

FOR WEEK OF AUGUST 16, 2020.

COLLECTING CLOUDS CHALLENGE

Spending time with your head in the clouds probably won't make you rich, but it will enrich your life!

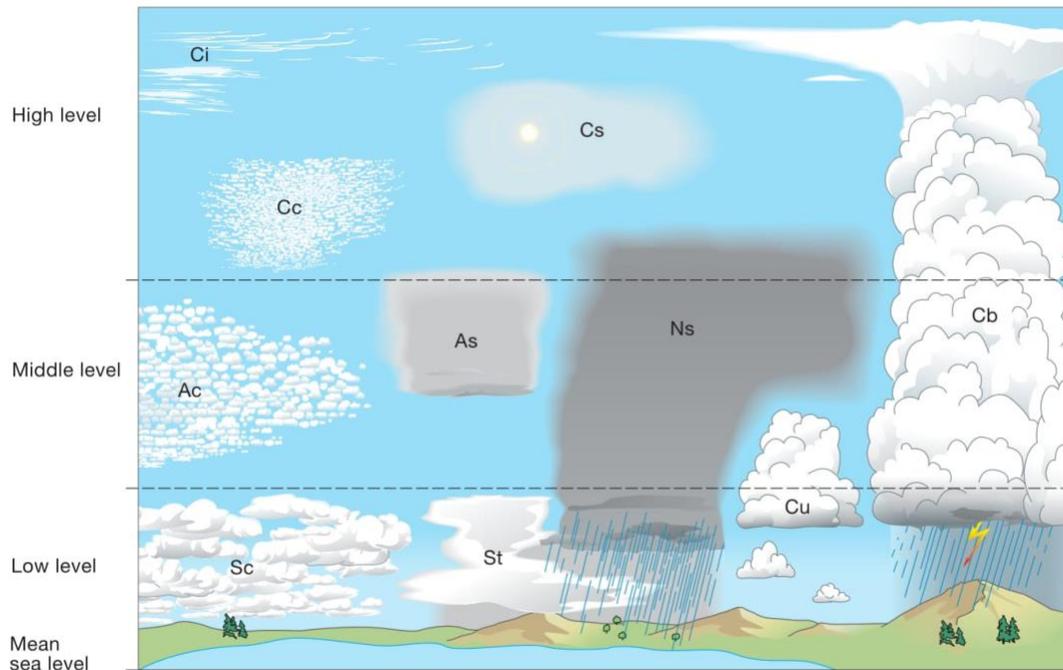
What's that you say? We're going to collect clouds? That's ridiculous!! Clouds are free-spirited and fleeting, surely they are as close to uncollectable as can be? Not necessarily so; we can collect clouds simply by noticing and recording them (especially through sketching, painting and photography). Why might we want to 'collect clouds'? Read on to find out.

You may know that the physical geography surrounding Calgary, particularly the complex air movements related to the Canadian Rockies to the west, gives rise to spectacular – and often rare – cloud forms. We're all familiar with the chinook arch, but have you seen any lenticular, mammatus, asperitas or noctilucent clouds lately? You also may realize that while most people rarely look up to notice them, clouds actually affect our psychological status. Looking up at clouds, rather than down at our screens, promotes better eyesight, slows us down and raises our energy, expands our consciousness and allows our creativity to soar. The act of actually *seeing* clouds, appreciating and wondering at the interplay of water droplets and air as the unending formations and graceful movements of the clouds pass overhead, is another way we can experience God's presence.

Clouds are used to symbolize the presence of God throughout the Scriptures. The word 'cloud' appears 97 times in 86 verses, and 'clouds' occurs 65 times in 63 verses (in NIV). Among other things, these verses represent clouds as a natural phenomenon, as symbols of spiritual truths, and as a symbol of God's presence and glory. One example from Job 37:15-16 expresses the mystery of God's world:

“Do you know how God controls the clouds and makes his lightning flash? / Do you know how the clouds hang poised, those wonders of him who has perfect knowledge?”

While we do not have perfect knowledge about clouds (or other natural phenomena) we do know a great deal about the altitudes where various clouds form and how watching the clouds move and change can help us forecast the weather.



There are 10 main groups of clouds, called *genera*. Most of the cloud genera have been subdivided into *species* (and further into *varieties*) based on the many possible variations in the shape of clouds and differences in their internal structure. Most of the names we have given clouds come from Latin and usually combine these prefixes and suffixes:

- Stratus/strato = flat/layered and smooth
- Cumulus/cumulo = heaped up/puffy, like cauliflower
- Cirrus/cirro = high up/wispy
- Alto = medium level
- Nimbus/nimbo = rain-bearing cloud

By combining names, we can get an idea of a cloud's characteristics; for instance, by combining nimbus and stratus, we get 'nimbostratus' — a cloud which is flat and layered and has the potential for rain.

The diagram above (from the World Meteorological Organization's 2017 *International Cloud Atlas*) shows us the shape, height, altitude and vertical extent of the ten main groupings (*genera*) of clouds. See the Table on cloud types for what the labels on the diagram mean, and a few more details about each of the cloud groups. As we know, clouds are constantly changing their appearance; they can take an infinite variety of forms and combine in various ways, often in a matter of seconds, so 'collecting' different cloud types can be both fun and challenging. In this cloud challenge we will look for a mix of common, rare and 'fun' clouds. We hope you enjoy the 'Collecting Clouds Challenge' (see instructions below).

