LESSON 1: MEET THE TEAM

THE RING OF DARHAD
MONGOLIA WOLVERINE EXPEDITION

LENGTH: 60 MINUTES

GRADES/AGES: GRADES 3-7

Lesson Overview:

Discover the mission of the Ring of Darhad Mongolia Wolverine Expedition and the planning that was required to make this journey a success. "Meet" the members of the team through short videos and start to uncover and appreciate how exciting adventures like this can support science.

LEARNING OBJECTIVES

Students will be able to:

1. Describe the team of adventurers on the Ring of Darhad Mongolia Wolverine Expedition and why each person was chosen for the adventure.
2. Discuss the steps in the preparation process for an expedition.
3. Determine what items are the most important for an outdoor research expedition.

DIRECTIONS:

1. Review what students know about expeditions.

a. Tell your students that over the next several weeks, they will be following an expedition to northern Mongolia to search for wolverines. This ongoing unit is an exciting way to be a part of an expedition that will attempt a circumnavigation of the Sayan Mountains in the Darhad (or Darkhad) region to conduct a systematic survey of the region's wildlife, with the specific goal of gathering DNA evidence of wolverines while sharing their experiences with students around the world. Explain to your students that before starting this study, they are going to explore what they already know about adventurers and expeditions.

b. Make a KWL chart with your students. Label the top of three different pieces of chart paper with the following titles: "What I Know About Expeditions," "What I Want To Know About Expeditions," and "What We Learned About Expeditions." (Using chart paper will allow you to refer back to this chart over the next few lessons.)

c. Have your students brainstorm as a class what they know (or 'think they know') and want to know about expeditions and adventures. Record all student responses on the first two correlating charts. Save them to refer back to throughout and at the end of the unit. At the end of the unit, complete the section "What We Learned About Expeditions."

2. Meet the adventurers

a. Tell your students that one of the adventurers they will follow is Gregg Treinish, whom they will "meet" by watching a video. This video is available at http://www.adventureandscience.org/mongolia-team.html You can read a transcript at the end of this lesson.

b. Ask your students to imagine that they are adventurer Gregg Treinish and are preparing for this expedition. Now that they know the expedition's mission (to collect scientific data and engage students around the globe through an exploration of the remote Darhad region of Mongolia), have your students brainstorm who they would need to bring with them. Have your students consider what skills their teammates would need to have. Tell your students that this trip is limited to four core team members. Allow your students to share their ideas and discuss their answers as a whole class.

c. After brainstorming possible teammates and their skills, share with your students the names of the other adventurers on the Ring of Darhad Mongolia Wolverine Expedition team. Each adventurer's biography and photograph can be found at http://www.adventureandscience.org/mongolia-team.html.

d. Watch a short video from each team member. These videos are available at http://www.adventureandscience.org/mongolia-team.html. You can read a transcript of each video at the end of this lesson. (NOTE: Two other individuals will be a part of the expedition, including a photographer and Mongolian scientist.)

Gregg Treinish – Executive director and founder of Adventurers and Scientists for Conservation, 2008 National Geographic Adventurer of the Year, Member National Geographic Adventure Advisory Council, Member National Geographic Expeditions Council Review Committee, *Christian Science Monitor* 30 under 30 list.

Forrest McCarthy – Forrest has guided, skied, and climbed in the Canadian Rockies and throughout Alaska. He possesses a strong background in search and rescue.

Jason Wilmot – Jason played a fundamental role in the Glacier National Park Wolverine Project and was lead field biologist for the Absaroka-Beartooth Wolverine Project in Yellowstone National Park.

Rebecca Watters – Rebecca has 13 years of experience working in Mongolia, and has directed the Mongolian Wildlife and Climate Change Project since 2009. She is the only person currently researching wolverines in Mongolia.

(Note: Two other individuals will be a part of the expedition, including a photographer and a Mongolian scientist.)

e. After these video introductions, record questions students may have for the team. Encourage scientific questions based on the team's mission. (Students can email questions to the adventurers. ASC will forward students' questions to the team, and, based on the team's availability, they will be answered and posted on the Ring of Darhad Mongolia Wolverine Expedition Web site (www.mongoliaexpedition.com). Send questions using the online form available at http://www.adventureandscience.org/mongolia-questions.html If you do not receive a reply, please check for an answer on the "Frequently Asked Questions" page http://www.adventureandscience.org/mongolia-faq.html)

3. Pack your bags

a. Tell your students that expeditions—like the Ring of Darhad Mongolia Wolverine Expedition—require extensive planning. Tell your students that if they were going on an expedition to a foreign country they would need to think about the trip and spend time planning their adventure long before they leave. Have students work together, or as a class, to complete the **Plan an Expedition worksheet** to learn what planning goes into an expedition. Discuss this worksheet and review your students' answers.

