



THE 5 W'S OF EXPLORATION



LEARNING OBJECTIVES

Students will...

- learn what it means to be an explorer
- learn who can be an explorer
- review examples of famous Canadian women explorers

MATERIALS

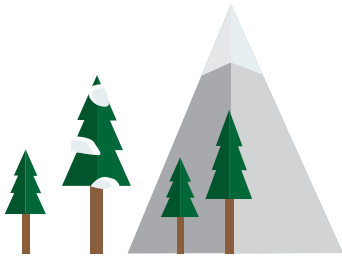
- *Canadian Geographic* top women explorers cards (attached)
- Explorer information worksheet (attached)
- Access to computers
- Explorer worksheet (attached)

ACTIVITY

1. As a class, brainstorm a list of places that people go to explore. Examples can include space, deep ocean, mountains, north pole, south pole, caves, forests, deserts and their backyards. Ask students why do people explore these places or go on expeditions?
2. Using student notebooks or scrap paper ask students to consider what it would be like to be an explorer. Other questions you can ask include:
 - a. What kind of explorer do you want to be? If you do not want to be an explorer, why?
 - b. What would your expedition be like? Where would you go?
 - c. What equipment would you need? How would you get there?
3. Divide the class into pairs or small groups. Distribute one *Canadian Geographic* top women explorers card to each group.
4. Allow time for students to read the information on the cards and research their explorer further online. Have students complete their explorer information worksheet reflecting on where their explorer went, character traits and challenges they faced. Have each group present their information to the class in the first person, as if they are the explorers.
5. Conclude the lesson by showing the Jill Heinerth's TED talks video (https://www.ted.com/talks/jill_heinerth_the_mysterious_world_of_underwater_caves?language=en). Using scrap paper, have students write one question for Jill about her expeditions. Share these questions with us by emailing info@canadiangeographic.ca.

EXTEND YOUR GEOGRAPHICAL THINKING

Have students select a place in Canada that they would like to explore and use the explorer worksheet to plan an expedition there. For an additional challenge, divide the class into seven groups, one for each of Canada's physiographic regions. Using atlas', Google Maps, photos or personal experiences, have students create a weekly diary for their expedition highlighting things they may encounter and what their adventure would be like.

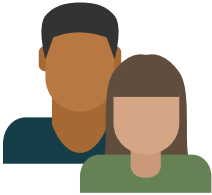


EXPLORER WORKSHEET

Name: _____



What equipment is
needed?



Who will be on your crew?
What skills do they have?



Where do you
want to go?



Why do you want
to explore this place?



How long would your expedition be?

Number of days: _____

What would your itinerary be like?

Morning	Afternoon	Evening



EXPLORER INFORMATION WORKSHEET

Name: _____

Explorer name:

How did they travel?

Where are they from?

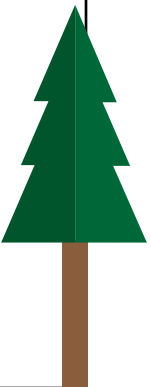
What equipment did they use?

What character traits do they have that make them a good explorer?

DANGER LEVEL OF THEIR EXPEDITIONS



Map where they went and what they did



CANADIAN GEOGRAPHIC TOP WOMEN EXPLORERS CARDS



LEANNE **ALLISON**

Conservation filmmaker whose documentaries, *Being Caribou*, *Finding Farley* and *Bear 71*, have won multiple awards.

It wasn't until I did the 3,400-kilometre Yellowstone to Yukon hike in 1998-99 with my husband, Karsten Heuer, that I changed my perception of nature from a playground to a lifelong passion. It took months of being out there on the game trails just watching and waiting for wildlife. I remember we spent an hour glassing these seemingly empty slopes that later came alive with a herd of elk. We wouldn't have seen them if we hadn't just sat down and watched.

—As told to Michela Rosano



ROBERTA **BONDAR**

The first Canadian woman in space, first neurologist in space and first non-American woman to fly on a U.S. space shuttle.

Camping with my parents on the north shore of Lake Superior and looking up at the night sky was my inspiration. It was a world that there were very few answers to at the time, and it was one that could stretch your imagination. Later, I avidly followed the space program and used to build plastic model rockets. My parents never told me that women couldn't do this or couldn't do that.

