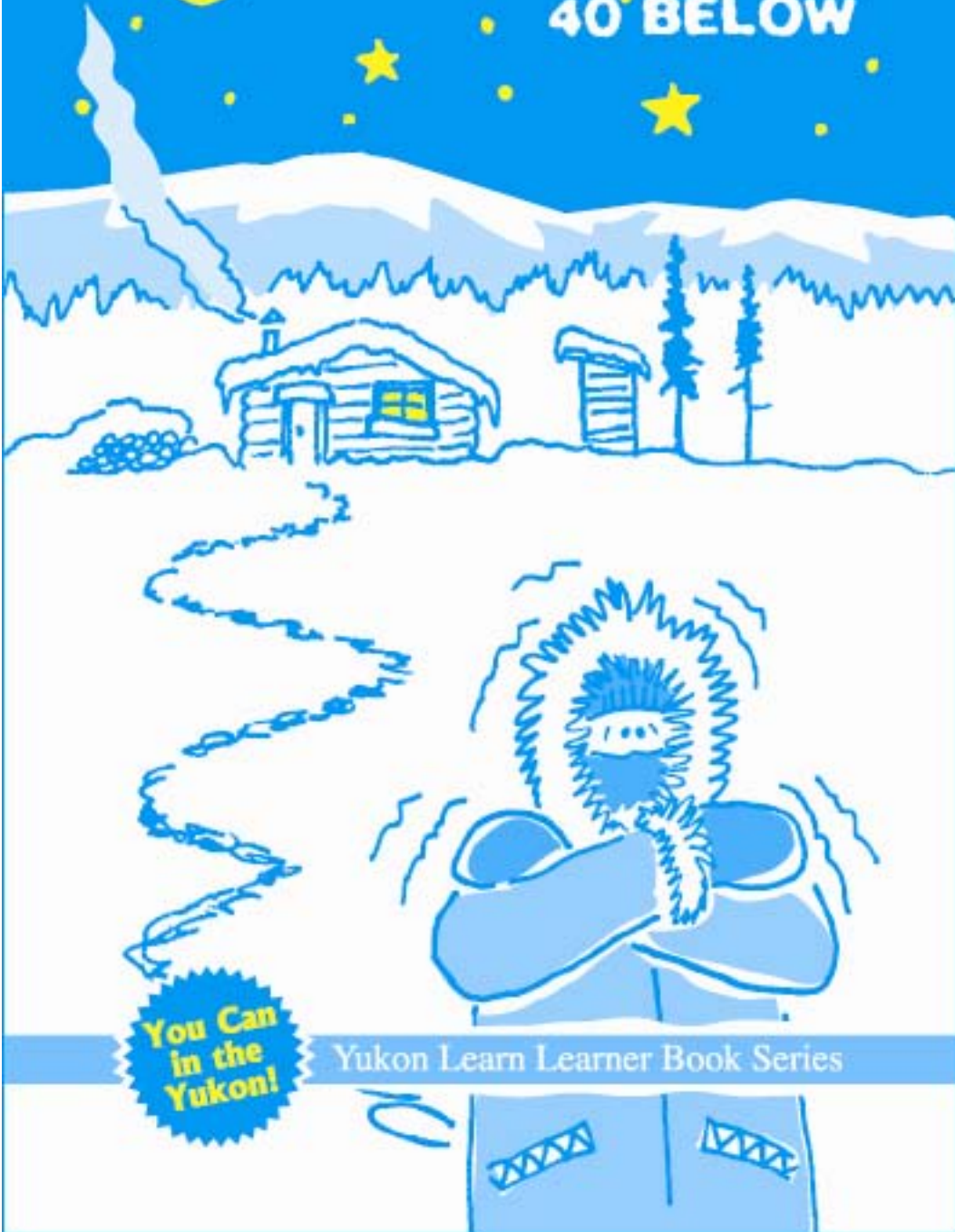


# HOW TO SURVIVE 40° BELOW



**You Can  
in the  
Yukon!**

Yukon Learn Learner Book Series

# HOW TO SURVIVE 40 BELOW

Written by Elaine Schiman

Illustrated & designed by Tanya Handley

Photography by Cathie Archbould, [www.archbould.com](http://www.archbould.com)

