

## **Curriculum Proposal: Water, Water, Everywhere?**

**School Mission:** We are here to provide an authentic, nurturing and academically challenging learning environment for high school students that connects them to the world outside of school, in meaningful ways and promotes a positive sense of community, enthusiasm for learning and critical thinking.

**Curriculum Model Decision:** We are utilizing elements of both a Humanistic Curriculum and a Social Reconstructionist curriculum. The Humanistic elements found in our curriculum are: 1) A transformative curriculum that asks students to engage in activities designed to encourage growth. 2) Students will also take part in interactive lessons that rely on more than textbook information and facts. They are asked to problem solve.

The Social-Reconstructionist elements found in our curriculum are: 1) Students are asked a general question about a current social problem. 2) Students are then engaged in activities that help them understand the problem and asks them to come up with ways to solve the problem. 3) Students work with many people in a variety of communities. 4) Students are asked to perform real work in their community.

**School Context:** Our high school is located in a suburban area with students from low to mid socioeconomic statuses. We teach Junior English. Our students are on the academic track to graduate and pursue post secondary education. Students achieve at the expected grade level with a few outliers in both directions. Parents are involved with PTO and Booster Clubs.

### **Curriculum Abstract- Water, Water, Everywhere?**

High School Junior English Spring Semester, Quarter 4

Students will meet the learning objectives from the CCSS in English/Language Arts as purposed by the Common Core Curriculum Standards through the learning activities provided in our lessons and activities. To see the standards, please visit the goals section. Our intent is for our students to understand the impacts of not having clean drinking water readily available. Students are also asked to problem solve and seek solutions to this topical issue.

**External Issues:** We are going to investigate issues related to obtaining clean drinking water in the United States and abroad. Including the Flint, Michigan, Droughts in California and Flooding in the South, Flood Management along the Kansas River, and Lack of Clean Water Abroad.

**Goals:** We are aligning our goals with the following Common Core Curriculum Standards:

CCSS.ELA-LITERACY.RI.11-12.3: Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.

CCSS.ELA-LITERACY.RI.11-12.7: Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

CCSS.ELA-LITERACY.RST.11-12.: Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

CCSS.ELA-LITERACY.RST.11-12.8: Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

**Objectives:** Students will understand the direct impact of the lack of clean drinking water and their role in water conservation.

Students will be able to answer the following questions based upon their research and class discussion including learning activities in other Core Areas over weekly topics. (Flint, Michigan, Droughts in California and Flooding in the South [Mississippi River & Louisiana], Flood Management along the Kansas River, and Lack of Clean Water Abroad [Africa, India, Europe].

1. What is the water crisis in this area? Is it historically significant or does it follow a cyclical trend?
2. What events led to the water crisis in this area?
3. Who and/or what are responsible?
4. Who and/or what are the crisis impacting?
5. What is being done to alleviate the negative impact?
6. What can I as a student do to make a change and prevent further issues from developing?

**Instructional Approaches:** We are going to use various approaches to explore this curriculum. Teachers will provide direct instruction to present the ideas, goals, and projects for the week. Students will be expected to work individually and in groups on projects aligned with the goals. Additional resources such as streaming videos, informational interviews with local agencies and affected individuals, podcasts, websites, and library materials are encouraged but are not all-inclusive lists.

**Content:** This curriculum will be presented as an interdisciplinary approach; we are focusing on the Junior English class curriculum. Students will be working on the same subject matter in their core classes (Math, Science, and History) through a variety of activities and lessons. This content is consistent with selected state standards listed in the Goals section.

**Learning Activities:** Students begin the following unit with many different lessons that are more facilitator centered. They are then transitioned into more student-centered activities. They are given guides on how to perform activities, but they are responsible for the process and making generalizations based on their end results. These results may vary from student to student.

Some assignments are individually performed (IE writing poetry, gathering data, reading and annotating articles, etc.). Also, many of the small-term, project based activities are designed to help prepare students for the culminating project which is to propose a plan for action that positively impacts any of the water crises studied throughout the semester.

