Gone Fishin’
A Second Grade Expedition into the Life of Seth Green, the Life Cycle of Salmon and the Genesee River Biome
Grade 2

Expedition Authors
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For twelve weeks in the spring of 2005, second grade students at Genesee Community Charter School (GCCS) studied the life of Seth Green, the life cycle of salmon and trout, and the Genesee River biome. Seth Green and his family were settlers to the Genesee River Valley in the early 1800’s. Green turned a love of fish into a thriving business that included several boats and a fresh fish store where he sold his catch. He then designed and built the Caledonia Fish Hatchery (the oldest known hatchery in the western hemisphere) where he developed a form of artificial propagation. After his propagation process was firmly established, he traveled west to spread his fish knowledge. GCCS students studied Seth Green’s life and learned about salmon, trout, and local ecology. Students did scientific water testing, raised Chinook salmon fry in the classroom for release in the wild, and studied the life cycle of salmon. Students also created artwork depicting the life of Seth Green and, for their final product, wrote a children’s picture book biography titled *First Come the Eggs*. They acquired information for their book from the read aloud Rochester History booklet *Seth Green: Father of Fish Culture*. Proceeds from the sale of the book go to the Genese Community Charter School and the Rochester Museum and Science Center.

**Guiding Questions**

- What difference can one person make in the life of an animal?
- What difference can one person make on the world around them?
- What difference can one person make on the life in a river?
- What adaptations do animals make in order to survive in different places around the world?

**Investigation Topic 1**

The Life of Seth Green

Students engaged in an extensive biography study of Seth Green. Seth Green is a name that appears frequently at the north end of the Genesee River in a variety of site names. As is the case with many place names, however, years later there are few who know the story behind the inspiration for the name. The quest to find out who Seth Green was, in effect, became the lens through which the second graders studied the impact humans can have on the world around them, the anatomy, adaptations, environment, and life cycle of salmon.
The expedition began with a field study trip to The Seth Green Trail, an old switchback trail in the North section of Rochester, on the east side of the Genesee River, which leads from the old settlement of Carthage to the banks of the River. This was the area of the Genesee River where Seth Green lived and worked. It was here where he made his observations of trout and the challenges involved in spawning and reproducing. Students observed and sketched the river and celebrated Seth’s birthday (March 19, 1817). Students discussed the question: Who is Seth Green (why are we celebrating him) and why is this trail named after him? Once students discovered who Seth Green was and what an impact he had, they were indignant that he should be so forgotten and were highly motivated to produce a picture book biography for use in the Caledonia Hatchery, the Big Springs Museum, and by local educators.

This launched an investigation into his life and the introduction of the anchor text, *Seth Green: Father of Fish Culture*, a publication of Rochester History July 1944, written by Sylvia R. Black. This anchor text was used as the primary resource for the compilation of information that the class chose to include in the text of the class-written picture book biography of Seth Green. Students also visited the Big Springs Museum and grounds in Caledonia, New York, where they spoke with docents and looked through artifacts pertaining to the life and work of Seth Green. Through the use of the picture book biography, *Wilma Unlimited*, by Kathleen Krull, and through practice writing biographies of their classmates, students synthesized all that they had learned about Seth Green’s life and the art of creating biographies into a class written picture book biography of Seth Green.

**Long-Term Learning Targets**

- I can explain how Seth Green was inspired by his observation of salmon in the Genesee River to develop the process of artificial propagation and fish hatcheries.
- I can identify how/where to use the comprehension strategies of Determining Importance and Inferring to successfully read biographies.
- I can use what I have learned about Seth Green and about the features of a biography to make a recommendation for the class picture book biography of Seth Green.
- I can create an illustration for the Seth
Green picture book that represents my interpretation of Seth Green’s life, the Genesee River, or depictions of fish and their habitat.

I can use elements of the 6+1 Writing Traits in drawing and paintings: Organization = design composition; Voice = expression/interpretation of story; Ideas = content/message of the illustration.

I can visualize Seth Green and the setting of parts of his life based on historical research.

I can use “Conventions of Art”: line, color, shape, texture, and value to organize my painting.

I can use a field journal to make accurate observational drawings to be used in my illustration.