Produced by Yukon Learn Society

Edited by Beth Mulloy

Consultation: Karen Smith & Beth Mulloy



*308 Hanson Street,  
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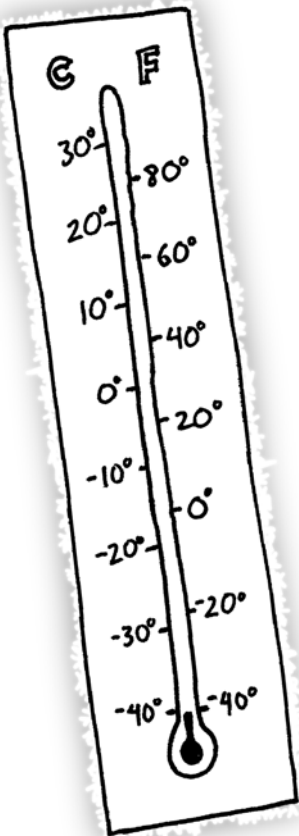


## INTRODUCTION



The world becomes a different place at **40 BELOW**. Ice and snow covers the ground, your house and your car. Your breath freezes in the air. Inside, frost gets around the windows and doors. Whenever a door is opened, a blast of cold air rushes in, raising an icy fog.

Living at **40 BELOW** is like living inside the world's largest freezer.



How often is it  
**40 BELOW** or colder?

Often enough! In Whitehorse, between 1951 and 2000, it was **40 BELOW** or colder 283 times! Some other areas of the Yukon are even colder. For example, Mayo has more cold spells and they last longer.

In July, the Yukon doesn't seem like a cold place. The sun is hot. The days are long. The flowers bloom. The best place to find cold is in an air-conditioned grocery store or in a tall glass of iced tea or in a deep icy Yukon lake.

If you go for a swim on a hot summer day, the cold is there waiting for you. But when you emerge, shivering and shaking, the sun and the breeze will dry and warm you. You will be comfortable within minutes.

In December, it is a different story. Getting wet outside then can be deadly. If you are unlucky enough to fall through the ice into a Yukon lake, the cold will send your body into shock. You will gasp for air, you will struggle to move your arms and legs. If you manage to get to dry ground, the weak light of the sun will not warm you. The breeze will not dry you. Instead, you will shiver and shake and gradually freeze solid. At **40 BELOW**, with no wind, and just a light covering of clothing, the cold will kill a wet person very quickly.

"Metal gets so cold, it breaks.  
Once, when it was almost  
**-60° C**, my vehicle's rear  
view mirror broke right off."

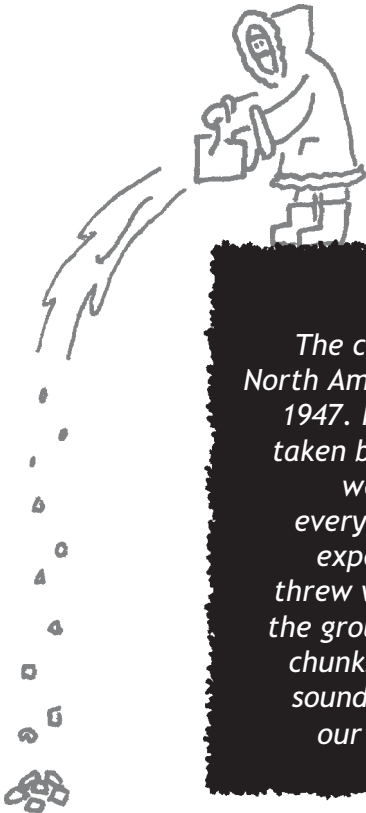


Herb Wahl,  
retired weatherman,  
Whitehorse

## YOU CAN SURVIVE!

This book is designed to help you survive **40 BELOW**. It will tell you:

- how to watch out for and prevent cold injuries
- how to dress for the cold
- how to keep your house warm
- how to drive safely
- how to learn from animals who live in the cold
- how to enjoy yourself inside and outside



