the material? I have found the following suggestions helpful with my young readers. I make available a “template” for students to use; they record the chapter, title and pages, then select one or more of the following strategies to record information: target vocabulary; interesting sentences or phrases; connections they may make (connect this material with something else); “What do readers need to know from this section?” or “What is the main idea?”; or additional thoughts (this template is included under “Other Material”). The pedagogy employed is “constructivism,” the strategy of allowing students to construct meaning from each chapter. Students need not utilize the same approach for each chapter, but they must practice recording information that makes sense to them, then later use this material on a website platform that they will design.

After students have viewed the introductory material from CBS and NOVA and after they have considered the template form, it is time to plunge into the book. I suggest beginning with Chapter 11, “Public Health Enemy #1,” which presents how our understanding of lead has changed over time, from the early complex societies of Mesopotamia to the modern age of the European Renaissance, then to the twentieth century, when lead was introduced to gasoline. The students will learn the contributions of Charles Franklin Kettering and Alice Hamilton. I have asked students to design one-page visual organizers that depicted the main ideas from this chapter; they have enjoyed sharing their findings with their peers, and they can explain how lead entered our atmosphere and why this is potentially a hazardous development for our species.

The task then becomes having students read each chapter and note important information (construct individual meaning) from each chapter.

Designing Website Platforms to Display Knowledge of Material

What do students do after they have read the book and noted material? They are to design a website platform to display their work. I share with students that I know what students do with posters and other large projects after they have completed and submitted them; they throw them away. A website may easily be sustained and edited. It is also portable and may be displayed easily for other audiences. I encourage students to consider using their website as a “credential” on a future college application; college admission officials want to see applicants who are “well-read” and proficient in using technology. The website emerges as a fine platform to share with other professionals. I share a rubric for the website under “Other Material.”

I require students to display four components on the website: content material (items from the template); visuals and organization; “Historical Inquiry Process” and “Historical Thinking Skills”; and “Works Consulted” following MLA format. The following targets were introduced in the open of this lesson:

“Historical Inquiry Process”	“Historical Thinking Skills”
1. Pose a How/Why Question	1. Contextualization
2. Conduct Research	2. Causation
3. Formulate an Argument/Thesis/Position Statement	3. Compare/Contrast
4. Support Statement with Specific Evidence	4. Change/Continuity over Time

I ask students to display the “Historical Inquiry Process” on their website; they often explain this process on one of their pages. I ask, too, that they select one of the “Historical Thinking Skills” and explain how it applies to their work. Students have seen these terms throughout the year; now they have an opportunity to explain how one of the skills applies to the Dr. Hanna-Attisha’s book.

Additionally, the one-page organizer (assigned for Chapter 11) may be included on the website, as an item that students photograph and upload to the platform or as an attached document. Students may wish to include videos or podcasts (either recorded products or work that they have made themselves). The website platform invites creative components at the same time that “quality work” is encouraged.

I usually launch this lesson in mid-January and students usually have it completed by mid-March. Our class meets three days each week, for ninety-minute sessions. We do not devote each class period for this work; I continue to present lessons in History and students use both class time and “homework time” to complete their reading and websites. On March 24, 2019, our students were able to present their work at a public forum, the Holland Symphony Orchestra’s “Family Concert,” “HSO and H2O”; students displayed their websites on Chromebooks for the audience to see. As concert attendees arrived, the students discussed their work with them. Without hesitation, adult and community attendees to the concert were impressed by both the quantity and quality of knowledge displayed by the students (“I can’t believe that these young high school freshmen know more about the Flint water crisis than I do!”).

As a culminating assessment or reflection, after submission of the website, I assign a “quiz” for students to complete (please see “Other Materials”).

