



Growing Manoomin

Name: _____ Date: _____

What Does Manoomin need to grow and survive?

Manoomin in English refers to wild rice. However, it is not related to common rice. This wild rice grows in shallow, slow moving lakes throughout Eastern North America. The growing conditions for manoomin are very complex, as it is sensitive to a wide range of environmental factors. Here, we will look at 7 factors that it needs in order to grow.

Factor Required to Grow	How Can You Measure This?
Slow-moving rivers or shallow lakes that have water moving in and out. Shallow waters will make a manoomin plant grow wider, while deeper waters will make a manoomin plant grow taller.	Observation
Climatic (temperature) conditions that allow for a growing period of just over 3 months (100 days).	A bit of research or ask the people around you who have more experience in the area!
Sufficient oxygen in the sediments so that roots can take hold (non-moving ponds or swamps will not work).	A device that measures a chemical property of the substances that make up the sediment.
Clear water so that the sunlight can pass through the water to the seedlings.	Observation
Protection from wind and waves.	Observation
A few competing plants (such as perennial weeds). Manoomin's preferred habitat is also populated by other plants, which include yellow water lilies, water milfoil, and certain pond weeds. Having these plants in the area signals that the growing conditions in that area, are good.	Observation
Water that has a low salt content, a neutral (or slightly basic) pH (which is its acid concentration), and no pollutants.	To measure salt content, you measure how well the water conducts electricity using a device. The more salts there are dissolved in the water, the more the water conducts electricity. You can use pH paper or another device to measure the water's pH level.

Manoomin is an annual plant (cereal grain) that develops from seeds each year. Harvesting takes place in the late summer to early fall, and both older and present-day technologies of harvesting manoomin cause many of the plant's seeds to drop back into the water for next year's crop. Once these seeds are dropped back into the water, their growth, or germination is triggered by 3 to 4 months of freezing (or almost 0°C) temperatures. If they do not experience these cold months, they will not germinate. During harvesting, only some of the seeds on a plant are mature enough to result in a harvest the following year. Since Manoomin relies on multiple factors in an ecosystem, as well as other plants around them, this means that when manoomin is growing in an area, that area is a balanced ecological system, where organisms are receiving everything they need to grow, and giving others what they need as well.



Since we are members of many different ecosystem, what can we do to keep them balanced?

Your task now, is to determine if manoomin can grow in your chosen site. Following the template below to investigate the growing conditions and the potential of manoomin survival.

Site #1 Name/Location: _____

Short Description of Site:

Investigation:

General Questions	Yes or No
Is this area a slow-moving river or shallow lake that has water moving in and out?	
Is the climate (temperature) consistent over a few years?	
Is the water clear enough for sunlight to go through?	
Is there protection from wind and waves?	

Depth of the Water	How would you assume Manoomin would grow here?
pH of the Water	Is this favourable for Manoomin growth?
Conductivity of the Water	How much dissolved salt is here? Is this favourable for Manoomin growth?
What Other Species are in the Area?	Is this favourable for Manoomin growth?



QUILLS

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From your investigation, do you believe that Manoomin could grow in this site, and why? If so, where in the site would provide optimal growing conditions, and why?

Think of Manoomin as one of your favourite foods that comes from the Earth. What actions can you take to sustain a relationship with it, so that both you and the food can grow?
