Ms.Lariviere Science Grade 7

Term 4 Rubric Due \_\_\_\_\_\_\_\_\_\_\_

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Handout Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

WATER STUDIES PROJECT

During your 4th quarter in Seventh Grade Science Class at Quahog Regional Middle/High School, you will complete the study of Ecosystems and Biomes, Populations and Communities as well as Exploring Biodiversity. Some of the basic information will be completed through your daily assigned reading. However, the majority of your study will come from active research, classroom discussion and sharing of information gathered by individual groups.

It is important that you understand that no life exists in isolation that every part of every organism, and every part of your body is adapted to the pressures and forces that exist on this planet. Living organisms depend on nonliving things such as minerals, as well as the energy that is transferred to this planet by the sun. All systems interact and affect each other.

To help you understand this concept, you will study a body of water near your home that is safe and your parents or guardians are able to help you study. Your parents or guardians are your first teachers, and I encourage their participation in this project. I do expect that when you present this product, you are knowledgeable and have an in depth understanding of the interactions of forces and pressure, water analysis, and are able to identify the varying life forms that exist in your area of study. You must also be prepared to make a prediction about the health of this system and make recommendations relative to the improvement of the quality of this ecosystem.

As a class, we will study the bodies of water that are scattered about in our area. The quality of our brooks, streams, and ponds serve as reminders that we, along with every other organism on this planet are dependent on water for survival. We must be responsible for conserving, protecting, and simply appreciating this precious natural resource. These small bodies of water are often the first indicators that pollution is damaging our local resources. In studying these small bodies of water, we will gain an understanding of issues and problems relative to large water systems. If small pollution occurs in multiple streams, it is magnified by larger streams, by watersheds, by Long Island Sound, by the Atlantic Ocean.

Please be as thorough as possible in your water investigations. A copy of the most thorough investigations will be forwarded to your local library as well as the Conservation Committee (With the consent of a parent or guardian). Your studies will help your town to assess its use of road salt, use of RV’s on land and perhaps jet skis on ponds and lakes.

Rubric

You will grade your own work before turning it in. This will allow you to defend the grade you hope to achieve. Please enter the points expected in the appropriate column. (0=not done, 1=done, 2=well done)

Grade Student\_\_ Teacher\_\_

* Done a home
* Begin in school

Organization and Neatness

* The project has a title page (2 points) \_\_\_ \_\_\_
* The project has a table of contents (2 points) \_\_\_ \_\_\_
* The project contains a picture that is vivid and clear \_\_\_ \_\_\_

(Hand-drawn or photograph – be creative) (2 points) \_\_\_ \_\_\_

* The project contains labels that are neatly written

or typed, or has captions for any pictures (2 points) \_\_\_ \_\_\_

* The project has a work cited page (Follow MLA format)

I will provide examples and assistance (2 points) \_\_\_ \_\_\_

<http://owl.english.edu/owl/resource/747/02>

<http://www.easybib.com>

Possible Score 10 Total \_\_\_ \_\_\_

Topography

* The project includes a contour map \_\_\_ \_\_\_

(either 3D map using clay or cardboard

As a medium or one that has been simply

Enlarged) (2 points)

<http://mytopo.com/maps>

* The map has clear contour lines (2 points) \_\_\_ \_\_\_
* The map has Index Contour Lines that show

Elevations (2 points) \_\_\_ \_\_\_

* The map utilizes the standard Geographic

Survey Symbols (2 points) \_\_\_ \_\_\_

* The contour interval is included in the

“Map Key” (2 points) \_\_\_ \_\_\_

Possible Score 10 Total \_\_\_ \_\_\_

You can either do a pollution survey or if there is no evidence of pollution, write a paragraph about it.

Pollution Survey

* The project includes a description of the

Amount and type of pollution (Trash etc.

In the area) (2 points) \_\_\_ \_\_\_

* The project includes a chart tallying the

Amounts and types of pollution (2 points) \_\_\_ \_\_\_

* The project includes a graph showing the

Types of pollution (Either a bar or pie graph)

(2 points) \_\_\_ \_\_\_

* The project includes a written description of

The detrimental effects of pollution (How does

This hurt the area?) (2 points) \_\_\_ \_\_\_

* What steps can be taken to reduce the amount

Of pollution that you encountered (2 points) \_\_\_ \_\_\_

Possible Score 10 Total \_\_\_ \_\_\_

No evidence of Pollution

* Write a paragraph on why there is no

Pollution in your area of study (You must

Explain why there is no pollution)

Possible Score 10 Total \_\_\_ \_\_\_

Stream/Body of Water Survey

* The location of the body of water is clearly

Described (It is near the center of town, or it

Is out near a farm, etc.) (How might the location

Of the water affect its quality?) (2 points) \_\_\_ \_\_\_

* Appearance of water is clearly described, what it

Looks like, how wide is it? Does it flow fast or slow?

Turbidity? Is it muddy or reddish? Why? (How do

You think the muddy water affects the organisms?

Why do you think bales of hay are used near construction?