Examples of Student Work

<https://sites.google.com/brpsk12.org/wteds-literary-analysis/introduction>
<https://sites.google.com/brpsk12.org/flintwatercrisis-2020chesser/home>
<https://sites.google.com/brpsk12.org/flint-water-crisis-oliviaemig/home>
<https://sites.google.com/brpsk12.org/avery-mangum-2020/home>
<https://sites.google.com/brpsk12.org/clarasflintwatercrisiswebsite/home>
<https://sites.google.com/brpsk12.org/carmenswebsite/home>
<https://sites.google.com/brpsk12.org/flintwatercrisishistory/home>
<https://sites.google.com/brpsk12.org/leadinourwater/home>
<https://sites.google.com/brpsk12.org/water-crisis/> <https://sites.google.com/view/whattheyesdontsee/home>
<https://analysis-of-dr-mona-hanna-attisha-s-what-the-eyes-don-t-see.webnode.com/>
<https://sites.google.com/brpsk12.org/leadisbad/home>
<https://sites.google.com/brpsk12.org/drhannaattisha-audreybortner/home>
<https://sites.google.com/brpsk12.org/thepowerofresistance/home>
<https://pereiras59.wixsite.com/lead-in-flint-water>

<https://beachaml.wixsite.com/whattheyesdontsee>
<https://sites.google.com/brpsk12.org/whattheyedontsee/home>
<https://freimarka.wixsite.com/whattheyesdontsee>
<https://sites.google.com/brpsk12.org/whattheyesdontseebrps/home>
<https://sites.google.com/brpsk12.org/a-reflection-of-what-the-eyes-/home>
<https://sites.google.com/view/what-the-eyes-dont-see/home>
<https://sites.google.com/brpsk12.org/what-the-eyes-dont-see/chapters>
<https://sites.google.com/brpsk12.org/nolanandsam-whattheyesdontsee/>
<https://sites.google.com/brpsk12.org/wteds-chapteranalysis/home>

Lesson Sequence

Early sections of this “teaching implementation plan” have been described in earlier sections, but to summarize the “steps,” a teacher may wish to follow these procedures:

1. Opening Launch: identify Flint within Michigan; view two programs in class; discuss and complete questions (2-3 hours)
2. Guided Inquiry: read Chapter 11 together, small groups in class, at home; assign small groups to design one-page organizers to share in class (pages 145-160; 2-3 hours)
3. Independent Practice: read the whole book; “construct” meaning from each chapter; design a website platform (2 months)
4. Sharing and Reflection: schedule a day of sharing within the classroom or school; connect with a community event that supports the exchange of ideas regarding public health (1-2 days)
5. Assessment: complete the one-page “quiz”

Extensions and Further Applications

The quality of life within Michigan is improved through the remarkable contributions of its citizens, and many of these citizens come from remote locations. Dr. Mona Hanna-Attisha was born in Iraq; she and her family arrived in Michigan when she was very young. Under the current immigration restrictions implemented by our federal government, it is dubious whether she and her family would be allowed to enter our country today. To find out more about her, and a brief history of immigrants to Michigan from the Middle East, please see “Michigan Humanities. Great Michigan Read. Reader’s Guide, 2019-2020, *What the Eyes Don’t See*.”

“MIHumanities” (formerly, “Michigan Humanities Council”) includes many suggestions for how teachers and students may approach the topic of the Flint water crisis and Dr. Hanna-Attisha’s book (“Michigan Humanities. Great Michigan Read. Teacher’s Guide, 2019-2020. *What the Eyes Don’t See*”).

This unit accomplishes several goals:

1. Students read, cover-to-cover, and discuss a major work of non-fiction.
2. Students strengthen proficiencies in reading, writing, and speaking.
3. Students display knowledge of material using tools of computer technology.
4. Students employ the actual practices of historians, through “Historical Inquiry” and “Historical Thinking Skills.”
5. Students combine features and specializations of disciplines, entering into explorations of cross-disciplinary, multi-disciplinary, or interdisciplinary fusions.
6. Students recognize complexity and diversity within the state of Michigan.
7. Students look at topics of local experience and consider how they relate to experiences within the larger framework of world history.