The following lesson plans are aligned with the chosen goals and objectives:

#### Week 1: Water Issues: Local Flooding & Flood Management

##### **Monday: Introduce the topic of local flooding:**

- Talk about the Flooding in Topeka and surrounding areas in May of 2015. Use the following local news reports to show videos and pictures of the flooding.
- <http://www.wibw.com/home/headlines/Heres-How-The-Flash-Flooding-Looked-To-NE-Kansans-302493081.html>
- <http://fox4kc.com/2015/05/05/kansas-state-university-floods-due-to-large-amounts-of-rain/>
- <http://floodlist.com/america/usa/record-rain-causes-flash-floods-kansas-texas>
- Use the following videos to show flooding in the area in the past. (Flood of 1951)
- <https://www.youtube.com/watch?v=bePUOaFE9TY>
- Critical Thinking Skill Builder: As a class, create a list of the impacts of flooding. Think: Environmentally, Economically,

##### **Tuesday: What to do Before, During and After a Flood**

- Divide class into three groups.
- Using the Internet and iPads, groups will create a 5-minute, ten-slide PowerPoint on what to do during their assigned stage (before, during or after) of flooding.
- At 20 till the end of the hour, groups will present their slides.
- **Assignment:** We will have a guest speaker tomorrow who experienced the loss of her business in last year's flooding. Please

add 2 questions to our Edmodo discussion board to ask our speaker.

### **Wednesday: Guest Speaker, Shannon Babcock**

- Guest Speaker Presents
- Q & A
- Pop Quiz (9 questions from yesterday's presentations)

### **Thursday: Local Flood Management**

- Introduce the Army Corps of Engineers  
<http://www.iwr.usace.army.mil/Missions/FloodRiskManagement/FloodRiskManagementProgram.aspx>
- Talk about Tuttle Creek, Perry Lake and Clinton Lake Dams
  - Flood Prevention
  - Drought Relief
  - State Parks & Wildlife Habitats
  - Boating, Fishing & Recreational Camping
  - **Assignment:** Choose one topic discussed in class above and write 2 paragraphs (positive or negative/for or against) the impact of these Dams on our state. **Due Monday**

### **Friday: Field Trip to Perry Lake**

- <https://www.facebook.com/PerryLakeUSACE/>
- Dam Tour & Picnic
- **Assignment:** Water/Nature Poems & Haikus **Due Monday**

Week 2: Water Issues: Nation Flooding

### **Monday: Flooding is more than a local issue.**

- Using <http://floodlist.com/america/usa> choose an article about flooding in the United States and write an article summary and response.

### **Tuesday: Hurricane Katrina**

- This Infographic will show us the flooding that took place in New Orleans during Hurricane Katrina.  
[http://www.nola.com/katrina/index.ssf/2015/08/katrina\\_flooding\\_map.html](http://www.nola.com/katrina/index.ssf/2015/08/katrina_flooding_map.html)
- This man used his words in poem and rhyme to express his memories of this disaster, and possibly to heal from his experiences. <http://www.history.com/topics/hurricane-katrina/videos/hurricane-katrina-superdome-poem>
- There are several “I was there” Videos at this link that you can view at your leisure.

- Return your poems & haikus from last week. Now seeing how this man used his experiences and feeling in his work would you like to make changes to yours?
- **Assignment:** Write a new poem or haiku to express your feelings toward a challenging time in your life.

### **Wednesday: do humans make Flooding worse?**

- In Class Activity. Read the article at the site listed  
<http://phys.org/news/2016-02-missouri-manmade-calamity-scientist.html> write an article summary and response.

### **Thursday: Sandbag Service Project**

- The Junior class will volunteer today with the Army Corps of Engineers to make sandbags in preparation for this spring and summer flood seasons.

### **Friday: Flood Kits**

- With the things that we have learned, decide what needs to be in a flood kit for your family. Decide what to include and how to keep it in a safe place for easy access. Make a list of everything you would need for at least a week, draw a picture of the container (remember the conditions you will be in, do we need to think about waterproofing?) and write out emergency procedures for you and your family.
- Extra Credit: If you actually assemble this kit at home, bring in your kits and show them off in class.

Week 3: Water Issues: California Droughts

### **Monday: Introduce the Topic of Droughts**

- Students access the following video on their ipads and complete a guided note sheet over the definition of what a drought is and the four approaches for measuring droughts.  
<http://science.howstuffworks.com/nature/226-how-drought-works-video.htm>
- Students are next shown a demonstration of the “direct” and “indirect” effects of a drought through the use of labeled dominoes. On white dominoes, the teacher has labeled each domino with a different effect (IE: farmer’s corn crops dying, farmers not having enough money to buy tractors, the farmer stops buying as much corn, the dealer loses money, etc.) He/She reads each one out loud

as she places them together in a row. The teacher then illustrates the cause and effect of droughts by pushing over the first domino.

- Students are divided into mixed ability groups and each handed ten dominos. Each group is given a different area of concern to focus in on (IE Farmers, animals' lives, etc.) and asked to create their own cause and effect chain comprised of 10 different events.
- Students complete an exit ticket before leaving the classroom. They identify the four approaches for measuring drought.