I can examine illustrations from a variety of picture books and can categorize them and determine what makes up a quality illustration.

Investigation Topic 2

The Genesee River Biome

Students did a careful study of the Genesee River Biome. They observed and sketched the natural springs that Seth Green used in his early work in artificial propagation. They also conducted water quality tests at the springs by testing turbidity, pH, dissolved oxygen, and temperature, and later compared it to information about optimal water conditions for trout survival. Also in Caledonia, students visited the Caledonia Fish Hatchery (founded by Seth Green) and met with director Alan Mack, to observe the stages of artificial propagation and to research the history of the facility. In the classroom, students worked with Kimie Romeo from the Monroe County Water Authority to learn about measuring water quality using observation of living organisms in different types of water.

At the Caledonia Fish Hatchery, students obtained a dozen Chinook Fry, which they brought back to the classroom and raised for the duration of the Expedition. The class used a chiller unit, purchased with monies from the Fund For Teachers program, to maintain the appropriate temperature for the fry. Towards the end of the expedition, students participated in an extended-day field study where they traveled to the Caledonia Fish Hatchery, observed the tank trucks being loaded with trout, followed the tanks, and assisted with the stocking of local creeks. During this day the class also visited the local Department of Environmental Conservation office and applied for and received a permit to release their own Chinook salmon into Irondequoit Creek at the end of the expedition.
Long-Term Learning Targets

- I can illustrate the process of artificial propagation.
- I can ask questions that will help me determine how to raise salmon.
- I can describe the life cycle of a salmon.
- I can determine water quality by testing turbidity, pH, dissolved oxygen, and temperature in creeks and in the river.
- I can read a thermometer to the nearest 2 degrees.
- I can describe the physical changes that salmon go through to survive in various environments around the world.
- I can ask questions that will help me determine how to raise salmon.
- I can collect data and organize it on a chart.
- I can analyze and interpret information (data) and evaluate the results.

Investigation Topic 3

The Characteristics and Life Cycle of Salmon

Students conducted regular observations and compiled sketches and written notes in their Field Journals in order to learn about salmon. They paid particular attention to their physical anatomy, changes and growth, movement, and interaction with their surroundings.

The class made another trip to the Caledonia Fish Hatchery to obtain fish that had died of natural causes which were then used in a series of anatomy labs in class. Students worked in small groups to dissect a variety of fish, focusing primarily on adaptations including scales, mucus, gills, capillaries, lateral line, otoliths, fins, and the swim bladder.

Throughout the expedition, the nonfiction text Trout by Cherie Winner, was used as an anchor text, supporting students in their learning of the environment, adaptations, survival, and life cycle of trout.

Long-Term Learning Targets

- I can record detailed observations of fish in sketches and words.
- I can name three major body parts of a salmon and explain their functions.
- I can record detailed observations of fish in sketches and in writing.
Connections to State and District Standards

Science
- Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.
- Human decisions and activities have a profound impact on the physical and living environment.

English Language Arts
- Listening and reading to acquire information and understanding involves collecting data, facts, and ideas; discovering relationships, concepts, and generalizations; and using knowledge from oral, written, and electronic sources.
- Speaking and writing to acquire and transmit information requires asking probing and clarifying questions, interpreting information in one’s own words, and applying information from one context to another, and presenting the information and interpretation clearly, concisely, and comprehensibly.

Arts and Technology
- Students will make works of art that explore different kinds of subject matter, topics, themes, and metaphors.
- Students will understand and use sensory elements, organizational principles, and expressive images to communicate their own ideas in works of art.
- Students will reflect on, interpret, and evaluate works of art using the language of art criticism.
- Students will analyze the visual characteristics of the natural and built environment and explain the social, cultural, psychological, and environmental dimensions of the visual arts.
- Students will compare the ways in which a variety of ideas, themes, and concepts are expressed through the visual arts with the ways they are expressed in other disciplines.
Major Projects

1. Raising Chinook Fry

Description

Students asked questions and conducted scientific research to determine how to raise salmon. After bringing the salmon fry to the classroom, students were in charge of monitoring and caring for them. They recorded detailed observations, identified parts of the fish and their functions, and studied the life cycle of salmon. By simultaneously studying Seth Green and his path toward becoming the “father of fish propagation”, students connected with the idea that Green’s observations of salmon in the Genesee River led to his scientific discoveries and the subsequent birth of fish propagation and fish hatcheries around the world. They were encouraged by the idea that they were using the same methods that he did.