### *The coldest day ever!*

*The coldest air temperature ever taken in North America was in Snag, Yukon in February 1947. It was **-63° C**! The temperature was taken by weatherman Gordon Toole. "When we found out that **-63°** was a record, everyone went outside and tried different experiments," says Gordon. "One fellow threw water up in the air. By the time it hit the ground, the water drops had frozen into chunks of ice! We could also hear a hissing sound as we breathed. It was the sound of our breath freezing when it hit the air!"*

# CHAPTER 1: CAN 40 BELOW HURT ME? YOU BET IT CAN.

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When you first arrive in the North, you will hear stories of those who have died tragically in the cold, and those who have survived it.

- ✱ There was the couple who drove their snowmobile into a hole in the river ice in the black of night. They pulled themselves out and walked for hours until they were rescued, their wet clothing frozen to their bodies.
- ✱ A teenager froze to death in the middle of his home community. He walked out of a party, alone and very drunk, went to sleep in a snowbank, and never woke up.
- ✱ A canoe tipped over in a river clogged with ice. An elderly woman inside made it to shore, but her husband didn't.

The cold can injure. The cold can kill.



## COLD INJURIES

**Frost nip** happens when the skin freezes. **Frostbite** is worse. The skin and the tissue beneath it freeze. You can tell when you have frostbite or frost nip because your skin loses feeling, turns white and becomes hard. Usually the first areas to be affected are the nose, ears, cheeks, fingers and toes.

**Hypothermia** is when the centre of your body starts to freeze. It starts with shivering, which is your body's way of trying to warm itself up. If the shivering stops and you are still cold, that's bad. It means your body is too tired to warm itself up. You will also feel weak, tired, angry and confused. You might begin to sound or act drunk.



"I spent 4 days and 5 nights alone in the bush, after my plane crashed. I froze both my feet and couldn't move. Planes flew right over me and didn't see me. I survived because my father and his friend kept searching after everyone else had given up. My advice is to always tell someone where you're going, so searchers will know where to look."

*Moe Grant, pilot,  
Whitehorse*



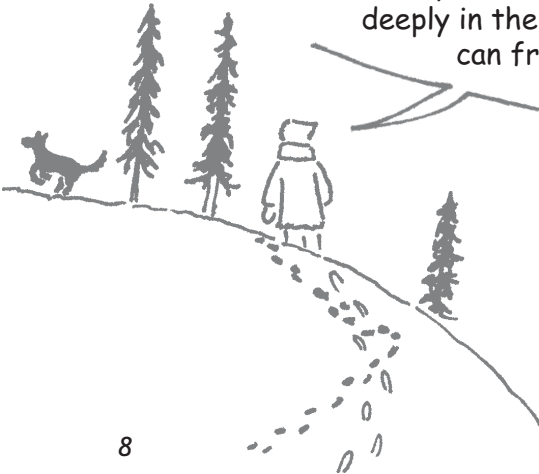
## YOU CAN SURVIVE!

If you think you have frost nip, frostbite or hypothermia, here are some tips:

### What To Do:

- Warm up any frostbitten area by putting bare skin on it, such as your hand.
- Move around. Walk, jump, swing your arms or move your fingers.
- Loosen any tight clothing.
- Drink something warm, or eat. It gives your body energy to create heat.
- Once you get to a warm building, remove any wet clothing. Warm up with blankets, hot drinks or a warm bath. Cuddle up to another person's warm bare skin.

"When it's very cold, **-50°** or **-60°**, it's better to not to take deep breaths. If you breathe deeply in the cold for awhile, you can freeze your lungs."