b. Tell your students that today they are going to be learning more about packing for an adventure like the Ring of Darhad Mongolia Wolverine Expedition.

c. Divide your students into small groups of four to six students (the size of the Ring of Darhad team). Provide each group with the **Pack Your Bags worksheet** that includes a student list of equipment (each item listed has a weight in ounces). Tell your students that each group will be working as a team and representing the Ring of Darhad team. Together, they need to decide what equipment on the Pack Your Bags worksheet they need to bring and what needs to be left behind. Each team member may only carry 640 ounces (40 lbs.) in his or her pack. Therefore, the items each team decides to bring in this activity must not weigh more than 640 ounces all together. Have students discuss and debate the importance of each item in their small groups. After all groups have completed the activity, discuss as a whole class what each group decided to bring.

d. Share with the whole class the **Ring of Darhad Equipment List.** After students review the official list, compare and contrast what the students chose to bring in the previous exercise to what the expedition will be bringing. *NOTE: This is not a comprehensive equipment list. Food, water and scientific equipment are not included.*

e. Watch a video of Gregg Treinish introducing some of the expedition's equipment. This video is available at http://www.adventureandscience.org/mongolia-team.html

Tips and modifications:

To adapt this lesson to a different age group, use the following modifications:

1.b. For older students, this can be a discussion or independent journaling activity.

3.a. Older students can complete this activity by working independently or in small groups. These students may use the internet to explore visas, permits, and other planning topics specific to Mongolia.

Assessment:

Review students' Plan an Expedition worksheets.

Review students' Pack Your Bags worksheets.

Extending the learning:

Complete Activity 1 of Lesson 7 of the unit. This activity has students plan a research "expedition" in their schoolyard.

Have your students imitate what it's like physically to be

on the Ring of Darhad team. Have students try to carry a pack that weighs one-quarter of their body weight. Have students imagine what this pack would feel like on skis in a cold climate.

Have students plan food for a one-night backpacking trip. Discuss how this would be different for a 30-day expedition like the Ring of Darhad.

Learn about other ASC projects with your students by visiting www.adventureandscience.org.

Learn about conservation projects and issues in your hometown.

Preparation:

Materials You Provide

- Chart paper/white board to record the KWL chart
- Pencils
- Scissors
- Glue/Tape

Audio and Video

- Meet Gregg Treinish (video)
- Meet Forrest McCarthy (video)
- Meet Jason Wilmot (video)
- Meet Rebecca Watters (video)
- Expedition Equipment (video)

Videos available at http://www.adventureandscience.org/

Handouts and Worksheets

- Plan An Expedition worksheet (one per student)
- Plan An Expedition answer key
- Pack Your Bags worksheets (2 pages) (one per small group)
- Ring of Darhad Equipment List

Required Technology

- Internet Access: Required
- Tech Setup: 1 computer per classroom, projector, speakers
- Plug-Ins: Flash

Other Notes

Lesson 7 of this unit, "Schoolyard Biodiversity Study," provides an opportunity for students to participate in all the steps of the Ring of Darhad Mongolia Wolverine Expedition. This lesson may be completed in portions at the end of the first six lessons to reinforce each lesson's major ideas, or as a distinct unit.

BACKGROUND AND VOCABULARY:

BACKGROUND INFORMATION

The Ring of Darhad: Wildlife Survey of the Darhad Region of Mongolia Project Summary

The Darhad region of Mongolia represents one of the world's most unknown regions when it comes to wildlife species. Although wolverines have been verified in the region, almost nothing is known about the status of the population. The Mongolian government has called for surveys of all of Mongolia's wildlife species, but currently lacks the ability to pursue research on elusive and difficult-to-study species such as wolverines. The Darhad Mongolia Wolverine Project will help assess locations for future, more in-depth studies of the species.

In March, 2013 a team led by Adventurers and Scientists for Conservation (ASC) will attempt a circumnavigation of the Darhad region via cross-country skis to conduct a systematic survey of the region's wildlife. The team's overarching goal is collection of wolverine DNA to contribute to the existing database of Mongolian wolverine genetic samples. The team will also locate sites for further, more in-depth study of the region's wolverine population, so that Mongolian scientists and wolverine biologists associated with the Wolverine Foundation (TWF) and the Mongolian Wildlife and Climate Change Project (MWCCP) can learn more about the species in Mongolia.

