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SLM509 - Instructional Collaboration
Professor Cindy Keller
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Assignment 4: Lesson Plan

Unit: Our Local Environmental Impact on the Chesapeake Bay Watershed

Lesson: Mapping our local watershed (day 8 of the overall unit)

Grade Level: Fourth **Time Frame:** One Media block (50 minutes)

Lesson Overview: This lesson is essential in proving that our actions affect the Chesapeake Bay because it uses technology to trace the flow of water from our schoolyard through the watershed. Prior to this lesson, students will have researched the specific problems facing the Chesapeake Bay, as well as the causes, effects and solutions to them. This lesson serves as the springboard into identifying our local contributions to these problems so that students can begin creating community-based solutions to benefit the Chesapeake Bay. While students are mapping the path of our local watershed in Media, they will be testing water samples from our schoolyard in science to identify specific pollutants in our community. Once students combine their knowledge from both subjects this week, they will realize which specific problems we are contributing to in the Chesapeake Bay so that they can focus on relevant solutions in their community proposal.

Learning Objective: Students will create a digital map of our local watershed to highlight how our actions affect the Chesapeake Bay.

- **Grade 4 MCPS Content Standards:**

- **Science**:
    - 6.5.B.1.a. Identify and describe personal and community behaviors that waste natural resources and/or cause environmental harm and those behaviors that maintain or improve the environment.
- **Information Literacy**:
    - 3.4.A.1.c. With guidance, use technology tools to find data/information within a specific source.
    - 4.4.A.2 Apply critical thinking skills and problem-solving strategies to the recorded data/information to meet the information need.

- **AASL Standards**
    - **Skills**:
        - 3.1.5 Connect learning to community issues.
        - 2.1.3 Use strategies to draw conclusions from information and apply knowledge to curricular areas, real-world situations, and further investigations.
    - **Dispositions**:
        - 1.2.3 Demonstrate creativity by using multiple resources and formats.
        - 3.2.3 Demonstrate teamwork by working productively with others.
    - **Responsibilities**:
        - 3.3.4 Create products that apply to authentic, real-world contexts.
    - **Self-Assessment Strategies:**

        - 1.4.2 Use interaction with and feedback from teachers and peers to guide own inquiry process.
        - 3.2.3 Assess the quality and effectiveness of the learning product.
- **Essential Questions:**
    - How do our actions affect the Chesapeake Bay?
    - How can we use multimedia tools to answer our research questions and convey our ideas to a specific audience?

Prior Knowledge: Students' prior knowledge of the Chesapeake Bay was assessed the week prior to this lesson. This leaves enough time to ensure that the classroom teacher can reteach the causes and effects of various pollutants if needed. Students are also familiar with creating screencasts using the Screencastify app on their ChromeBooks from previous projects.

Instructional Sequence

Engagement/Motivation *- 6 minutes*

- LMS will greet the class at the board and direct them to sit with their research groups at their assigned table.
- Students will enter the library with their ChromeBooks in hand and will see the objective on the board (Students will create a digital map of our local watershed to highlight how our actions affect the Chesapeake Bay).
- "Today is all about Fallsmead's watershed! Before we get started, we are going to a watch a short video to review watersheds."

    - Students will watch the USDA Watershed Learning Video (https://vimeo.com/14030972).
- LMS will ask, "What is a watershed?" and students will think-pair-share.
- LMS will use this video to frame today's lesson: "Today, we are going to use Google Maps to trace the flow of water through Fallsmead's watershed. This will show us exactly where our water, pollution and litter go so that we can prove whether our actions actually affect the Chesapeake Bay. Once we map our water's path, we will record our ideas on a screencast that will be part of your final community proposal."

Direct Instruction *- 9 minutes*

- LMS will model how to use Google Maps to trace the flow of water using McDaniel College as a model.
    - Watch screencast example on the Promethean Board together: https://drive.google.com/file/d/0B2T-KUUBYkOATDZrUlBiYVZjTW8/view
    - Highlight the key features I used in the video:
        - Using topography setting to see changes of elevation (remind again that water always flows downhill.)
        - Using Google Earth view to see landforms such as hills to identify flow of water
        - How to zoom in and out
        - How to move the map without changing the zoom

    - How to identify bodies of water by clicking on the map
- LMS will model narrating the flow of water while recording with the Screencastify app.

Guided Practice - *5 minutes*

- LMS will help students begin their digital water map by:
    - having students open Maps.Google.Com and type in the school's address (1800 Greenplace Terrace).
    - orienting students to our schoolyard using the big sledding hill next to the school. LMS will also remind them of their science water walk to identify the initial direction of water flow (southeast toward Watts Branch Stream).
- Remind students that the McDaniel screencast is on Google Classroom if they want to re-watch it and that the criteria for success are posted on the board:

Criteria for Your Digital Map

- All group members actively participate.
- The screencast:
    - explains what a watershed is.
    - states that water always flows downhill.
    - includes every major step of the water's flow using specific names of creeks, streams or rivers.
- The recording is loud, clear and slow enough that your audience can understand it.