Gordon Toole,  
retired weatherman,  
Watson Lake

### What Not To Do:

- *Don't smoke. Smoking stops your blood from circulating well and you are more likely to get frostbite.*
- *Don't drink alcohol. Alcohol makes your body cool off faster. Alcohol can also cause you to make bad decisions, which could kill you!*
- *Don't partly re-warm a frostbitten area, if you think it might freeze again later It's better to leave the area frostbitten, until you are able to warm it up completely.*

*"Most cold injuries happen because people push themselves too far. They're cold and wet, but they think it's not worth it to stop, build a fire and warm up. They just want to get home. But by the time they arrive, they have a cold injury that could have been prevented."*



*Gerard Parsons,  
doctor, Dawson City*

## CHAPTER 2: FASHION TIPS AT 40 BELOW


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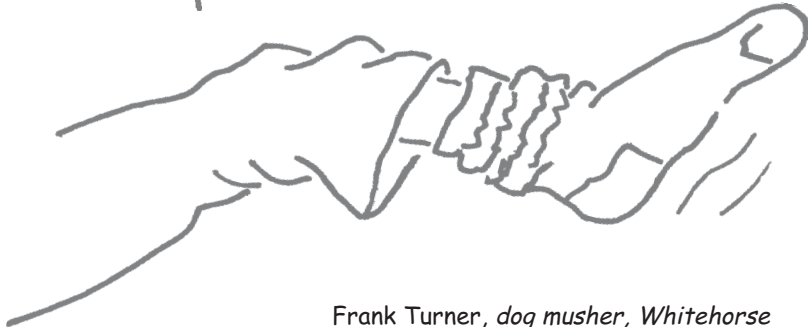
At **40 BELOW**, most northerners are more interested in staying warm than looking cool. Suddenly, the ugly yellow hat that makes your head look like a banana starts to look good, just because it is warm!

At **40 BELOW**, everyone tends to look alike. With a long heavy coat, a hood pulled up over your face, heavy boots and thick mittens, the only thing anyone sees is your eyes, looking out between frosted eyelashes. Why worry about dressing fashionably, when it's almost impossible to tell people apart anyway?

The best fashion at **40 BELOW** is dressing warmly!






"When I run the Yukon Quest sled dog race, my clothes are my tools. They make sure I don't get too cold or too warm. I wear good clothing, especially natural fibres like wool. I also take along lots of extra socks. If my feet are dry, my whole body feels better."



Frank Turner, *dog musher, Whitehorse*

## WHAT ARE WARM CLOTHES MADE OF?

-  Clothing made of wool is very warm because wool does not absorb moisture. It keeps you warm even if you sweat or get wet.
-  There are also new synthetic fibres that are warm, even when wet. One example is polypropylene.
-  Cotton will make you feel colder, because it absorbs moisture. It also takes longer to dry.

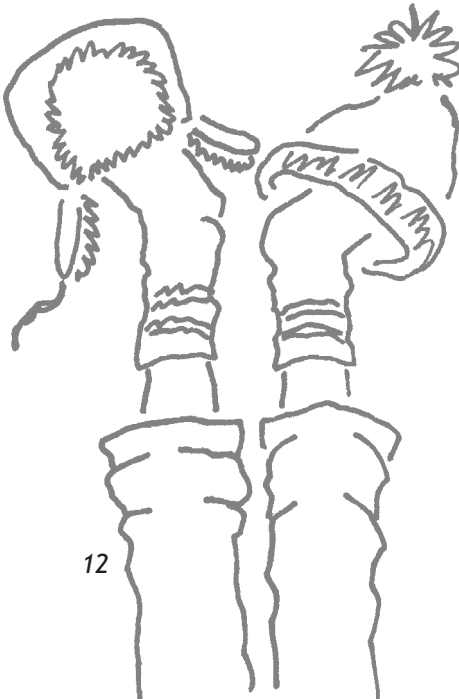
"When I was growing up, my mother knitted wristbands that kept the cold air from going up our sleeves. We also lined our moccasins and mittens with fur, especially wolf or beaver. We would trim our parka hoods with wolverine, because that's the only type of fur that does not collect frost from your breath."