Wolverine researchers Rebecca Watters, Jason Wilmot and Jeff Copeland have conducted interview surveys, habitat assessments, and DNA sample collection from pelts during summer expeditions in wolverine habitat across Mongolia. Based on this data, scientists know that a population of wolverines exists in the Darhad region, but understanding the population dynamics, human threat levels, and the ecology of the species in this region will be critical as wolverines begin to feel the effects of climate change. To better understand how climate change affects wolverines, scientists need data on demographics - how wolverines are reproducing and dispersing. Understanding demographics requires much more intensive study, usually with radio collars, camera stations, and further genetic analysis. This expedition will help find places to put camera stations for further study. Ultimately, the scientists of the MWCCP hope that this expedition will contribute baseline information to the ongoing effort to create a monitoring and conservation plan for wolverines in Mongolia.

The research team anticipates covering a route of approximately 350 miles as they travel through what scientific modeling suggests is the most significant block of wolverine habitat in Mongolia. The route will

VOCABULARY

Term	Part of Speech	Definition
Adventurer	Noun	A person who goes on exciting trips that may involve danger.
Conservation	Noun	Preservation, protection, or restoration of the environment, ecosystems, or species.
Expedition	Noun	A journey by a group of people with a particular purpose like exploration or research.
Educational outreach	Noun	The act of sharing and connecting a community to an experience they would not normally be exposed to.
Passport	Noun	An official government document that certifies a person's identity and citizenship and permits a citizen to travel abroad.
Permit	Noun	An official document giving permission for something.
Ring of Darhad	Noun	A ring of mountains in the Sayan mountain range in northern Mongolia
Visa	Noun	Permission to enter, leave, or stay for a specified period of time in a country.

circumnavigate the Darhad valley and travel through the Sayan and Horidol Sardag mountain ranges. Their plan is to move for several days at a time and establish camps in areas where the team expects increased probabilities of detecting wolverine. The team will remain at these camps long enough to survey the surrounding areas in greater detail.

The Method

The research team's primary goal will be to document the presence of wolverines and wolverine prey species in the area. Using non-invasive survey techniques including back-tracking, and collection of hairs, scats, and urine for DNA analysis, the team will attempt to establish the distribution and relative densities of wolverines in the area. Surveying during the wolverine denning season also offers the opportunity to explore areas of high-density tracks and possibly discover den sites, which would constitute the first recorded wolverine dens in Mongolia. Locating den sites is important for detection of reproductive potential.

Anticipated Outcomes of the Research

Conducted within the mission of Adventurers and Scientists for Conservation, the team anticipates the expedition will increase the current knowledge of wildlife species in the Darhad region. The team anticipates the collection of wolverine DNA in an area of long-term interest to the global wolverine research community. The data from these surveys will complement the MWCCP's on-going and longer-term work on wolverines, pikas, and other climate- sensitive wildlife in the Darhad region. Data-analysis under the direction of the MWCCP will contribute to peer-reviewed work on Darhad wildlife in coming years. In addition, the researchers will work with various media sources to document and publish its experience with the goal of drawing public attention to sensitive high-altitude ecosystems in a context of global climate change effects on these systems worldwide.

RING OF DARHAD Equipment List*

Gear List	Quantity	Total Weight in oz.	Brand	Weight of Worn Items
Madshus cross country ski	1		Madshus	
Climbing skins 55m kicker	1	7.2	Black Diamond	
Ski poles				
Socks	4	8	Teko	2
Ski boots	1		Madshus	
Camp shoes	1	15	Oboz	
Crampons	1	18.9	Kahtoola	
Gaiters (high)*	1	12.2	Mountain Hardwear	
Long underwear tops/ bottoms	2	13.2	MH/ B	6.6
Zip T*	1	8	MH/ B	8
Ski pants*	1	19	Mountain Hardwear	19
Insulated pant layer	1	21	Mountain Hardwear	
Insulated top layer	1	22	Mountain Hardwear	
Shell layer top*	1	19	Mountain Hardwear	19
Glove liners*	1	1.4	Mountain Hardwear	
Gloves	1	9	Mountain Hardwear	
Hat (wool)	1	2.8	Mountain Hardwear	
Hat (baseball)*	1	2.5	Mountain Hardwear	2.5
Glacier glasses	1		Smith	
Sun screen	1	6		
Avalanche beacon*	1	6.4	BCA	6.4
Avalanche probe	1	9	BCA	
Shovel	1	16	Voile	
Four-season tent	1	40	Mountain Hardwear	
Zero-degree sleeping bag	1	42	Mountain Hardwear	
Sleeping pad	1	11	ThermaRest	
Head lamp	1	3	Petzl	
Journal/notebook	1	10.4	Rite in the Rain	
Book	1	12		
Satellite phone	1	10	Thurya	
Backpack	1	64	Osprey	
Ground cloth	1	8	Mountain Hardwear	
MSR XGK stove	1	13.2	MSR	
Fuel	1	38	MSR	
Cooking pot	1	7	GSI Outdoors	
Spork	1	2	GSI Outdoors	
Lighters	3	2		
Fire starter	2	5	Wet Fire	
GPS	1	5	Garmin	
Map	4	5		

NOTE: This is not a comprehensive equipment list. Food, water and scientific equipment are not included.