Instructions: how to 'collect clouds'

In this cloud collecting challenge, the goal is to gain as many points as possible by seeing and then photographing, sketching or painting (if you wish) as many as possible of the different cloud types shown on the Cloud Collection Chart. Please know in advance that you may not be able to see and 'collect' all the clouds within a short timeframe, but each of the clouds in the challenge has been seen in Calgary. Rarer clouds and some of the amazing optical effects produced by clouds as they scatter the sunlight, have higher point values than more common clouds (see Table below).

Just remember that clouds usually contain a whole range of different cloud types, so don't expect them to always have an orderly, distinct form. And remember, too, that some of the rarer clouds and optical effects can appear and disappear in a few seconds, so if you actually see one or more of the rarer types, then congratulations on your 'eagle-eyed' sky awareness!

In your nature journal you might keep track of the dates when you see the various clouds and optical effects as well as other details you notice about the sky that you find significant. You can complete the challenge over a timeframe that is meaningful to you (there is no deadline here!). Perhaps in your journal you could write a few words about why one or more of your cloud sightings, photos, sketches or paintings was meaningful to you, what you felt when you saw the cloud or optical effect, and how (in what ways) it reflected or revealed more about God to you.

Enjoy looking up!

Did you know?

Clouds are not weightless.

An average cumulus (fair weather) cloud can weigh more than a million pounds, and a thunderstorm can pack billions of pounds of water in one tiny part of the sky.

A medium sized rain cloud contains as much as ten billion water droplets per cubic metre and can weigh the same as eighty elephants.

*All of that weight seems to be suspended effortlessly in the air
... AWESome to think about ...*

*Stand still and consider the wonders of God!
(Job 37:14b)*

Cloud types by altitude, key features and weather connections

<i>Level & Altitude*</i>	<i>Cloud type (Genera)</i>	<i>Selected key features</i>	<i>Weather connections</i>
High 5-13km (16,500-45,000 ft)	Cirrus (Ci)	<ul style="list-style-type: none"> white delicate filaments; hair-like appearance (made of falling ice crystals) 	<ul style="list-style-type: none"> thickening & spreading cirrus indicates moisture increasing; rain or snow in a day or so
	Cirrocumulus (Cc)	<ul style="list-style-type: none"> made up of many small white clouds (called cloudlets); narrow, regularly spaced ripples or grains (rare and fleeting cloud) 	<ul style="list-style-type: none"> precipitation from these clouds never reaches the surface, but they often herald stormy weather
	Cirrostratus (Cs)	<ul style="list-style-type: none"> transparent whitish veil; sky partly or totally covered; produces halo phenomena (e.g. 'sun dogs') 	<ul style="list-style-type: none"> no precipitation comes from these clouds, but they indicate rain or snow within 24 hours
Middle 2-7 km (6,500-23,000 ft)	Alto cumulus (Ac)	<ul style="list-style-type: none"> white and/or grey patch, sheet or layer, with shading; rounded masses (may merge or not) 	<ul style="list-style-type: none"> typically produce no precipitation; any rain that falls does not reach ground (virga)
	Altostratus (As)	<ul style="list-style-type: none"> greyish/bluish layer of uniform appearance, totally or partly covering sky (sun may show vaguely) 	<ul style="list-style-type: none"> forms ahead of a warm front; indicates a change in weather is coming; produces rain or snow
	Nimbostratus (Ns)	<ul style="list-style-type: none"> featureless grey layer, often dark; cloud thick enough to block out the sun 	<ul style="list-style-type: none"> always produces continuous, moderate rain or snow that may last for several hours
Low From the Earth's surface to 2 km (1-6,500 ft)	Strato cumulus (Sc)	<ul style="list-style-type: none"> grey and/or whitish layer of cloud with dark parts (rounded masses, lines, waves, rolls) 	<ul style="list-style-type: none"> often mistaken for rain clouds; only occasionally give light rain, snow or snow pellets
	Stratus (St)	<ul style="list-style-type: none"> lowest forming, generally grey cloud layer with a fairly uniform base 	<ul style="list-style-type: none"> occasional drizzle, light snow or snow grains
	Cumulus (Cu)	<ul style="list-style-type: none"> dense, detached clouds with sharp outlines; develop vertically in rising mounds or towers; in sun, tops are bright white, base is dark 	<ul style="list-style-type: none"> mostly, cumulus indicates fair weather, but in unstable air can grow into towers and produce showers
	Cumulonimbus (Cb)	<ul style="list-style-type: none"> 'the big one'; heavy, dense cloud with considerable vertical extent (mountain; huge towers); high winds flatten top into anvil-like shape; very dark base 	<ul style="list-style-type: none"> thunderstorm clouds; associated with heavy rain, snow, hail, lightning and even tornadoes

* Most clouds are confined within their level, but there are a few notable exceptions:

- Altostratus is usually found in the middle level, but it often extends higher;
- Nimbostratus is almost always found in the middle level, but it usually extends into the other two levels;
- Cumulus and Cumulonimbus usually have their bases in the low level, but their vertical extent is often so great that their tops may reach into the middle and high levels.

Kid's Version

Bible Verse: Psalm 104:3 "God makes the clouds God's chariot and rides on the wings of the wind."

https://www.nationalgeographic.com/family/2020/06/getting-your-kids-head-in-the-clouds-is-a-good-thing/?cmpid=org=ngp::mc=crm-email::src=ngp::cmp=editorial::add=FFG_Special_20200621&rid=3F93E2136F16030979FF6DECB34EE1B