—As told to M.R.



JULIE **ANGUS**

The first woman to row across the Atlantic Ocean; has cycled across and sailed between continents, and written three bestselling books about her travels.

I always find it challenging to leave behind the comfort and familiarity of whatever I'm doing to dive into a new project. When I decided to row across the Atlantic Ocean, I was leaving behind a steady job and paycheck for an expedition I wasn't sure would be successful. But in the end, conquering these challenges is what gives me the confidence to take on the next adventure.

—As told to Vanessa Hrvatin



KATHLEEN **CONLAN**

Marine biologist at Ottawa's Canadian Museum of Nature; has scuba dived on more than 20 field expeditions in the Arctic and Antarctic.

I would have to say John Oliver, research professor at California's Moss Landing Marine Laboratories, has inspired me the most. Shortly after we met, he invited me to go to Antarctica with him, and that trip is what really got me into this area of research. I later got into scuba diving, which was challenging because I had actually burst both my eardrums as a child — something my father had failed to mention to me my entire life!

—As told to V.H.



DIANA **BERESFORD-KROEGER**

World-renowned tree scientist, environmentalist and author; blends modern medicine with ancient Celtic and aboriginal traditions.

My family was killed when I was 11 (in Killarney, Ireland). Everybody was whipped out in a car crash, and I was taken and raised under the ancient Celtic Brehon laws. These are pre-Magna Carta, and under them, a child is everybody's child. For three years, I was taught by elders all the laws of the trees, the laws of nature, the meaning of Celtic nature and medicines. My drive comes from that, from the learning I've done at many different universities and from my other research.

—As told to Thomas Hall



MANDY-RAE **CRUICKSHANK**

Multi-time national- and world-champion free diver and free-diving instructor; has set several Canadian and world records.

One of the biggest hurdles in free diving is your own mind. Training hard physically is one thing, but conquering the mental side of it is much harder. I absolutely love being underwater, but there are still those "evil monkeys" that chatter at you and tell you that you won't be able to do something — "turn around on this dive," or "You won't be able to go this deep," and so on. My biggest breakthrough was figuring out how to overcome myself, to let myself succeed.

—As told to Nick Walker

CANADIAN GEOGRAPHIC TOP WOMEN EXPLORERS CARDS



SUSAN R. **EATON**

Geoscientist and conservationist; leader of the all-woman 2014-2017 Sedna Epic Expedition, which is aiming to snorkel the entire Northwest Passage.

My plan was originally to become a marine biologist, like my mother. She wasn't a diver, but a marine mammal expert with Fisheries and Oceans Canada. Her specialty was fatty acids and lipids, and in the 1970s she worked at developing a synthetic alternative to whale oil. My sisters and I took turns going on field trips with her, so I was lucky enough to spend time with her spotting whales from military aircraft over the Nova Scotia coast, or on expeditions where DFO teams were shooting adult seals to study their organs. She was a working mother and a scientist, and unique in her generation.

—As told to N.W.



KATE **HARRIS**

Adventurer, writer, photographer and conservationist; her 2015 Borderski expedition through central Asia's Pamir Mountains encouraged thinking "beyond borders."

"Live" is a verb: focus on exploring, not on being an explorer. Get out there, get lost, go to places that fascinate you, and don't feel like you have to follow the beaten track once you get there. That's certainly how I began. I just wandered to the places that most interested me. It's a truly conscious choice to choose a wealth of experience over any other form of wealth. Recognize riches other than money because it's not a lucrative path.

—As told to Jessica Finn



EVA **KOPPELHUS**

Paleobotanist and palynologist (an expert on pollen and other microfossils) who has travelled the world studying prehistoric flora.

Geology and paleontology have historically been very male-dominated fields, but I've never found that discouraging. I say to many of my young female students, don't feel like you can't do something just because you're a woman. You can do it; you just have to put your mind to it. The first time I went to Antarctica, I felt I was getting in over my head, but I did it, and I'm very happy I did because this is a wonderful profession.