### **Tuesday: How has drought changed the Californian Landscape?**

- The classroom is set up in two sections with each group facing the other in what is called a "horseshoe." Students on the left half of the room are given the article from PBS News Hour entitled: "See How a Historic Drought Has Changed California's Landscape"  
<http://www.pbs.org/newshour/updates/how-californias-historic-drought-has-left-the-state-thirsty/> These students are asked to answer the following questions while they are reading: What is happening to California? How is the drought affecting California's resident? How does the drought affect the rest of the country?
- The other side of the room is asked to read an article from the New York Times entitled, "California Imposes First Mandatory Water Restrictions to Deal With Drought"  
[http://www.nytimes.com/2015/04/02/us/california-imposes-first-ever-water-restrictions-to-deal-with-drought.html? \\_r=1](http://www.nytimes.com/2015/04/02/us/california-imposes-first-ever-water-restrictions-to-deal-with-drought.html?_r=1) These students are asked to answer the following questions while they are reading: What are some of the things the governor is doing (or can do) to help save water? What would you do if you were governor?
- As a whole group, students discuss the articles and list important points on the board.
- On Edmodo, students are asked to post their predictions of how much water in gallons they use on a daily basis.

### **Wednesday: How much water do you use?**

- Students fill in the survey found at:  
<http://water.usgs.gov/edu/activity-percapita.html> to find out how much water they use on average.
- On the Promethean board, students come up and type in their results. Students are then asked to figure out the class average. As a class, students brainstorm possible ways to lower the amount of water they consume on a daily basis.

- On edmodo, the students respond to the following prompt: Based on your personal consumption of water, how much would you be affected by the California governor's restrictions?

### **Thursday: Field trip to Local Elementary School**

- Each student is paired with an elementary school student and asked to create an interactive Science notebook by exploring the website: <http://www.discoverwater.org/> This website is interactive and teaches students about the role of water in their lives. The students' roles are to help the younger students navigate the game and find information.

### **Friday: Action Plans**

- Students take their calculation from Wednesday's activity and decide how much they would like to try to reduce their water consumption on a daily basis.
- Students also take a look at the "action plans" located on the website that they explored with the elementary students and decide which of these they can commit to for a week.
- On Edmodo, students write up their action plan, their goals for the end of next week, and how they are going to monitor their water use.

Week 4: Water Issues: Flint, Michigan Crisis

### **Monday: Introduce the topic of the Flint, Michigan Crisis**

- As a whole group, students watch a video on PBS News Hour that explains the crisis.  
[http://www.pbs.org/newshour/extra/daily\\_videos/poison-water-in-flint-affects-everyones-health-especially-kids/](http://www.pbs.org/newshour/extra/daily_videos/poison-water-in-flint-affects-everyones-health-especially-kids/)
- In small groups, students discuss and answer the following questions: a) Why was the state and local government's response to the increased levels of lead in Flint's water so delayed? b) Who is to blame for allowing this crisis to reach this point? How should they be held responsible? c) Given the known effects of lead poisoning on children, what additional issues can Flint most likely expect to see in the coming years? d) Lawrence Reynold's said he thinks the response to the crisis would have been very different if it had happened in places with different racial and economic demographics than Flint? Do you agree? If so, how do you think the situation would have differed?

### **Tuesday: How is Lead Toxic?**

- Students are given a printed copy of the following brochure on the effects of lead: [atsdr.cdc.gov/toxguides/toxguide-13.pdf](https://atsdr.cdc.gov/toxguides/toxguide-13.pdf)
- Students are then asked to go to Canva.com and create their own infographic of the information they have gained from the brochure.
- The infographic is to be designed with the public in mind and should be user friendly. Students are graded based on a rubric.

### **Wednesday: How do we compare to Flint Michigan?**

- On a giant bulletin board, the teacher has a copy of a fairly detailed map of the city. Students are asked to take a pin and mark the location of their house and label it.
- Students then listen to a presentation from the Science teacher about how to properly collect samples.
- For homework: The students will be provided with two Zip-lock style plastic bags, a plastic spoon, a sealable 10mL container for sampling water, and a piece of masking tape for labeling their sampling containers. The teacher will go over the sampling instructions, and each student will attach the label on their plastic bags and 10mL container before leaving class for the day. They are to bring back samples of their water, their soil, and a paint chip sample from a window seal.

### **Thursday: Science Lab Day**

- Through the directive of the Science teacher, students are asked to examine their samples for lead and mark their findings on the city map.
- Students are then asked to write up a full Science report on their findings.
- The results are discussed in a whole group.

