“A”: Media & Technology

A.8.1 Use common media and technology terminology and equipment

River City students work with common technologies, such as “software” and “screen name,” but not-so-common ones as well, such as “Multi-User Virtual Environments (MUVEs)” and “avatars.”

A.8.2 Identify and use common media formats

River City provides students the opportunity to use electronic resources such as online dictionaries and encyclopedias. By accessing the Smithsonian documents embedded in the simulation, students have the opportunity to use primary resources in different media formats.

A.8.4 Use a computer and communications software to access and transmit information

River City students interact with resources on the web. Communication between students working on the same team is facilitated by a synchronous chat tool and an online notebook.

“B”: Information & Inquiry

B.8.1 Define the need for information

Understanding and solving problems in River City requires accessing and using information. Students will need to identify and relate what they already know to the information they need. Most importantly, students will need to formulate general and specific research questions.

B.8.2 Develop information seeking strategies

In River City, students are confronted with numerous amounts of information just from the avatars in the world. Students must develop strategies for eliciting the information they need from the various sources within the world.

B.8.4 Evaluate and select information from a variety of print, non-print, & electronic formats

With this array of information, students must navigate this data to determine what is valuable, possibly biased, or supported by other evidence.

B.8.5 Record and organize information

Students gather information in River City through observations, conversations with teammates and residents of the town, examination of artifacts, and interaction with scientific tools. Students must be able to determine the best way to record and organize this information in
their online notepad, so that it can help them later on when they are working through solving the problem.

B.8.6 Interpret and use information to solve the problem or answer the question

The data students gather must be shared, compared, and analyzed with teammates and their class as a whole. As a group they must come to consensus on a single research question in order to creating their experiment, as well as determining if their experiment produced significant results.

B.8.7 Communicate the results of the research and inquiry in an appropriate format

Once the experiment is complete, students communicate their recommendations to the mayor of River City, by writing a formal letter to her. This not only requires students to have a strong understanding of their experiment, but they also must be able to put that knowledge into words that can easily be explained to other individuals.

“D”: The Learning Community

D.8.1 Participate productively in workgroups or other collaborative learning environments

A significant amount of the work in River City is done with teammates, requiring collaboration to identify, plan for, and complete project work. This includes individual responsibilities that must be achieved in order for the group as a whole to move forward.

Standards for Science Content & Performance
http://dpi.wi.gov/standards/sciintro.html

“A”: Science Connections

A.8.1 Develop their understanding of the science themes by using the themes to frame questions about science-related issues and problems

Since River City is a fictional town placed in an authentic historical context, students get to explore science concepts like epidemiology and disease transmission in a social setting as they occur in real life.

A.8.2 Describe limitations of science systems and give reasons why specific science themes are included in or excluded from those systems

Students are exploring the complex system that is the town of River City, which is affected by numerous factors and contains numerous factors that do not affect them. Students understand these factors as they begin to understand the system.

A.8.3 Defend explanations and models by collecting and organizing evidence that supports them and critique explanations and models by collecting and organizing evidence that conflicts with them
Using the evidence collected in River City, students must use that information to support their explanation of the system and the factors affecting it.

A.8.6 Use models and explanations to predict actions and events in the natural world

A model of a real world city, students can easily transfer the knowledge they gain regarding science concepts to events in the context of their world.

A.8.7 Design real or thought investigations to test the usefulness and limitations of a model

The flexibility of the River City MUVE provides students the opportunity to test their conclusions by changing the model to conduct their investigation.

“B”: Nature of Science

B.8.2 Identify and describe major changes that have occurred over in conceptual models and explanations in the earth and space, life and environmental, and physical sciences and identify the people, cultures, and conditions that led to these developments

Since River City is based at the time in history when microscopic study was emerging, students learn how significant changes occur in science and society as a result.

B.8.3 Explain how the general rules of science apply to the development and use of evidence in science investigations, model-making, and applications

These rules serve as the foundation for students to then design their own experiment.

B.8.4 Describe types of reasoning and evidence used outside of science to draw conclusions about the natural world

As students listen to avatars share their ideas and insights about what they feel is causing the sickness in River City, students gain an understanding of how certain explanations may seem plausible but are not necessarily supported by scientific evidence.

B.8.5 Explain ways in which science knowledge is shared, checked, and extended, and show how these processes change over time

By genuinely conducting an experiment and sharing their reasoning with others, students get to experience first hand how scientific knowledge is generated, critiqued and accepted.

B.8.6 Explain the ways in which scientific knowledge is useful and also limited when applied to social issues

The “story” within River City helps students see how scientific knowledge can be applied to social issues by writing recommendations to the mayor.
“C”: Science Inquiry

C.8.1 Identify questions they can investigate using resources they have available

C.8.2 Identify data and locate sources of information including their own records to answer the questions being investigated

C.8.3 Design and safely conduct investigations that provide reliable quantitative or qualitative data, as appropriate, to answer their questions

C.8.4 Use inferences to help decide possible results of their investigations, use observations to check their inferences

C.8.5 Use accepted scientific knowledge, models, and theories to explain their results and to raise further questions about their investigations

C.8.6 State what they have learned from investigations, relating their inferences to scientific knowledge and to data they have collected

C.8.7 Explain their data and conclusions in ways that allow an audience to understand the questions they selected for investigation and the answers they have developed

C.8.8 Use computer software and technologies to organize, process, and present their data

C.8.9 Evaluate, explain, and defend the validity of questions, hypotheses, and conclusions to their investigations

C.8.10 Discuss the importance of their results and implications of their work with peers, teachers, and other adults

C.8.11 Raise further questions which still need to be answered

The heart of River City is embedding students in an experience where students individually and collaboratively participate in the scientific inquiry process. Through this open-ended exploration, students are challenged to develop their own research questions, thereby internalizing the process as they must generate and support their own hypotheses and conclusions.

“F”: Life & Environmental Science

F.8.8 Identify and describe major changes that have occurred in conceptual models and explanations in the earth and space, life and environmental, and physical sciences and identify the people, cultures, and conditions that led to these developments

The “story” of River City helps students understand the common misconceptions related to the science concepts explored in River City.

F.8.9 Explain how the general rules of science apply to the development and use of evidence in science investigations, model-making, and applications

By conducting a scientific experiment, students can understand how the rules of science help address these misconceptions.