Other Materials

NOVA, “Poisoned Water. What exactly went wrong in Flint—and what does it mean for the rest of the country?” (<https://www.pbs.org/video/poisoned-water-jhhegn/> 54:00 min.)

Additional resources: <https://www.pbs.org/wgbh/nova/video/poisoned-water>

Water. Turn on the faucet and it’s always there. Without it we perish. But how safe is our tap water? In this special report narrated by Joe Morton, NOVA investigates what happened in Flint, Michigan, when local officials changed the city’s water source to save money, but overlooked a critical treatment process. As the water pipes corroded, lead leached into the system, exposing the community—including thousands of children—to dangerous levels of poison. NOVA uncovers the science behind this manmade disaster— from the intricacies of water chemistry to the biology of lead poisoning to the misuse of science itself. NOVA follows ordinary citizens and independent scientists who exposed the danger lurking in Flint’s water and confronted those who turned a blind eye. And discover the disturbing truth that reaches far beyond Flint—water systems across the country are similarly vulnerable. How can we protect ourselves from poisoned water?

1. Why did the City of Flint switch its source of water from the Detroit system to the Flint River?
2. “Since the late 1950s, G.M. closed seven major facilities in the region. Tens of thousands of jobs were lost. In 2011, with the city close to bankruptcy, Governor Rick Snyder stripped power from city officials and assigned a series of emergency managers to fix Flint’s financial crisis.” What is interesting about this statement?
3. What happened to some people in Flint after the water switch?
4. Why did General Motors switch back to Detroit water on its own?
5. Who is Miguel Del Toral?
6. What is the EPA?
7. The EPA allows a lead and copper measure of 15 parts per billion (ppb); what were the measures from Leeanne Walters’ house?
8. Does lead intake affect IQ measures?
9. What is “corrosion control treatment”? Was Flint following this practice?
10. Who is Marc Edwards?
11. Who is Elin Betanzo?
12. “I called up this woman who had very high lead and she asks us, ‘So how much does a filter cost?’ And we’re like, ‘It’s \$25.’ And she goes, ‘Well, I’m on social welfare. There’s no way I can afford \$25 in the next two months.’ I’ve never felt so helpless in my life.” What is interesting about these statements?
13. How would you summarize the messages in this documentary?
14. How would you respond to this question: “How do humans respond to the challenges of the twentieth and twenty-first centuries?”

Template for Constructing Meaning from Chapters

Mona Hanna-Attisha, *What the Eyes Don't See: A Story of Crisis, Resistance, and Hope in an American City* (2018)

Chapter:

Title:

Pages:

<p><i>How do you take information out of "non-fiction"?</i></p> <p>Target vocabulary:</p> <p>Interesting sentences or phrases:</p> <p>Connections I make (connect this material with something else):</p> <p>What do readers need to know from this section? What is the main idea?</p> <p>Additional thoughts:</p>	<p>(my reflections)</p>
---	-------------------------

Rubric for Website Design

Hanna-Attisha, Mona. *What the Eyes Don't See: A Story of Crisis, Resistance, and Hope in an American City*. One World Trade Paperback, 2019.

Website Design Project; this project may be a work that you wish to share with other people, such as College Admission officers (“Look how well I work with technology!”). These people are interested in knowing that you can read well!

1. Read our book well; you are encouraged to note interesting and important information, using the model template (see reverse side)
2. Design a website platform to display your work; you may work alone or with a partner; use an engine such as Google Sites, Weebly, Wix, Wordpress (dozens of others)
3. Your website platform is to share good CONTENT, VISUALS/ORGANIZATION, “HISTORICAL THINKING SKILLS,” and “WORKS CITED” PAGE
4. Other interesting connections (Thor Heyerdahl; individuals from History; many possibilities)
5. Due dates: A, March 19; C, D, F, March 20

We may show our work at Hope College’s Miller Center for the Musical Arts, Tuesday, March 24, as part of Mona Hanna-Attisha’s public appearance, 9:00 – 11:00 am (**NOW CANCELLED**).

