

MAPLE ACTIVITY SUITE

HOW WELL DO YOU KNOW THE MAJESTIC MAPLE?



Maple in full spring bloom



Maple flower cluster



Maple flower

First, try your hand at labelling the parts of a maple flower!

Maple flowers have five sepals, five petals about one to six mm long; 12 stamens about six to ten mm long in two rings of six; and two pistils or a pistil with two styles. The ovary is superior and has two carpels whose wings elongate the flowers, making it easy to identify which flowers are female.

Maple Flower Diagram (some sepals partly removed)



Filament of stamen

Anther of stamen

Ovary of pistil

Style of pistil

Sepal of calyx

Stigma of pistil

Maple Tree Quiz

General

1. How many species of maple are there in Canada?
2. Where do maple trees grow in Canada? Hint: refer to the range maps that can be found [here](#).
3. On average, how long do maple trees live?
4. What are the key changes in weather that affect maple trees?
5. In what two ways can you tell the non-native Norway maple apart from the sugar maple?
6. How did the maple leaf become part of our Canadian flag?

Spring

1. How did early Indigenous peoples boil maple sap to make maple syrup?
2. What method is used today for commercial collection of maple sap?
3. On average, how many litres of sap is needed to make a litre of maple syrup: 20, 30, 40 or 50?
4. On average at what “age” is a maple tree large enough to tap: 10, 20, 30, or 40 years?
5. Warm winters make for a better maple sap harvest – true or false?
6. What province is the world’s largest producer of maple syrup?
7. Why would anyone want to hijack a tanker truck filled with maple syrup (true story!)?

Summer

1. What benefits do maple trees provide to everyone in the summer months?
2. What benefits do maple trees provide to homes in the summer months?
3. What changes in the range of maple trees in Canada will likely to take place this century?

Autumn

1. What do maple trees provide in the fall that boosts our economy and what changes happen in the trees to make this possible?
2. What makes maple leaves fall from the tree?