—As told to Alexandra Pope



TA **LOEFFLER**

Mountain climber, educator and author; has reached the highest points of Nepal, North Africa, Greenland and Antarctica.

My oma, Frida Loeffler, was an explorer in her own right. She was an immigrant, mountain foods forager and orphan who started life over and over again, becoming a farmer, then a nurse's aide and so on. My father, Heinz, was also a great inspiration — he taught me to use tools, to be independent and to develop explorer skills such as boating, tree climbing and outdoor and hunting skills. He believed I was capable and treated me so.

—As told to T.H.



MEAGAN **MCGRATH**

First Canadian to ski solo to the South Pole; only Canadian woman to climb two versions of the Seven Summits.

No one person inspired me. Rather, I was drawn to the world of adventures and expeditions through books, magazines and films. I wanted to be part of this world. It was just a matter of committing to an idea and making it happen. During expeditions, I always remember that I searched out this discomfort, this challenge — and I thrive on it.

—As told to Sabrina Doyle



MATTY **MCAIR**

Arctic adventurer and founder of NorthWinds, a Canadian polar expeditions company; led the first all-woman expedition to the geographic North Pole.

It was normal to me, growing up, to take naps in the canoe, to struggle to turn my wood skis before plopping into the creek. My dad was an engineer, and encouraged me to embrace creative problem solving (an essential skill in polar expeditions), and my mom gave me confidence to compete in a men's world of outdoor sports. Don't be afraid to let go of a traditional, stable way of life for the road less travelled. If one wishes to follow my lead, I recommend that you learn to lead yourself, not follow others. Start by taking a slightly bigger step than you are comfortable with, followed by another.

—As told to S.D.

CANADIAN GEOGRAPHIC TOP WOMEN EXPLORERS CARDS



SARAH **MCNAIR-LANDRY**

Polar adventurer and guide; youngest person to ski to the South Pole and to reach both poles.

When I was a kid growing up in Iqaluit, I wanted to go out on an overnight camping trip on Baffin Island — just me and my brother. Our parents [adventurers Matty McNair and Paul Landry] agreed, but first we had to prove we were ready — use a stove, set up a tent and overnight on the back porch, communicate over the radio. Only when we'd shown we could do those things did they let us go. Now, when people ask me how to prepare for an expedition, I tell them that's kind of the way you work up to it.

—As told to N.W.



JEAN **MCNEIL**

Novelist and short-story writer with four books on her polar travel, including *Ice Diaries: An Antarctic Memoir* (2016), about her months as writer-in-residence for the British Antarctic Survey.

When you embark on an exploration, go for the purpose of answering questions rather than just for the sake of travelling, and stay true to the spirit of these questions throughout your journey. I've found that if you go out into the world on an investigative mission rather than just floating around for no particular reason, everything is so much more meaningful.

—As told to V.H.



BAIBA **MORROW**

Mountaineer, photojournalist and filmmaker; works as a team with her husband, fellow mountaineer Pat Morrow.

I find the “peace through culture” philosophy of Russian artist Nicholas Roerich quite profound. He used vibrant paintings to reflect on his exploratory trips looking for Shambhala in the Himalayan region, where Pat and I feel a strong connection with the people's lives, resilience and spirituality. Photography, writing and film are tools that put us into neat situations and places. My interests are an intersection between our environment and experiences, and interpreting them through song or dance or art.

—As told to J.F.



JEN **OLSON**

Mountain guide and climber; numerous first ascents of rock and ice in Canada and around the world; demonstrated ice climbing at the 2014 Winter Olympics in Sochi.

One of my professors in the University of Calgary outdoor pursuits program was Bruce Hendricks, an excellent athlete and ice climber. He was a great educator and the one person who really inspired me to follow this path. But wilderness is my number-one inspiration. I love being in nature and big beautiful places. I love looking at a line in the mountains and then trying to put it all together. I love the physical movement of rock climbing, the adventure of the challenge.

—As told to M.R.



PASCALE **OTIS**

Biologist, polar adventurer and videographer; shares her adventures in the hope of improving global understanding and appreciation of polar regions.