	Content	Visuals, Organization	Historical Thinking Skills	“Works Cited” Page
“Superior” (A, B)	Website shares specific, useful information from <u>25</u> chapters Website displays good knowledge of material; website displays good creativity	Website features <u>several</u> useful visuals and is <u>well</u> organized	Website shares a <u>driving question</u> ; <u>research</u> ; <u>strong argument statement</u> ; <u>evidence to support argument</u> Website shows “change over time”; “causation”; or “compare/contrast”	Follows MLA format
“Satisfactory” (C)	Website shares specific, useful information from <u>10</u> chapters Website displays some knowledge of material; website displays some creativity	Website features <u>a couple</u> of visuals and <u>suggests</u> organization	Website suggests “historical inquiry” steps and “historical thinking skills”	Somewhat follows MLA format
“Emerging” (D, F)	Website shares specific, useful information <u>fewer than 10</u> chapters Website displays little knowledge of material; website displays little creativity	Website <u>does not</u> feature visuals and organization is <u>weak</u>	“Historical inquiry” and “historical thinking skills” not evident	No page offered

Quiz: *What the Eyes Don't See*

Did you complete the reading of the book by Dr. Mona Hanna-Attisha? Y N

How many chapters did you develop on the website?

Historical Inquiry

What was your HOW/WHY question?

Identify and explain five different features that you discovered through RESEARCH:

What was your THESIS STATEMENT?

Historical Thinking Skills

Did you include a Historical Thinking Skill (Causation, Compare/Contrast, Change and/or Continuity over Time, Contextualization) as part of our work? Y N How did you do this?

Website Questions

What website engine did you use? Why did you make this choice?

List and explain five important ideas that you included on the website:

Why is your topic worthy of attention and study? Why is it important for others to know?

Did you include a BIBLIOGRAPHY or WORKS CITED section? Y N Did you follow the MLA format? Y N

What is "quality work"? Does your project display "quality work"? Explain your response:

Resources

Hanna-Attisha, Mona. *What the Eyes Don't See. A Story of Crisis, Resistance, and Hope in an American City*. One World, 2019.

This publication is available in many forms that support well students with special learning needs; see your Special Education staff for convenient tools.

“Michigan Humanities. Great Michigan Read. Teacher’s Guide, 2019-2020. *What the Eyes Don't See*” (<https://www.michiganhumanities.org/documents/gmr/GMR%20Teachers%20Guide.pdf>).

“Michigan Humanities. Great Michigan Read. Reader’s Guide, 2019-2020, *What the Eyes Don't See*” (<https://www.michiganhumanities.org/documents/gmr/GMR%20Readers%20Guide.pdf>).

“Dr. Mona Hanna-Attisha’s Book, ‘What the Eyes Don't See,’ Chosen as This Year’s Great Michigan Read.” *MIHumanities*. <https://www.michiganhumanities.org/dr-mona-hanna-attishas-book-what-the-eyes-dont-see-chosen-as-this-years-great-michigan-read/>.

For additional resources on “Historical Thinking Skills” (Contextualization, Causation, Compare/Contrast, Change/Continuity over Time), refer to material from the “OER Project” (<https://www.oerproject.com/>), a platform that offers curriculum in “The Big History Project” and “The World History Project.” As one example of “Historical Thinking Skills,” the concept of Contextualization is presented as “Frame Concept Introduction | World History Project” (<https://whp.oerproject.com/WHP-Media/Videos/Era1/Frame-Concept-Introduction>; 7:45 min.). Whereas many teachers may recognize the conventional listing of “political, economic, social” factors, this presentation introduces “Communities, Production and Distribution, Networks” as “frames” with which to explore the past, present, and future.