

## Spring Flowers Activities: Maple



### Maple Tree General Questions

1. How many species of maple are there in Canada?
2. Where do maple trees grow in Canada?
3. How long do maple trees live?
4. What are the key changes in weather that affect maple trees?
5. What two ways can you tell a Canadian maple tree from a Norwegian maple tree?
6. How did the maple leaf become part of our Canadian flag?

### Spring

7. What special spring use of the maple tree was made by Indigenous people?
8. How was boiling sap possible without a large boiling pot?
9. How did the pioneers adapt this method?
10. What method is used today for commercial collection?
11. Why would there be a high jacking of a tanker truck of Quebec maple syrup?

### Summer

12. What services do maple trees provide to everyone in the summer months?
13. What services do maple trees provide to home owners in the summer months?
14. What changes in the range of maple trees will likely take place this century?

### Autumn

15. What do maple trees provide in the fall that generates income?
16. How do the changes in maple trees make this possible?
17. How do the maple trees make their leaves fall?

### Winter

18. What shape do the silhouettes of maple trees take in winter?
19. What does new bark on silver maple trees look like?



### Climate Change Effects

20. What are the effects of climate change on Ontario maple trees? Hint: Examine the influence of factors like snow cover or hot weather.

21. Where do we expect to find maple trees growing in Ontario in the next century?
22. What species is likely to naturally take maple's place in Ontario this century? From where?



**Maple Tree General Answers: 1-6**

1. There are 10 species of maples (genus: *acer*) native to Canada, plus a common hybrid called the Freeman maple.
2. In Canada, maples grow in a vast range from British Columbia to the Maritimes.
3. Maples can live for several centuries – for example, the sugar maple's lifespan is 300 to 400 years.
4. A series of cool nights and warm days trigger colour change as

chlorophyll is broken down.

5. Non-native Norway maples often have all branches begin from the same height. If you break a Norway maple stem, the sap is white (sugar maples have a clear sap).
6. The maple leaf has been used as a Canadian emblem since the 18<sup>th</sup> century, when it was featured on the coat of arms of Ontario and Quebec. It was highlighted in the patriotic song "The Maple Leaf Forever" by Alexander Muir in 1867 and also appeared on currency. In 1963, PM Lester Pearson sought to adopt an official Canadian flag through parliamentary debate. An all-party committee considered nearly 6,000 designs, including 2,000 submitted by the public. The winning design was created by George Stanley, inspired by the flag of the Royal Military College of Canada.

- a. Read more about the Canadian flag's history:

<https://www.canada.ca/en/canadian-heritage/services/flag-canada-history.html>

**Spring Answers: 7-11**

7. Spring time was time to harvest maple tree sap to make maple syrup. Other uses included crafting paddles and fish baskets.
8. Indigenous people carved a trough in a log and added heated stones to boil it down to syrup.
9. Pioneers used large iron cauldrons to boil the maple sap.
10. Today maple trees are tapped and deliver sap via plastic tubing to a deep boiling pan.
11. Maple syrup is now expensive. A 3,000-ton heist in 2012 had a value of \$18.7 million.

**Summer Answers: 12-14**

12. In the summer, maple trees provide shade and beauty.
13. The tree's shade on the building reduces the work that air conditioners do - a savings.
14. The range is moving northward as the climate warms.

**Autumn Answers: 15-17**

15. In the fall, maple trees provide a boost to tourism in Ontario and Quebec.
16. When weather conditions are met, the tree triggers the formation of a weak cell layer at the base of leaves. Chlorophyll is broken down. Other leaf pigments are seen as the leaf dies.
17. A second special layer of cells is produced. The new cork cell layer seals off the leaf stem to shut down delivering nutrients to the leaf, so the leaf dies and breaks off.

**Winter Answers: 18-19**

18. Maple trees in winter have a big triangular shape and branches opposite each other.
19. The bark of the silver maple's new branches is a silvery gray.

**Climate Change Effects Answers: 20-22**

20. As climate warms, snow cover will decrease annually while temperatures rise. Annual rainfall may have downbursts etc., but the annual amount received may not change.
21. Maple trees can naturally migrate to the north shore of Lake Superior.
22. We look for species further south that are now flourishing in a climate similar to Ontario so these trees can move north to Ontario to replace our sugar maple trees. Note that current southern species in their location now have a warming climate.