Final Product

At the Genesee Community Charter School Exhibition Night, students released their salmon fry into the Irondequoit Creek. They worked with the Department of Environmental Conservation to obtain a permit for this release.

2. Writing a Biography of a Classmate

Description

Students used an anchor text, Wilma Unlimited, and read a variety of biographies to determine the general characteristics of biographies. They used a literature circle format to decide upon the features that would be most important for the biographies that they were preparing to write about their classmates. They then developed questions and interviewed a classmate in preparation for writing their biographies. Students organized their information using concept maps, semantic webs, and outlines, and they used the 6+1 Writing Traits of organization to focus on strong leads, introduction, transitions, body, and conclusion.

Final Product

Each student in the class created a biography of a classmate, including written text and a photograph. The final draft biographies were shared at Genesee Community Charter School’s Exhibition Night.
3. Individual Field Journals

Description

Students used their field journals for two primary purposes: they took notes on the anchor text, *Seth Green: The Father of Fish Culture* and practiced the skill of determining importance; and, they completed detailed observational sketches of the classroom Chinook Fry, the Caledonia Fish Hatchery, the Seth Green Trail, the Irondequoit Creek, and the springs in Caledonia.

Final Product

The student field journals with shared at the Genesee Community Charter School exhibition night.

4. Illustrations and descriptions of Seth Green’s Life

Description

This project led to the completion of the book *First Come the Eggs*, written and illustrated entirely by the students in the class. Students worked with their classroom teachers and art teacher to decide upon an important image to paint for the book and to work carefully on color, line, shape, and texture. Students utilized the information that they had gathered through researching Seth Green’s life to create a caption for their illustration. The book tells the story of Green’s life from his early days exploring the Genesee River to his invention of fish propagation.

Final Product

*First Come the Eggs* is a full color picture book biography of Seth Green’s life. It includes a cover, title page, dedication, prologue, epilogue, glossary, additional scientific and historical information pages, and an author’s page paragraph on each student. The book is sold on the Genesee Community Charter School website and at the Caledonia Fish hatchery in Caledonia, NY.
5. **Original Song Composition**

**Description**

Working together with the school’s music teacher, students wrote and composed two original songs. One song teaches about the impact Seth Green had on the natural world and the other teaches about the life cycle of salmon. Students worked on musical composition, transitions, melody, rhythm, and musical annotation as well as the 6+1 Writing Trait of *word choice* as they developed lyrics that could relay information in an accurate and descriptive way.

**Final Product**

These student-written songs are included on a school CD which is sold on the school’s website, at community events, and at the Expeditionary Learning Schools site seminar.

**Embedded and Related Literacy, Math, and Arts Work**

**Literacy**

In order to write a picture book biography of Seth Green, not only did students need to uncover the “mystery” of who he was, but they also needed to build an understanding of what a Biography, as a genre, is. With this in mind, English Language Arts instruction was designed in the following way:

1. **Listening** – teachers read from the anchor text *Seth Green: The Father of Fish Culture* three to five times a week. This became the primary resource for research into his life. Instructional strategies included:
   - Vocabulary development – as Seth Green lived in the early 1800’s a lot of period related vocabulary emerged. Knowing that some would be included in the final picture book biography, teachers always highlighted and found picture support for those words before reading each section to the students.
   - Determining importance – every time teachers read a section, they modeled “thinking aloud” about what concepts or information helped us understand who Seth Green was. Those elements were recorded on a working chart that was kept posted in the classroom.
   - Inferring and Questioning – while teachers read aloud, they also modeled, and elicited from students inferences they could make about Seth Green. These inferences, as well as any questions that came up, were recorded on the working chart as well.
   - Note taking – semantic webs and concept maps were used by each child to record information pertaining to Seth Green’s life following the headings from Seth Green: The Father of Fish Culture.