### **Friday: Skype Interview**

- Students are linked to actual students from Flint Michigan via Skype and are asked to interview them using pre-determined questions.
- Students then type up the interviews and write a two to three paragraph response about their reactions to this interview.

Week 5: Water Issues Abroad: Africa

### **Monday: Introduce the topic of water issues abroad:**

- Talk about water issues all across the Globe and watch this YouTube video document “Life Without Water”:
- <https://youtu.be/yBE7V54BDKw>

- Ask students to take the quiz on Edmodo over the documentary: Edmodo Group Code: [tq8mws](#)
- Ask the students to spend 15 minutes finding information in multiple formats that describe the water crisis in Africa
- **Critical Thinking Skill Builder:** As a class, create a list of the impacts of the water crisis within Africa and beyond. Think: Environmentally, Economically, Socially, Politically, etc.

**Tuesday: What behaviors negatively and positively impact the water crisis in Africa**

- Teacher will divide the class into six groups
- Groups will research what behaviors both negatively and positively impact the water crisis in Africa, considering:
  - Country regulations
  - Political pressures
  - Corporate behaviors
  - Individual behaviors
  - Weather patterns
  - Educational effects
- Based on the research, each group will identify what can be done here in the US to positively impact the water crisis in Africa
- Groups will create a 5-7 minute presentation (in the format of their choice, e.g. PowerPoint, poster, lyrics, etc.)
- Groups will create five questions based on their presentation to add to a Quiz that all students will take at the end of the week

**Wednesday:**

- Groups will make their presentations and receive the gift of feedback from the class and teacher
- **Homework Assignment:** We will have a guest speaker tomorrow who is from Africa. Please add 2 questions to our Edmodo discussion board to ask our speaker.

**Thursday: Guest Speaker, Theodore Musonda**

- Guest Speaker Presents
- Q & A
- Quiz (Includes the 30 questions submitted by the groups based on yesterday's presentations)

**Friday: Skype with a volunteer in Africa working on the water crisis**

- **Assignment:** Create a story around the water crisis in Africa - **Due Monday**

Week 6: Water Issues Abroad: Africa

**Monday: Introduce the topic of water issues in India:**

- Watch the following videos with teacher guided discussions in between each:
  - [https://www.youtube.com/watch?v=jscOuWpw\\_iU](https://www.youtube.com/watch?v=jscOuWpw_iU)
  - <https://www.youtube.com/watch?v=IG3thzNUIdY>
  - <https://www.youtube.com/watch?v=NEyxW73F5Fc>
- Ask the students to spend 15 minutes finding information in multiple formats that describe the water crisis in India
- **Critical Thinking Skill Builder:** As a class, create a list of the impacts of the water crisis within India and beyond. Think: Environmentally, Economically, Socially, Politically, etc.

**Tuesday: What behaviors negatively and positively impact the water crisis in India**

- Teacher will divide the class into six groups
- Groups will research what behaviors both negatively and positively impact the water crisis in India, considering:
  - Country regulations
  - Political pressures
  - Corporate behaviors
  - Individual behaviors
  - Weather patterns
  - Educational effects
- Based on the research, each group will identify what can be done here in the US to positively impact the water crisis in India
- Groups will create a 5-7 minute presentation (in the format of their choice, e.g. PowerPoint, poster, lyrics, etc.)
- Groups will create five questions based on their presentation to add to a Quiz that all students will take at the end of the week

**Wednesday:**

- Groups will make their presentations and receive the gift of feedback from the class and teacher
- **Homework Assignment:** We will have a guest speaker tomorrow who is from India. Please add 2 questions to our Edmodo discussion board to ask our speaker.

**Thursday: Guest Speaker, Shruthi Swaminathan**

- Guest Speaker Presents
- Q & A
- Quiz (Includes the 30 questions submitted by the groups based on yesterday's presentations)

**Friday: Skype with a volunteer, Shweta Krishna, in India working on the water crisis**

- **Assignment:** Create a poem around the water crisis in India - Due Monday

## Week 7: Culminating Project

### **Monday: Introduce Project Proposals**

- Explain that students are to propose projects that will help relieve a need based on the previous weeks' studies. Some examples include: individuals getting clean water, how to conserve water here and abroad, Building wells in communities in need, etc.
- Proposals will be presented to a committee including school representatives, local business leaders, students, and local government.
- Students will use various sources (media, individual, business, texts, governmental leadership, and foundations) to research their topics and design a project that encourages alleviation.

### **Tuesday: Guidelines**

- Divide students into groups
- Touch base with each group to see if they have picked a topic. Teacher will offer insight and help guide groups that are struggling.
- Encourage students to think BIG, let them know that if their project is selected that there will be plenty of people to work towards the goal.

