

MWEE Case Study example
Planning Synthesis and Conclusions

MWEE Title: What does your river give to the Chesapeake Bay?

Audience: Grades 10-12, Biology

School: Conestoga Valley High School

Driving Question: How does agricultural land use impact the quality of the water in our watershed?

Supporting Questions	Investigations	Synthesis and Conclusions
How do we describe and define our local watershed? What does land use look like in our community?	In class, students look at maps to identify how land is used in their community.	Students use maps (digital and/or paper maps) to identify the predominant use of land which is agriculture.
How does agriculture impact our local stream?	Students visit a stream adjacent to the school. They make visual, chemical, and biological observations (water sampling and macroinvertebrates as indicators).	Based on the biological index and the water quality data collected, the stream is generally healthy but nitrates are higher than ideal. Students hypothesize that this is likely due to runoff from the surrounding farms. They confirm this phenomenon with background research.
How can we prevent nitrates from entering the stream?	In class, students experiment with models of land cover to observe the quantity and quality of the water running off of these different types of land cover.	Students compare results from the land cover models.
What practices could be put in place on farms to lessen the nitrates entering our stream?	Students visit a local farm that has implemented Best Management Practices (BMPs). Students do water sampling at the site and get a tour of the facilities from the farmer.	After analyzing the data, students identify that nitrate levels at this site are much lower. Students confirm that BMPs, like forest buffers and no-till practices, can improve water quality.