

Addendum to Exploring Streams: Stream Monitoring Curriculum Guide

This curriculum was developed during the shift from Wisconsin Model Academic Standards to Common Core State Standards. Thus, this addendum has been developed to aid teachers in understanding how these new standards align with each activity described within the curriculum. The addendum will be updated as new core curriculum standards are approved. As of the time of writing of this version of the addendum (January 3, 2013), Common Core Standards have been approved for literacy in all subjects, English language arts, and math.

All standards listed apply to grades 6-12. Standards reviewed for this summary include:

- Wisconsin Common Core Standards for Mathematics
(<http://standards.dpi.wi.gov/files/cal/pdf/math-stds.pdf>)
- Wisconsin Common Core Standards for English Language Arts
(<http://standards.dpi.wi.gov/files/cal/pdf/ela-stds.pdf>)
- Wisconsin Common Core Standards for Literacy in All Subjects
(<http://standards.dpi.wi.gov/files/cal/pdf/las-stds.pdf>)

From our review of these standards, the activities within the Exploring Streams curriculum align with the following Common Core Standards:

▶ SECTION 1: PRE-FIELD TRIP

1. Pre-test – NA
2. The Human Watershed
 - a. Speaking and Listening Standards for Literacy in All Subjects
 - i. Comprehension and Collaboration: 1, 2
3. Watershed in a Box
 - a. Speaking and Listening Standards for Literacy in All Subjects
 - i. Comprehension and Collaboration: 1, 2
4. Stream Savers
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Craft and Structure 4 (if students are provided background information to read prior to class discussion)
 - b. Speaking and Listening Standards for Literacy in All Subjects
 - i. Comprehension and Collaboration: 1

5. Transparency
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Key Ideas and Details: 1, 2, 3
 - ii. Craft and Structure: 4
 - iii. Integration of Knowledge and Ideas: 7, 9
(if a class discussion is held or written report assigned)
6. Temperature
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Key Ideas and Details: 1, 2, 3
 - ii. Craft and Structure: 4
 - iii. Integration of Knowledge and Ideas: 7, 9
(if a class discussion is held or written report assigned)
7. Dissolved Oxygen
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Key Ideas and Details: 1, 2, 3
 - ii. Craft and Structure: 4
 - iii. Integration of Knowledge and Ideas: 7, 9
(if a class discussion is held or written report assigned)
8. Stream Flow
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Key Ideas and Details: 1, 2
 - ii. Craft and Structure: 4
 - iii. Integration of Knowledge and Ideas: 7, 9
(if a class discussion is held or written report assigned)
9. Habitat Assessment
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Key Ideas and Details: 2, 3
 - ii. Craft and Structure: 4
 - iii. Integration of Knowledge and Ideas: 7, 9
(if a class discussion is held or written report assigned)
10. Biotic Index
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Key Ideas and Details: 2, 3
 - ii. Craft and Structure: 4
 - iii. Integration of Knowledge and Ideas: 7, 9
(if a class discussion is held or written report assigned)

11. Optional Activities

- a. *E. coli* Bacteria Monitoring
 - i. Reading Standards for Literacy in All Subjects – Science
 - 1. Key Ideas and Details: 2, 3
 - 2. Craft and Structure: 4
 - 3. Integration of Knowledge and Ideas: 7, 9
(if a class discussion is held or written report assigned)
- b. Erosion in a Bottle
 - i. Speaking and Listening Standards for Literacy in All Subjects
 - 1. Comprehension and Collaboration: 1
- c. Urban Runoff Model
 - i. Reading Standards for Literacy in All Subjects – Science
 - 1. Key Ideas and Details: 3
(if students are provided the directions to follow)
 - ii. Speaking and Listening Standards for Literacy in All Subjects
 - 1. Comprehension and Collaboration: 1, 2
- d. Transparency Case Construction
 - i. Reading Standards for Literacy in All Subjects – Science
 - 1. Key Ideas and Details: 3
- e. Stream Ecosystem – What makes a Stream Healthy?
 - i. Speaking and Listening Standards for Literacy in All Subjects
 - 1. Comprehension and Collaboration: 2
- f. Parts per Million Lab
 - i. Reading Standards for Literacy in All Subjects – Science
 - 1. Key Ideas and Details: 3
- g. Making and Using Dichotomous Keys
 - i. Speaking and Listening Standards for Literacy in All Subjects
 - 1. Comprehension and Collaboration: 1
- h. Researching Macroinvertebrates
 - i. Reading Standards for Literacy in All Subjects
 - 1. Key Ideas and Details: 2, 3
 - 2. Craft and Structure: 4
- i. Stream Walk Survey
 - i. Reading Standards for Literacy in All Subjects
 - 1. Key Ideas and Details: 3
- j. What is a Watershed Video
 - i. Speaking and Listening Standards for Literacy in All Subjects
 - 1. Comprehension and Collaboration: 2