### **Wednesday: Topic Selection**

- Class discussion: Students report what topic they have chosen and state the project that they will propose.
- Duplicates will either switch topics or propose different project.

### **Thursday & Friday: Research**

- Students will start researching the what, where, why, and who the water crisis that they have chosen.
- Students will create a media presentation to present to the class next week.

## Week 8: Culminating Project

### **Monday: Mini Presentations**

- Students will present on their crisis answering the "5 Ws".
- Teachers and fellow students will ask questions and give feedback in order for the groups to add to their presentations.

### **Tuesday - Friday**

- Students will design a project that when implemented will help to alleviate the crisis.
- Students will contact outside organizations to help with project design.
- Students will add to their presentations describing their project, listing materials required, adding a budget (also think about how to

raise funds), purpose a timeline, and organizations that they could partner with.

- Teacher will be meeting with each group to ensure progress is being made.

## Week 9: Presentations

### **Monday: Presentations to the class**

- Students are asked to present their project proposal to the class. They are allowed to choose how they present this information. They can create a Youtube video, use drawings, create graphical representations of data, utilize GoogleSlides, create a song, etc. This portion of project proposal is up to them and students are encouraged to use the mode they are most comfortable with.

### **Tuesday: Feedback from Classmates**

- Students fill out an evaluation form on each of the students' presentations. Once the presentations are complete, each student is given their own feedback to peruse.

### **Wednesday: Re-Tweak of Original Proposal**

- Students use their feedback from their classmates to make changes to their original proposal.

### **Thursday: Community Presentations**

- Students present their proposals to a committee of five members from the community. They provide feedback using the same evaluation tool. Each presentation lasts 5-10 minutes.
- Students are then asked to make final changes and upload their proposal onto Survey Monkey.

### **Friday: Final Project Choice**

- Students are allowed time to peruse the projects on Survey Monkey and choose their top three projects.
- Data is revealed as a class and the top three choices are discussed.
- A Final project is determined.

**Organizing Centers and Elements:** The organizing center, or focus for this unit is: Why is clean drinking water important and how can we help conserve this precious resource? All of the activities in this unit of study are directly related to these two questions.

The organizing elements of this unit are:

1. A series of interconnected topics relating back to the focus of the unit. Students move from local issues with water, to national issues with water, and finally to global issues with water. Students start with a narrow study and move on into a broader look at the topic.
2. Students are also asked to participate in activities that are designed to reinforce the idea that we as citizens of the world are responsible for conserving the precious resource of water and for helping others to conserve this source as well.
3. The generalization that we are hoping students will draw from this unit is: Water is a precious resource and can be preserved through making deliberate choices in our day to day lives.

**Hidden Curriculum:** One concern for teachers utilizing this particular curricular approach is that parents may not want their child to participate in projects that expose them to activities designed to encourage students to question the government's role in water conservation. They may feel like this is overstepping boundaries. Also, many of the areas studied, either locally, nationally, or internationally are focused in on minority cultures. This emphasis may lead to a misperception about these cultures and how they function in society. These lessons may also bring to light the discrepancies between lives in a third world country as compared to the water systems in place in our country.

**Evaluation:** Students' culminating projects will be assessed using the following rubric, which evaluates the entire intended Common Core Standards aligned to this unit. Students are given many opportunities throughout the unit to practice each of the standards. There are also quizzes throughout each weekly subtopic, which determine each student's level of understanding of all the unit objectives.

### The Rubric

Water, Water, Everywhere?				
	Beginning	Emerging	Proficient	Advanced
CCSS.ELA-LITERACY.RI.11-12.3: Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the	Try to discuss a set of ideas or sequence of events and state how specific individuals, ideas, or events develop over the course of the	Discuss a set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the	Analyze a set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the

course of the text.	text.	text.	text.	text.
CCSS.ELA-LITERACY.RI.11-12.7: Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.	State one source of information presented in different media or formats (e.g., visually, quantitatively).	Integrate and evaluate one source of information presented in different media or formats (e.g., visually, quantitatively).	Integrate and evaluate sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
CCSS.ELA-LITERACY.RST.11-12.: Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.	Tries to cite to support analysis of science and technical texts, but fails to choose reliable or relevant evidence. Evidence may not support the text. No attempt at analysis.	Attempts to cite textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.	Cite textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.	Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
CCSS.ELA-LITERACY.RST.11-12.8: Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.	Identify the hypotheses, data, analysis, and conclusions in a science or technical text.	Identify the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data.	Identify the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.