

When the Stars Came Home

Additional Resources

Buckets of Blueberries

Level K – 8, see specific activities for each grade level

Number of Students individual or small groups

Length 30 – 60 minutes

Brief Description: One of the things Ojiig noticed when moving to the city was the fact that his family now bought blueberries and marvelled at the size of them. This activity will look at the differences between wild grown blueberries and mass produced/farmed blueberries and investigate them mathematically.

Materials: two boxes per student/group; two differently sized round objects (the smaller represents wild blueberries, the larger, cultivated); whiteboard/writing surface

Preamble: When Ojiig moves to the city he says “His family no longer picked blueberries; they bought those too— some as big as coins—frozen in a bag.” There is actually a big difference between the size of wild picked blueberries and farmed blueberries. In this activity students will compare these differences and discuss some of the potential reasons behind these differences.

Background Information: Farmed or cultivated blueberries are often larger than wild blueberries due to how they are farmed. Often the berries are specifically bred over years to produce larger and larger berries. Pesticides and fertilizers are also often used to encourage growth and prevent disease and being eaten by bugs. Crops are also often closely monitored in terms of temperature, humidity, and other growing conditions to maximize size. They will also tend to have a very consistent taste due to the strictly controlled growing conditions (including soil composition).



Wild blueberries on the other hand are not kept in controlled environments and are subject to weather changes and things like insects and animals. In a good year the berries might grow quite large, in a poor year they might be very small. Their taste will also vary depending on the soil they were grown in, what types of animals live in the area (as animal droppings are a good source of natural fertilizer), and what is going on in nearby environments (forest fires can cause ash to travel long distances or be dropped by rain clouds and can change the soil consistency and make-up).

Some people prefer the taste of wild blueberries over farmed, and some people like the consistency of farmed; it's often a matter of personal choice and preference.

Preparation: set up two same-sized baskets for each student or student group; one basket will be filled with small rocks/pebbles/marbles (or other round objects), the other will be filled with larger round objects. There should be a noticeable difference in size between the round objects used to fill each basket. (Note: you can also use real blueberries to do this activity if you like)

Procedure:

Grades K-2: provide each student or group of students with a basket and ask them to guess how many blueberries they think are in each basket? Ask them to take a "berry" out of each basket and compare them.

Prompting Questions:

- Which one is bigger or smaller?
- Which one takes up more space?
- Which basket do you think has more berries in it? Why?

Next, have them count the berries in each basket.

Prompting Questions:

- Which basket had more in it?
- Which basket do you think is wild blueberries (the kind Ojjiig and his family would have picked) and which are the cultivated or farmed (the ones he'd buy frozen)? Why?

Grades 3 - 5: same initial idea (you can use significantly more berries in each basket for this age group), you can also use smaller, more blueberry sized items (or blueberries themselves)..

Additional Prompting Questions:

- What effect have things like pesticides and industrial farming practices had on the size of things like berries? Could this explain why one is bigger than the other?



Grades 6 - 8: same as grade 3-5 but have students calculate the volume of the basket and the volume of the different types of blueberries and then discuss why more of the smaller berries fit into the basket using mathematical language. You can also have them calculate the surface area of the two types of berries and compare them.

Additional Prompting Questions:

- How do volume and surface area relate to one another (use the berries and the baskets to explain your answers)?
- What effect have things like pesticides and selective growing practices (including Genetic Modifications) had on the size of things like berries? Could this explain why one is bigger than the other?

Extension Activities:

- Have students research the differences between wild fruits, vegetables, berries, and animals and farmed or cultivated ones. How are the practices similar, how are they different? Students could present findings to the class.
- Students could go to their local grocery store and farmers market and compare an identical item from each (say local potatoes vs industrially grown), or farmed fish vs wild caught (in this case the wild might be bigger or smaller depending on the state of the habitat at the time when they were caught),
- What benefits has modern farming had on our world? What drawbacks or harms has it caused?
- How does this relate to the farming of animals vs hunting or catching wild (will they always be bigger or smaller or does it depend on their environment)?

Indigenous Connections: have students research indigenous farming practices and compare them to industrial farming practices. Discuss connections between single farms (ones that only grow one thing) and multi-species farms (ones that rotate crops or gardens that grow multiple different things in one space). A good example of this is the "Three Sisters" where you grow corn, beans, and squash together. The corn gives shade to the beans and squash along with a place for the beans to grow, and the squash has large leaves which protect the base of the corn (<https://seeds.ca/schoolfoodgardens/the-three-sisters/>). The three plants work together in harmony to support each other and ensure each one grows better than any one on their own.