What are they trying to control?) (2 points) \_\_\_ \_\_\_

* Water samples brought in on time to be scheduled (3 points) \_\_\_ \_\_\_
* Area of study is clearly marked on a contour map (3 points) \_\_\_ \_\_\_

Possible Score 10 Total \_\_\_ \_\_\_

Water Quality

Results of Water Quality Labs (in class)

* Results of nitrogen tests (2 points) \_\_\_ \_\_\_
* Results of pH tests (2 points) \_\_\_ \_\_\_
* Impact of water quality on the surrounding ecosystem

(If the water quality is bad, what effect would this have

On organisms that depend on this water) (2 points) \_\_\_ \_\_\_

* Calculate your family water usage handouts (Google

Search: Water Footprint Calculator- National Geographic)

(Hit GO: Do not need pledge) \_\_\_ \_\_\_

* My watershed address: visit

<http://water.epa.gov/type/watersheds/address.cfm> \_\_\_ \_\_\_

Possible Score 10 Total \_\_\_ \_\_\_

Sediment/Sand Survey

* Description of the sediment (use classroom

Identification sheets (2 points) \_\_\_ \_\_\_

* Diagrams of the sediment existing at the bottom of the

Body of water, microscopic view under low and high

Power (2 points) \_\_\_ \_\_\_

* Diagrams are labeled (use classroom microscopes and

Identification sheets) (2 points) \_\_\_ \_\_\_

* Where did the sediment come from? (Possibly roads or

Higher elevations or beaver activity at higher elevations?

Runoff from constructions? (2 points) \_\_\_ \_\_\_

* What forces in this area created those sediments? (Mechanical

Erosion, chemical erosion, human activity, etc.) (2 points) \_\_\_ \_\_\_

* One well written paragraph outlining problems created by the

Added sediment in the water BOD, turbidity, etc. (2 points) \_\_\_ \_\_\_

Possible Score 12 Total \_\_\_ \_\_\_

Description of Organisms

* Identify and list 5 types of animal life frequent this Stream/Body

Of water (Deer, Geese, Beavers, etc.) (2 points) \_\_\_ \_\_\_

* Identify and list evidence of scat/fecal material, or tracks located

In this area include drawings of photographs (2 points) \_\_\_ \_\_\_

* Identify and list 5 types of plants surround this stream/body of

Water use identification books in classroom (2 points) \_\_\_ \_\_\_

* Identify and list 5 types of tree that surround this area of study

(What is happening with the Asian Long-Horned beetle- the woolly

Algid and the emerald ash borer) (What happened to the American

Chestnut tree?) (2 points) \_\_\_ \_\_\_

* Write a short summary about how these plants or animals contribute

Or detract from this ecosystem. Also, address their role as either a

Producer, consumer or decomposer. (2 points) \_\_\_ \_\_\_

Possible Score 10 Total \_\_\_ \_\_\_

Stream/Body Study Sample Record and Assessments:

* Complete “Indicators of Water Quality Lab” and complete

The “Water Quality Analysis Record Sheet” (2 points) \_\_\_ \_\_\_

* Identify and list 5 types of micro invertebrates include

Drawings use identifications sheets in classroom (2 points) \_\_\_ \_\_\_

* Identify and list 5 types of macro invertebrates include

Drawings use identification sheets in classroom (2 points) \_\_\_ \_\_\_

* Using the organism that you have identified, draw or create

A food web specific to the area of your study. Examples

Presented during class (2 points) \_\_\_ \_\_\_

Possible Score 8 Total \_\_\_ \_\_\_

Following the Flow

* Trace the flow of energy through this system in a diagram

(Start with the sun) utilize the organisms that you identified

To trace the flow of energy (2 points) \_\_\_ \_\_\_

* Include a diagram of the life cycle of a benthic macro

Invertebrate you saw (dragonfly, etc.) (4 points) \_\_\_ \_\_\_

* Explain the roles of producers, consumers, and decomposers

In your area of study (4 points) \_\_\_ \_\_\_

Possible Score 10 Total \_\_\_ \_\_\_

Optional History or Interesting Information (This can replace other parts of the project)

* Write a paragraph on the history of the area studied

Quaboag Plantation has a rich history and much of

This area is part of the Quaboag Plantation \_\_\_ \_\_\_

* List and describe some invasive species in this area

That pose a risk to the waterways and wetlands and

Describe what is/can be done about them. \_\_\_ \_\_\_

* Write a paragraph describing the areas uses during the

Industrial Revolution. Was waterpower employed in this

Area? There are still remnants of such use in many small

Ponds. (Comins Pond was used for harvesting ice, as well as

For the lumber industry) \_\_\_ \_\_\_

* Write a paragraph on the current uses of water at this time

Possible Score Discretionary \_\_\_ \_\_\_

Summary/Conclusion

* Combine the elements of your studies in a comprehensive conclusion. Add your predictions for the future of this stream/water body, and some details that you think could improve the health of the stream. (One point for each fact presented) (10 points)

Possible Score 10 Total \_\_\_ \_\_\_

Project Total \_\_\_/100 \_\_\_/100