Pearl Keenan, *Tlingit elder, Teslin*



## YOU CAN SURVIVE!

- *Wear a hat and scarf to protect your cheeks, chin, nose and ears. A scarf also warms the air before you breathe it in.*
- *Mitts are better than gloves because your fingers are together and they keep each other warm.*
- *Wear soft footwear, like mukluks. They allow the blood to flow freely to all parts of your feet. That keeps them warmer.*
- *Dress in layers. The layers keep body heat in. If you begin to sweat, remove layers, or slow down. Being wet and cold can be deadly.*
- *Make sure your jacket can keep the wind out.*
- *If you will be in the cold for a long time, take extra clothing along, so that you can change if you get wet.*



"There's an old saying... 'If your feet are cold, put on a hat.' That's because you lose 30 to 50% of your body heat through your head. Wearing a hat helps you keep that body heat."

Gerard Parsons,  
doctor, Dawson City

## CHAPTER 3: HOME & HEARTH AT 40 BELOW

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At **40 BELOW**, most northerners will spend more time inside than outside. You want your home to be as warm and comfortable as possible, because you'll be spending a lot of time there.

A home heating system is also a matter of survival, not just comfort. Imagine no heat in your home at **40 BELOW**! Everything in your home could freeze, including your water pipes. It can cost thousands of dollars to fix all the damage!



## WHAT ARE YOUR CHOICES?

You can heat your home with:

 Firewood

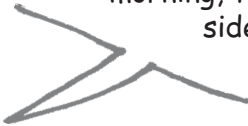
 Oil

 Propane

 Electricity

Firewood is bought by the cord. A cord is 4 feet wide, 4 feet long and 8 feet deep.

"In my first Yukon winter, I lived in a canvas tent heated by a woodstove. We didn't get out of bed unless we had to. It was so cold that in the morning, the blankets would be frozen to the side of the tent. The snow didn't even melt off our boots."



*Gordon Toole,  
retired weatherman,  
Watson Lake*



## YOU CAN SURVIVE!

*Northerners heat their homes for most months of the year from about September until May So you need to take good care of your heating system.*

- *Ask a heating company to check your heating system at least once a year.*
- *Clean out your wood stove once a month. Sweep the chimney several times a year.*
- *To buy oil or propane, check the Yellow Pages of your phone book.*
- *To buy firewood, look for woodcutters under Firewood in the newspaper Want Ads. It will probably be cheaper in the summer.*
- *If you want to cut your own firewood, contact the Yukon Government to get a free woodcutting permit.*
- *Have more than one type of heat in your home, in case something goes wrong with one of them.*





## CHAPTER 4: DRIVING AT 40 BELOW

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You may think **40 BELOW** is hard on you, but it is equally hard on your car. The drive belt, the power steering hose, the boots on axles and various seals in the engine all tend to break more easily in the cold. And the last thing you want at **40 BELOW** is to be on the highway in a car that won't run!

The best advice about driving at **40 BELOW** is... *Don't do it!*


When it's that cold, it's better to stay close to home.


"My first time driving at **40 BELOW**, my car wouldn't shift out of first gear. I had square tires and was bumping along the road. When I stopped to take a plastic bag out of the trunk, the bag broke into a million pieces and blew away in the wind. I never would have dreamed that could happen."

Gerard Parsons, doctor,  
Dawson City





But that's not always possible. If you have to drive, there are things you can do to stay safe and keep your car running.


 Prepare your car at the beginning of the winter. Use oil, windshield washer fluid and tires that are good in the cold.

 Put a block heater and a battery warmer in your engine.

 Plug in your vehicle during the night.

 Start your vehicle every few hours during the day to keep it warm.

 Drive more slowly if it's icy or hard to see.

 For longer trips, arrange to contact a friend, relative or co-worker when you've arrived safely. If you don't arrive, that person can send for help.



## YOU CAN SURVIVE!

Keep a winter survival kit in your vehicle at all times. Here are some ideas about what to include:

Blankets  
Extra warm clothes  
Matches  
Candle  
First aid kit  
Flashlight  
Shovel  
Axe  
Radio and extra batteries  
Mobile phone  
Food

"I don't drive long distances when it is **40 BELOW** or colder. Bad things happen to vehicles when it's that cold. Your tires go flat. Engine oil turns to sludge. Metal parts break. I even had a jack break while I was changing a tire."