2. **Reading** – students were immersed in Literature Circle reading using biographies. Teachers compiled a large library of leveled biographies representing a wide range of people and focused on many elements of biographies:
Wilma Unlimited was used as an anchor text to launch and guide discussion of leads, transitions, introduction, body and conclusion.

From Wilma Unlimited and literature circle biographies the students developed anchor charts that included common features of a biography, examples of strong leads and transitions, and features of a quality introduction, body, and conclusion.

The reading comprehension strategies modeled in Listening (as described above with the Seth Green: Father of Fish Culture) were echoed in literature circle discussions.

3. Writing – every child gathered information about a classmate and wrote a biography about that person. Particular focus was placed on:

- The 6+1 Writing Trait of Organization - strong leads, introduction, transitions, body, and conclusion
- Working with local resident and children’s picture book author and illustrator, Will Hubble, students determined how to approach designing and writing a picture book (which was applied to both the individual biographies and the final class written picture book biography of Seth Green).
- Regular critique sessions using teacher developed examples and authentic examples from student work to determine elements of quality introductions, bodies, and conclusions.
- Regular critique sessions to determine what might be missing in student examples of introductions, bodies, and conclusions.
- Use of rubrics to give feedback.

Math

The Math Investigations (Pearson) curriculum was taught separate from the expedition content. When math could naturally be integrated into the expedition, it was. Examples of this integration include:

- Water testing data and graphing
- Salmon life cycle (egg to adult fish) mortality rates were analyzed.
- Measurement
  - Length of fry, fish, otolith
  - Weight of fish
Arts

1. Visual Art – The class’s illustrations that were used in the biography *First Come the Eggs* were designed to convey as much information as possible about Seth Green. Nancy Valle (art teacher) and classroom teachers worked closely to make sure that accurate information and concepts were portrayed in each illustration throughout the process, from first draft, to revision, to final publication. Particular focus for the Visual Arts instruction was placed on:
   - Elements of a quality illustration – students examined many illustrations from a variety of children’s picture books. They categorized the illustrations and determined the attributes of a quality illustration.
   - Color, line, shape, texture
   - Application of the 6+1 writing traits of Organization, Ideas and Voice to painting – including composition design, expression and interpretation of information to be portrayed.

2. Music – Students worked with Carrie Haymond (music teacher) and the classroom teachers to deliver/communicate what they had learned about Seth Green and about the life cycle of salmon through song. Students attended Music in two groups of 15 students each, so that two songs could be created. Particular focus for the Music instruction was placed on:
   - Composition, transitions, melody, rhythm, musical annotation
   - Application of 6+1 Writing Trait of Word Choice in development of lyrics – how to relay information in an accurate and descriptive way

Connections to the Community and Larger World

Fieldwork

4/1/05 – Caledonia Fish Hatchery
   - Tour and lecture from Alan Mack, Fisheries Manager
   - Pick up Chinook Fry for Classroom Aquarium

4/14/05 – Seth Green Trail (Norton and St. Paul Blvd.)
   - Observe Salmon in natural Genesee River habitat.

4/25/05 – Pittsford Seafood Market
   - Observe a fish market

5/20/05 – Big Springs Museum and DEC
   - View the Seth Green exhibit at the museum
   - Pick up the stocking permit to release the Salmon at Ellison Park (Irondequoit Creek) on Exhibition Night

6/10/05 – Powder Mills Park (PMP)
   - Students fish at the pond stocked with Steelhead Trout
   - View the PMP Fish Hatchery
Use of Experts

Alan Mack – Fisheries Manager at the Caledonia Fish Hatchery, NYS DEC
- Salmon/Trout information
- Donated twelve Chinook fry

Staff at the Big Springs Museum, Seth Green Exhibit in Caledonia, NY

Kimie Romeo – Monroe County Environmental Educator
- Presented lesson on freshwater testing and macroinvertebrates as an indicator of stream/river health.

Will Hubble – Local children’s picture book author
- Demonstrate the features of a picture book and how a picture book is created

Service, Character and Community

- Students hosted (cared for) twelve Chinook fry in the classroom for the duration of the expedition. The fingerlings were released on Exhibition Night at Ellison Park in Irondequoit Creek.
- Students donated copies of the Seth Green Picture book to the Big Springs Museum, the Caledonia Fish Hatchery and the Rochester Museum and Science Center.

