

**ESSENTIAL QUESTION: How does our community affect the waterways in Fletcher, Vermont?**

**ENDURING UNDERSTANDING: We are nestled in a complex web of waterways and everything we do affects water and water affects us.**

**Introductory Lesson #1**

In what way will you introduce students to the big idea? What are Fletcher's Waterways?

***Outcome: Students will explore pictures, images, maps, texts, and use technologies such as, Google Earth, to discover and identify the waterways in and around the Fletcher area. Students will locate waterways in and around their home.***

**Formative Lesson Ideas (#2-10)**

List title of each lesson, brief discussion of learning plan and its outcome. What aspect of the big idea will students grasp during this lesson? In what way will you provide formative assessment and the opportunity to practice new knowledge and skills? How will they build their understanding of the essential question?

**2.** Students will explore the ways humans impact waterways in various communities. One way will be to watch, Fragile Waterways (<http://watch.thirteen.org/video/2334576377/>) to help them understand ways in which humans have impacted bodies of water. Other ways will be for students to read articles and books on waterways and the impacts of humans.

**Outcome: Students will take notes, gather evidence and write a reflection on knowledge gained.**

**3.** Class case study of Fletcher waterways. Students will work in small peer groups based on their location in town (bus routes, 9, 7, 8).

**Outcome: Students will generate questions and make observations in regards to waterways in and around their location in town. Students will compare/contrast different waterways within their given area.**

**4.** Using maps, pictures and a system such as GIS, students will have an understanding of Fletcher waterways overtime.

**Outcome: Students will create a multi-layered map showing changes in land use, water use and settlement.**

5. Exploration of schoolyard, student's backyard and waterways.

**Outcome: Students will create an event map within their science journals.**

6. As part of our on-going Community time, our students will have access to the town office and locals (Historical Society, Fletcher Town Road Crew, Town Select board, Farmers and older citizens of the town who may be able to offer a perspective Lesnikosky Cranberry Bog, FSA, NRCS for historical aerial photography.)

**Outcome: Students will take notes in their STEM Journals; collect notes focusing on the town of Fletcher and its use of water, both for recreational and non-recreational use.**

7. Various site visits (Lamoille River, Metcalf Pond, Dead Brook, Black Brook, Half-Moon Pond, & Fletcher Bog.) What is the waterway? Where does it come from/where does it go? How do the people in and around the waterway utilize it? What are the flora and the fauna?

**Outcome: Students will present their findings in a variety of ways to a variety of people. {See sites of engagement for further information}**

8. Using a map of the Champlain Basin and a stream table, students will deepen their knowledge of where our waterways go and how humans impact them. How do our waterways link to larger waterways? What are some ways Humans have impacted/changed our waterways?

**Outcome: Students will map Lake Champlain and tributaries. Students will have opportunities to debate positive/negative human impact on our waterways.**

9. Time to reflect upon experiences learned regarding Fletcher waterways.

**Outcome: Students will tell stories of the waterways and the Fletcher community over time.**

**Lesson # 10 CULMINATING ACTIVITY: Summative Assessment to Essential Question**

**FINAL OUTCOME:** What product or performance gives students an opportunity to demonstrate their “answer” to the essential question? How will you provide feedback on their accomplishment?

**Essential Question:** How does our community affect the waterways in Fletcher, Vermont?

**Outcome:** Students will design a presentation such as, poster, book, (hard copy or digital), Public Service Announcement, on how our community affects a chosen waterway in Fletcher, Vermont.

**EVENT:** Students will have an opportunity to share presentations in a number of ways (Public Access Television, Town Meeting, Community Information Night, Select board, and/or Historical Society presentation. A celebration is an important way to culminate student accomplishment.

Indicators of Proficiency:

Rubric to assess understanding of impact of community on our waterways.

3-5 paragraph essay/ How we take care of natural resources

Lab sheet/Testing water

Debate/Impacts on the environment

Other assessments:

Summative Evaluation will be EIE Kit ~ “Water, Water, Everywhere”

Formative Evaluation will be the Student’s STEM Journals (STEM Journal will be shared)

Daily Logs (exit tickets)

Debate paragraphs and performance

“Ah Ha” Thesis paper