▶ SECTION 2: FIELD TRIP

Reading Standards for Literacy in All Subjects – Science

1. Key Ideas and Details: 3

▶ SECTION 3: POST-FIELD TRIP

Main Activities

1. Reading Standards for Literacy in All Subjects – Science
 - a. Key Ideas and Details: 1, 3
 - b. Craft and Structure: 4
2. Mathematical Core Standards
 - a. Summarize and describe distributions: 6.SP
 - i. 6.SP.4: Students should describe the data set, identify clusters, peaks, gaps, and develop histograms and/or box plots.
 - ii. 6.SP.5: In addition to reporting the mean, students should report the number of observations they made, describe how measurements were made, and identify units of measure.
3. Geometry: 7.G.6
4. Statistics and Probability: 8.SP

Optional Activities

1. Assessment – NA
2. Computer Graphing and Presentations
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Key Ideas and Details: 1
 - ii. Integration of Knowledge and Ideas: 7, 9
 - b. Mathematical Core Standards
 - i. Statistics and Probability: 8.SP.1, 8.SP.2
 - ii. Interpreting Categorical and Quantitative Data: S-ID.1, 2, 3, and 4 if students:
 1. “Summarize, represent, and interpret data on a single count or measurement variable.
 2. Represent data with plots on the real number line (dot plots, histograms, and box plots).
 3. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

4. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
 5. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.”
3. Community Outreach: Letter to the Editor
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Key Ideas and Details: 1
 - b. Writing Standards for Literacy in All Subjects
 - i. Test Types and Purposes: 1
 - ii. Production and Distribution of Writing: 4, 5
(if a draft is revised after student receives external input)
 - iii. Research to Build and Present Knowledge: 7, 8, 9
 4. Community Outreach: Video/PowerPoint Presentation of Project
 - a. Speaking and Listening Standards
 - i. Comprehension and Collaboration: 1, 2
 - ii. Presentation of Knowledge and Ideas: 4, 5
 5. Community Issue-based Research and Role Play
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Key Ideas and Details: 1, 2
 - ii. Craft and Structure: 4
 - iii. Integration of Knowledge and Ideas: 8, 9
 - b. Writing Standards for Literacy in All Subjects
 - i. Test Types and Purposes: 1, 2
 - ii. Production and Distribution of Writing: 4
 - iii. Research to Build and Present Knowledge: 7, 8, 9
 - c. Speaking and Listening Standards
 - i. Comprehension and Collaboration: 1, 2, 3
 - ii. Presentation of Knowledge and Ideas: 4
 6. Scientific Reports
 - a. Reading Standards for Literacy in All Subjects – Science
 - i. Key Ideas and Details: 1, 2
 - ii. Integration of Knowledge and Ideas: 8, 9

- b. Writing Standards for Literacy in All Subjects
 - i. Test Types and Purposes: 1, 2
 - ii. Production and Distribution of Writing: 4, 5
(if a draft is revised after student receives external input)
 - iii. Research to Build and Present Knowledge: 7, 8, 9
- 7. Data Entry to the Water Action Volunteers Online Database – NA
- 8. Thank You Notes – NA
- 9. Storm Drain Stenciling – NA

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Acknowledgements

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For more information about volunteer stream monitoring opportunities in Wisconsin, visit:

<http://watermonitoring.uwex.edu/wav>

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