Exhibitions

Exhibition Night occurred at Ellison Park where students shared excerpts from their peer biographies with their families during a picnic dinner and released the Chinook fry they hosted in Irondequoit Creek.
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<th>Calendar</th>
<th>March 21-25</th>
<th>March 28-April 1</th>
<th>April 4-8</th>
<th>April 11-15</th>
<th>April 25-29</th>
<th>May 2-6</th>
<th>May 9-13</th>
<th>May 16-20</th>
<th>May 23-June 4</th>
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<tr>
<td>Anchor Text: Seth Greene, Father of Fish Culture</td>
<td>Early Years: Pgs. 1-2</td>
<td>Move to Early Village: Pgs. 3-4</td>
<td>Passion for Outdoors and Interest in Fishing: Pgs. 4-5</td>
<td>Seth’s Discovery: Pgs. 6-7</td>
<td>Experimental Fish Hatchery Pgs. 7-8</td>
<td>Process of Artificial Propagation Pgs. 9-11</td>
<td>Recognition: Pgs. 22-24</td>
<td>Seth Green’s influence on the rest of the world</td>
<td>Rochester recognized as home of influential person</td>
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<td>Early Years: Pgs. 1-2</td>
<td>Motivation for moving to an area, pioneer home, clothing, environment, forests and animals, pioneer children</td>
<td>Early map of Rochester</td>
<td>Carthage (field study) Lower Falls (field study) Shipping Industry (features of a village) Vocabulary: sw, thres,恬, buckskin, flax, loom, spinning wheel</td>
<td>Influence of Seneca Hunting and fishing for profit</td>
<td>Seth’s character</td>
<td>Artificial Propagation</td>
<td>Fish Eggs: Pgs. 18-22</td>
<td>Story of Seth Green taking eggs to California</td>
<td>Fragility of eggs Controlling environment Needs of fish - connect to classroom tank</td>
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<tr>
<td>How to research for a children’s picture book: Guest expert – children’s author or city historian</td>
<td>Intro to writing a Biography: Teach modeling: interviewing Note-taking Sequencing events</td>
<td>Life Circle: Picture Book Biography: Reading comp: Reading comp strategies: determining importance making connections inferring questioning</td>
<td>Reading Comp. Lessons on Questioning -list important questions while reading a biography categorizing questions -q’s answered in text from background knowledge, inferred, need to research</td>
<td>Reading Comp. Lessons on Determining Importance: What is important about Seth Green? What important info needs to be communicate in the bio.</td>
<td>Graphic organizer: Note Taking -how to use organizer while reading about Seth Green, what you determine to be important</td>
<td>Writing of Classmate Bio: each student writes a bio following the organization of previous lesson incorporates features of a biography</td>
<td>Multiple drafts include historical interpretation and features of a bio.</td>
<td>Writing Conferences, small group mini lessons (including conventions), drafting, feedback (peer and adult), revision, publish</td>
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<td>March 21-25</td>
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<td>Introduction of Field Journal and Observations</td>
<td>Establish field work to Genesee River, Caledonia Fish Hatchery, Big Springs Fish Research</td>
<td>Looked like an account of Seth’s personality; using field journals and research</td>
<td>Process same for all three investigations; observational research &amp; interpretation</td>
<td>Life Cycle and Fish</td>
<td>Characteristic of paintings of river biome</td>
<td>Storyboard and editing of paintings for book</td>
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<td><strong>Science</strong></td>
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<td>Field Studies in Caledonia Fish Hatchery</td>
<td>Water Testing</td>
<td>Dissolved Oxygen</td>
<td>Kimie Romero</td>
<td>PH Intro, practice in class</td>
<td>Test water, Linear Park Creek, determin if location will sustain salmon survival</td>
<td>Kids test water at Seth Green Trail to determine site of salmon fry release</td>
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<td>Get salmon for class, intro to water testing, hatchery and Big Springs water testing</td>
<td>1st visit with Alan Mack, importance of water testing</td>
<td>Kimie Romero Visit What is a habitat?</td>
<td>Chapter 1</td>
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Characteristics and Life cycle of salmon