It was during my master's at Laval University that I became interested in adventuring to places few people had gone before. I would have to say it was my supervisor there, biologist Jacques Larochelle, who inspired me the most by always encouraging me to try new things. And that's the message I try to pass on to young people — to not be afraid of taking an unconventional path despite its challenges, because in the end it's very rewarding.

—As told to V.H.



NATALIE **PANEK**

Mechanical and aerospace engineer currently working on the European Space Agency's 2018 ExoMars rover program.

I was lucky enough to be mentored for a year by Maryse Carmichael, the first woman to fly with and command the Snowbirds Aerobatic Team. She taught me to embrace challenges and pursue opportunities beyond my main field of study, because you never know where they might lead you. I spend as much time as possible outdoors, exploring places that are remote and challenging. Exploration on Earth is similar to exploration in space — it's all about pushing our capabilities and the search for the unknown.

—As told to A.P.

CANADIAN GEOGRAPHIC TOP WOMEN EXPLORERS CARDS



MYLÈNE **PAQUETTE**

First North American woman to row solo west-to-east across the North Atlantic; St. Lawrence River Ambassador for the David Suzuki Foundation.

It may seem odd, but I hate to swim. I'm really scared to be immersed in water. But when you're rowing long distances, you need to jump in the water to wash the hull of the boat. I wanted to face my fears, to be independent on the open ocean. When I was alone out there, I just kept trying to imagine how I would feel after I successfully made the crossing.

—As told to S.D.



JULIE **PAYETTE**

The first Canadian astronaut to visit the International Space Station, where she operated the Canadarm.

Watching the Americans go to the moon when I was a kid, I thought, "Even though I don't understand a word of it [because they spoke English and she didn't], even though they are American and I am Canadian, even though they are guys and I am a girl, and they are all pilots and nobody in my family has ever been anywhere close to an airplane, it doesn't matter." I wanted to be an astronaut.

—As told to T.H..



HEATHER **ROSS**

Mountaineer, polar trekker and head of the cardiac transplant program at Toronto's Peter Munk Cardiac Centre; her expeditions raise awareness for heart health and research.

I watch patients facing death in ways that we otherwise never think about — and facing it with hope and strength. There is no greater strength in life than that, and as a physician I'm overwhelmed by the experience. It's really what's driven me to push myself to new heights. When I started, my expeditions were about raising awareness for health, because I would like to have fewer patients, but I've also always been a bit of an adrenaline junkie. It's a way to marry what I love personally with what I do professionally.

—As told to V.H.



NATALIA **RYBCZYNSKI**

Canadian Museum of Nature paleobiologist who found evidence that camels once lived in the High Arctic; discovered *Puijila darwini*, a prehistoric relative of the seal.

In 1994, when I was still an undergrad, paleobiologist Richard Harington invited me to go on an expedition to the High Arctic, and that truly changed everything for me. I've also worked in Bolivia, Egypt and the badlands of Alberta, but those places just reinforced in my mind the importance of the Arctic. Fieldwork there is all about dealing with the unexpected: the animals that wander into camp, the gear that blows away, the journal that gets lost. Psychologically it can be very hard, but it gets into your blood.

—As told to A.P.



WENDY **SLOBODA**

Fossil hunter and photographer; discoveries include *Wendiceratops pinhornensis* (2010) and *Barrosopus slobodai* (2003).

You have to prove yourself, so don't be afraid to volunteer. I don't know any paleontologist that didn't. I volunteer and have gone to Mongolia, France, Argentina and Greenland to look for dinosaurs. I've been lucky and I've earned my stripes. Prospecting and looking for fossils is what I do because it's what I love. When you find a fossil, no matter how insignificant, you're the first person to ever see or touch it — and that's pretty rewarding.

—As told to J.F.



SHARON **WOOD**

The first North American woman to summit Mount Everest and the first woman to do so by a new route (the west ridge).

I think intrinsic motivation is the main reason people choose to explore or take an unconventional path. It's so powerful, but I worry that it's dying. Nowadays people just pull a book off a shelf and say "OK, I want to be a doctor," and that just drives me crazy! So if you find yourself with the intrinsic motivation to explore, do it.

—As told to V.H.