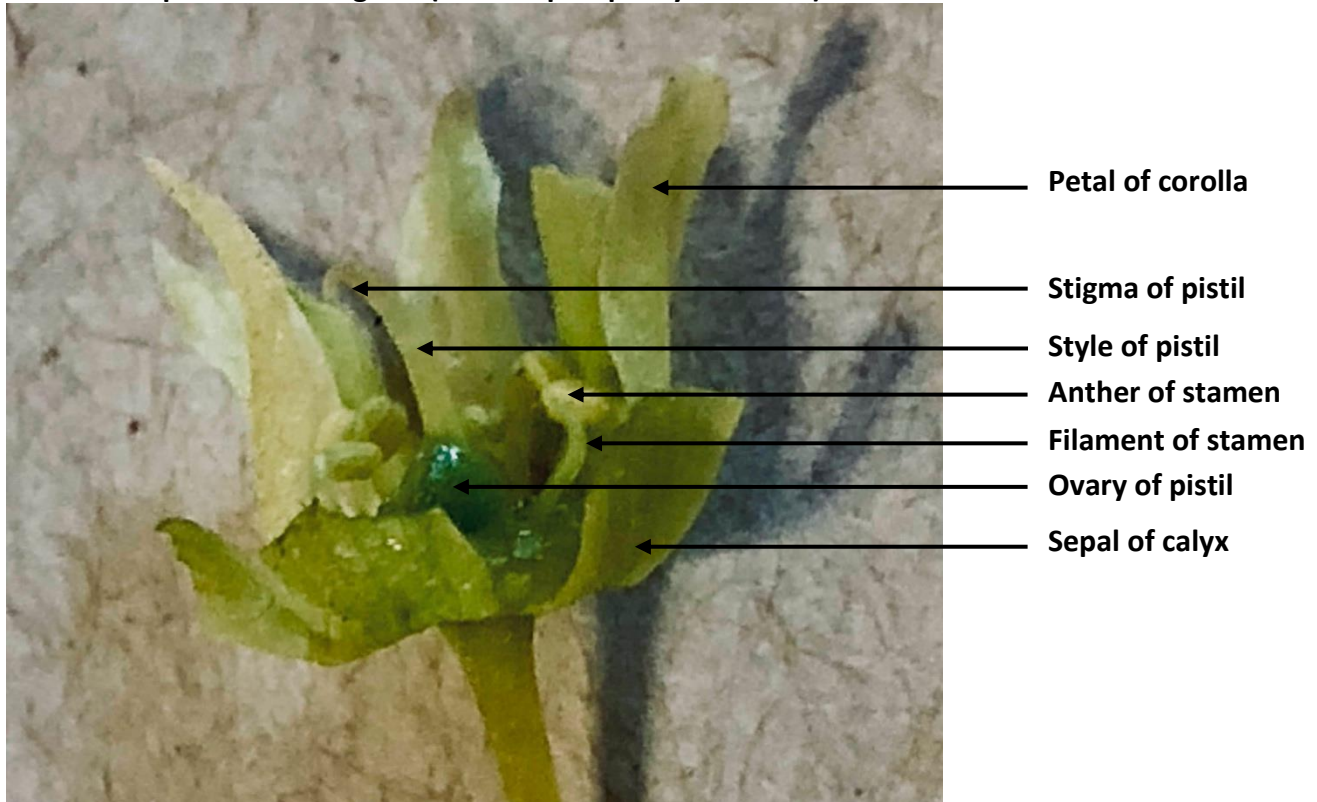
Winter

1. What is the shape of a maple tree’s silhouette in the winter?
2. What colour is the bark of new branches on a silver maple?
3. Which species of maple stands out dramatically in a winter landscape?

MAPLE ACTIVITY SUITE

ANSWER KEY

Labelled Maple Flower Diagram (some sepals partly removed)



Maple Quiz Answers

General

1. There are 10 species of maple (genus: acer) native to Canada plus many natural hybrids such as the Freeman's maple which is a cross between silver and red maple.
2. In Canada, maples can grow from coast to coast yet different species of maple have more specific ranges. For example, silver maple's distribution is found in the Great Lakes-St. Lawrence and Carolinian forest regions while sugar maple is found in the Great Lakes-St. Lawrence, Carolinian and Acadian forest regions.
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. The non-native Norway maple, which is now considered an invasive species *in Canada*, often has all branches beginning from the same height. Also, if you break a Norway maple leaf stem, the sap is white.
6. The maple leaf has been used as a Canadian emblem since the 18th 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

1. To boil the maple sap, an essential part of maple syrup production, early Indigenous peoples would use clay vessels over an open fire. Pioneers and early settlers would later use iron cauldrons.
2. Today maple trees are tapped and deliver maple sap via plastic tubing (either by drip or by suction) to a deep boiling pan.
3. It takes an average of 40 litres of maple sap to make a litre of maple syrup.
4. On average a maple must grow for 40 years before being large enough to tap for sap.
5. False. You need cold nights to make “sugarers” happy, so an unseasonably warm winter is not good for the harvest.
6. Quebec is the world’s largest producer of maple syrup (almost 75% of all produced.)
7. Maple syrup is quite expensive. A 3000-ton heist of syrup in 2012 in the province of Quebec had a value of \$18.7 million, not pocket change!

Summer

1. In the summer months, maple trees provide cool shade and beauty.
2. The shade a maple tree provides can reduce the work for air conditioners to do, reducing energy costs.
3. The range is moving northward as the climate warms. Scientists predict that maple trees will be found further north of their existing ranges within this century.

Autumn

1. In the fall, maple trees provide a boost to the tourism industry in Ontario and Quebec, because of their wonderful fall colours. When certain weather conditions are met, this 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.
2. The leaves fall after a second layer of special cells is produced. This new cork cell layer seals off the leaf stem shutting down the delivery of nutrients to the leaf, so the leaf dies and breaks off.

Winter

1. In the winter maple trees have a triangular shape and branches are opposite each other.
2. The bark of the silver maple’s new branches is a silvery gray.
3. The red maple stands out in winter for its vibrant red buds that contrast against the winter landscape.