Bill Miller, weatherman, Whitehorse

## CHAPTER 5: BIRDS & ANIMALS AT 40 BELOW

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We think we have a difficult time during cold winter weather. But we are usually protected from the cold by our clothing, heated homes and cars.

Animals and birds aren't as lucky. Can you imagine standing around outside without any clothing or shoes on? How do they do it?

Most northern animals are designed for the cold. Their bodies and their behaviours help them survive the coldest temperatures.

"The further north you go, the shorter and smaller the animals tend to get. Arctic foxes and arctic hares have shorter legs and smaller ears than red foxes and jackrabbits found further south. Arctic island caribou have shorter legs than caribou further south. It's easier for northern animals to survive when they don't have such a large body to keep warm."



Don Russell, *caribou biologist*,  
*Whitehorse*

**Caribou** have two layers of fur covering their bodies, ears, noses and muzzles. The layers trap the body heat. Their muzzles are short and thick. This warms up the air before the caribou breathe it into their lungs.

**Grizzly bears** move up to one ton of earth to build a tunnel and a den that will be warm enough. They hibernate there for about six months. Their heart rates and breathing rates slow down. They don't eat all winter!

**Deer mice** live alone in the summer, but in the winter they cuddle together in group nests to stay warm.

**Ptarmigans** dig down into the snow for shelter from the wind. It is warmer closer to the ground than it is above the snow.

**Ravens** shiver all day whenever they are not flying because shivering produces heat.



## YOU CAN SURVIVE!

Sometimes what works for the animals can work for human beings too.

- Remember the caribou - Wear layers of clothing to trap your body heat. Use a scarf or hood, to warm the air before you breathe it in.
- Remember the grizzly bear - Make sure your home is warm enough to last the winter
- Remember the deer mice - Cuddle together or give each other a hug to stay warm.
- Remember the ptarmigan - Dig down into the snow for warmth or build a snow shelter
- Remember the raven - When you start to shiver, your body is producing its own heat.

"Snow becomes dryer and more abrasive at **40 BELOW**. So the colder it is, the harder the snow is on the dogs' feet. During the Yukon Quest, my dogs wear booties to protect their feet. In one race, I can go through more than a thousand booties!"

Frank Turner,  
dog musher,  
Whitehorse



## CHAPTER 6: BE HAPPY! IT'S 40 BELOW!








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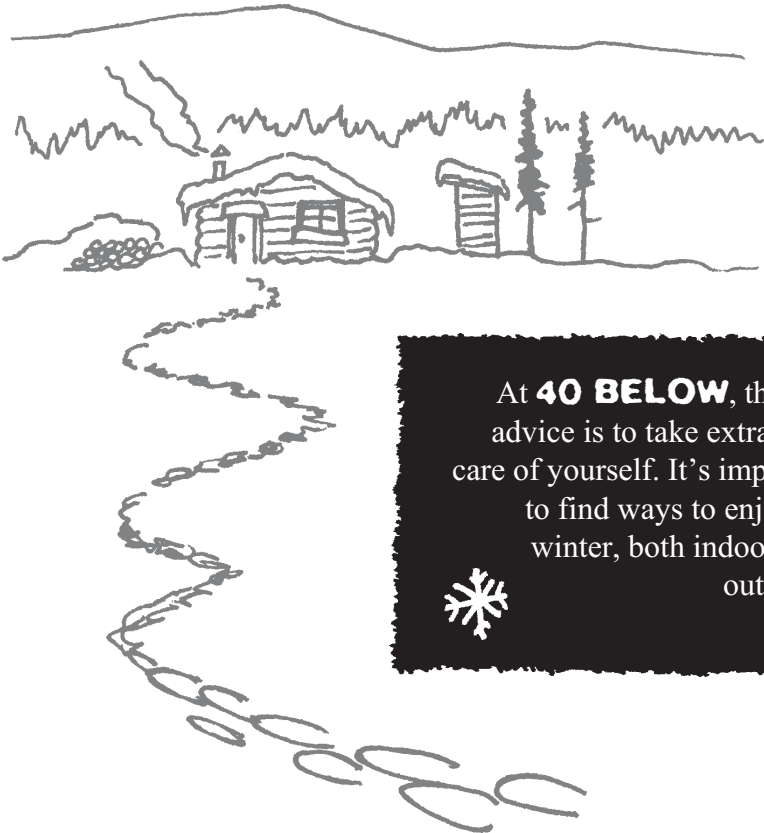


Northerners live in the cold all winter long. It may not be **40 BELOW** every day, but it's still cold. The nights are longer in the winter, so it's dark much of the time too. Sometimes the cold and the dark can make you feel like you're going crazy! Maybe you even have "cabin fever."