Independent Practice - *25 minutes*

- Students will work in their research groups to trace the flow of water from Fallsmead to the Chesapeake Bay.

- Groups will raise their hand for a quick formative assessment once they are ready to demonstrate the flow of water to the LMS.
    - The LMS will assess their accuracy and clear up any misunderstandings.
- Once they have been given the go-ahead, students will collaborate to record their digital map using the Screencastify app.
    - Groups can decide who will speak, who will navigate the map, etc.
    - Groups will self-assess their final screencast using the checklist and can re-record if necessary.
- LMS will remind students to share their videos on Google Classroom so that she can assess them before letting students use the video in their final presentations.

Closure/Debriefing and Next Steps *- 5 minutes*

- LMS will ask: "I told you that tracing the flow of water through Fallsmead's watershed would show us exactly where our water, pollution and litter go so that we can prove whether our actions actually affect the Chesapeake Bay. What did you all discover about our watershed?" *(pause for responses/discussion)*
- LMS will ask: "How does this new understanding change what you are thinking about your community proposal?"
- "Now that you have made a digital map of our watershed, you are going to learn more about what specific pollutants are traveling with that water into the

Chesapeake Bay. After you finish testing the water quality in science, you will come back to me so that we can find some solutions to improve our impact on the Bay and share these solutions with our community!"

Additional Notes

Assessment/Formative Assessment/Evidence of Success:

- Formative assessment is embedded into the independent practice because groups are not allowed to record their digital map until I have checked their water map for accuracy.
- The criteria checklist (see below) ensures that students are including all of the pertinent information and can self-assess their progress before I assess them.

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- The screencast:
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- Groups also shared their digital maps with me so that I can watch them more carefully before allowing students to embed this video into their final presentation. The final presentation outlining groups' community proposals will be assessed using the rubric included in my unit plan.
- I will share this feedback with their science teacher so that she can have groups re-record after re-teaching if necessary.

Differentiation (Based on *Everyone Wins: Differentiation In The School Library* by Carol Koechlin and Sandi Zwaan):

- **Content**: I varied the format of information being conveyed (direct modeling, watching a video, working with peers, etc.) to address the different learning styles in my class. Since I couldn't account for every learning style during this instructional block, my team and I were careful to address other forms of intelligences at other stages in the inquiry process. For example, our kinesthetic learners had the opportunity to walk the immediate schoolyard to map out the flow of water during science prior to this lesson.
- **Process:** Students will collaborate to create their digital map of the watershed. This allows students to delegate tasks according to their individual strengths and interests.
- **Product:** Each group will create a screencast of their digital map, but group members have the ability to choose different roles within this assignment. For example, one student can record their voice while another navigates on the screen silently. There will be additional opportunities for strength-based collaboration once groups begin their final presentations.
- **Learning Environment:** We will convey consistent expectations across the classroom and library since students will be splitting their time between the two. We will also encourage real-world application by making our school community the focus of the inquiry project.

- **Specific Students' Needs:** Each fourth grade class includes special education, ELL and gifted and talented students. Heterogeneous groups are structured to support students of all ability levels.

Student and Teacher Resources

"About the Bay." *Chesapeake Bay Foundation.* Chesapeake Bay Foundation, 2016. Web. 08 Oct. 2016.

Screencastify (Screen Video Recorder). Computer software. *Chrome Web Store.* Vers. 1.22.2-6f1e6df. Screencastify.com, 3 Oct. 2016. Web. 4 Oct. 2016.

VFXDirect. "USDA Watershed Learning Video." *Vimeo*. USDA, 2010. Web. 04 Oct. 2016.

Works Cited

Betcher, Chris. "Introducing Screencastify." *YouTube*. Chris Betcher, 15 Feb. 2014. Web. 4 Oct. 2016.

"Grade 4 Curriculum." *Montgomery County Public Schools*, 8 Feb. 2013. Web. 23 Sept. 2016.

"Information Literacy Grade 4 Indicators by Marking Period and Weeks." *Montgomery County Public Schools*, 8 Feb. 2013. Web. 23 Sept. 2016. PDF.

Koechlin, Carol, and Sandi Zwaan. "Everyone Wins: Differentiation In The School Library." *Teacher Librarian* 5 (2008): 8. *Academic OneFile*. Web. 24 Sept. 2016.

"Our Neighborhood: Our Watershed Curriculum." *Montgomery County Public Schools*, 2016. Web. 23 Sept. 2016.

"Science Grade 4 Indicators by Marking Period and Weeks." *Montgomery County Public Schools*, 8 Feb. 2013. Web. 23 Sept. 2016. PDF.

VFXDirect. "USDA Watershed Learning Video." *Vimeo*. USDA, 2010. Web. 04 Oct. 2016.