## WHAT IS CABIN FEVER LIKE?

-  You are very sad. You can't stop yourself from crying.
-  You feel lonely, as if you don't have a friend in the world.
-  You eat too much food.
-  You drink too much coffee or too much alcohol.
-  Your house feels very small.
-  You feel like you hate everyone. You get angry a lot.
-  You have no energy.



At **40 BELOW**, the best advice is to take extra good care of yourself. It's important to find ways to enjoy the winter, both indoors and outdoors.



## YOU CAN SURVIVE, OUTDOORS!

- *Try a new winter sport, like snowboarding, skating or curling.*
- *Go for a walk. Invite a friend along, or take the dog.*
- *Take the children to a sliding hill.*
- *Go outside in the middle of the day when it's light.*
- *At night, try a walk in the moonlight, or get together with friends for a bonfire.*
- *Make your outside time "warmer" by taking along a thermos full of tea or hot chocolate and a snack.*

"When it gets cold, people stay in their homes at first. But after awhile, they bundle up and get on with their lives. Some play ice golf on the ice bridge across the river or go out with their skis, dog teams or snowmobiles. When the lakes are all frozen, it's a lot easier to get around."



*Gerard Parsons, doctor,  
Dawson City*



## YOU CAN SURVIVE, INDOORS!

- *Curl up with a quilt, a good book and a cup of hot chocolate.*
- *Eat hot spicy foods from hot spicy countries, like Mexico or Thailand.*
- *Listen to music that reminds you of hot summer days, like salsa or reggae.*
- *Rent a video that takes you somewhere warm... like the beach.*
- *Host a beach party... inside! Serve fruit salad and cold drinks. Make everyone wear beach clothes.*
- *Work on a creative project that you've been putting off.*

*And remember, no matter how cold it gets, summer is only a few months away!*

*"I have beautiful memories of winter evenings during my childhood, when our family would sit together indoors. That's when my parents taught us about our culture, and I learned how to do beadwork and make mitts and jackets and snowshoes."*



*Pearl Keenan, Tlingit elder,  
Teslin*

**Yukon Learn Society** is a non-profit organization dedicated to the advancement of literacy across the Yukon.

Yukon Learn Society initiated the development of this series of ***You Can in the Yukon*** books in order to create easy-to-read and relevant reading materials for Yukon learners.

We would love to hear from you. Do you have an idea for a ***You Can in the Yukon*** book that reflects our unique northern character? Or would you like to respond to this or any other book in the series? Please get in touch with us at (867) 668-6280 or toll free 1-888-668-6280.

Other books in this series:

*How to Go to the Doctor*

Upcoming books:

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*How to Be a Learner*

## CREDITS

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Some of the information contained in this book came from other books, publications and the Internet. Here is a list:

Cold Comfort: Surviving the Yukon Winters, by Lori Schroeder & Joy Snyder, Yukon Conservation Society, 1994.

The Climates of Canada, by David Phillips, Environment Canada, 1990.

“Wind Chill: The Chilling Facts”, Environment Canada, August 2001.

“Worksafe Yukon”, Yukon Workers’ Compensation Health and Safety Board, Fall/Winter 2002.

“To Build A Fire”, by Jack London,

[www.pagebypagebooks.com/Jack\\_London/To\\_Build\\_a\\_Fire](http://www.pagebypagebooks.com/Jack_London/To_Build_a_Fire)

[www.members.shaw.ca/metric](http://www.members.shaw.ca/metric)

[www.msc.ec.gc.ca/education/windchill](http://www.msc.ec.gc.ca/education/windchill)

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