RING OF DARHAD Equipment List (continued)

Gear List	Quantity	Total Weight in oz.	Brand	Weight of Worn Items
Compass	1	2		
Water bottles	2	4	Nalgene	
Batteries		16		
Camp towel	1	3		
Toilet paper roll	1	4		
Trawl	1	6		
Camp soap	1	4	Dr. Bronner's	
Toothpaste	1	4		
Toothbrush	1	2		
Leatherman/knife	1	4.4	Leatherman	

Weight of items			
Total weight in ounces	**543.6 oz.**		
Weight of worn Items (*)			**63.5 oz.**
Total weight in oz. minus worn items (*)	**472.90 oz.**		
Total weight in pounds	**33.975 lbs.**		
Total weight in lbs minus worn items (*)	**29.55625 lbs.**		

Resupply items			
Pack raft	2		
Batteries			
Spare bindings			
Spare skins	2		
Dry bags for transport	6		
Food	200 lbs.		

VIDEO TRANSCRIPTS

Gregg Treinish

Video at http://www.adventureandscience.org/mongolia-team.html

Hi everyone. My name is Gregg Treinish. I'm the founder and Executive Director of Adventurers and Scientists for Conservation and I'm a National Geographic Explorer. I'm really excited that you've joined us for the Ring of Darhad Expedition. We are going to be preparing great materials for you and your classroom to follow along, or if you're not part of a classroom, that's ok too. We're really excited to have you following our progress as we move about 400 miles in what we're calling the Ring of Darhad. The Darhad Valley is a region in the far north of Mongolia. It's technically considered part of Siberia. And we're really excited to go out and explore this area and do some of the first ever wildlife surveys of the area. The Mongolian government is in need of information from this area. We're going to be working with scientists both in Mongolia and our team members, Rebecca and Jason as well as Forrest, who are all super interested in this information.

Our primary species of focus is the wolverine (*Gulo gulo*). I know that Rebecca and Jason's videos tell a ton about those species and you'll be learning more throughout the lessons that we've created for you as well. So, I hope you'll take the time not only to love the adventure of what we're doing but really learn about the science and how exciting this opportunity is to go to such a remote place and explore it.

For me personally, this is an incredible opportunity – to go over to Asia, to do something I love to do, which is be in the backcountry and then have an incredible purpose behind it – to be able to make a difference while we play. That's the whole reason I created Adventurers and Scientists for Conservation and it's the reason that I want to go out and help the conservation of this species – to provide Rebecca and other researchers with the information they'll need to be able to protect these places for years to come and these species.

I've been really fortunate in my ability to travel and explore the world. I was the first person to walk the length of the Andes Mountains from the Equator to the southern tip and received a National Geographic Adventurer of the Year award for that in 2008 when I finished. We walked for 8,000 miles on that journey covering 22 months of terrain really off-trail for quite a bit of it and it was an amazing expedition that taught me a lot and I'll bring a lot of the skills I learned there.

So I look forward to receiving your questions in the field. I really hope that you guys will not hesitate to write in.

While we won't get to every question, we're really excited to have you following along and really excited to make this an interactive experience for you and your class. So with that said, welcome and let's go have some fun!

Jason Wilmot

Video at http://www.adventureandscience.org/mongolia-team.html

My name is Jason Wilmot. I am the Executive Director of the Northern Rockies Conservation Cooperative in Jackson, Wyoming. And I'm a wolverine researcher and have been studying wolverines for about 12 years. I started my work in Glacier National Park, Montana and recently did another field project in Yellowstone National Park. Through these projects we've been trying to understand how wolverines make a living in these remote, rugged, landscapes and learn a lot more about the species, so that we can then in turn conserve them in the United States and around the world.

I am excited to be a part of the Ring of Darhad Expedition primarily due to the fact that wolverines do inhabit that area. We know this, but no formal scientific record has been compiled. I am excited to be a part of this terrific team that's assembled to go over there, cover some big ground, and try to detect wolverines to make a contribution to wolverine science around the world and to make a contribution to wildlife information needs in Mongolia.

There's a lot of things about wolverines, that no matter where you are, to me are compelling. They're an animal that's able to travel over incredible terrain and incredible distances. One thing to keep in mind is it takes a large area depending on the size of the mountain range for example. It may take half of a mountain range to support one individual male wolverine and it has to do with their ecological niche. This is a scavenger and their method for finding food involves using their nose and covering a lot of ground. So it takes a lot of ground and a lot of sniffing around to try to find scents of something that has died in an avalanche or due to natural causes, say for example in the Rockies a mountain goat in Glacier Park. They cover ground, they use their nose, and they can smell carcasses of animals like that under 8 – 10 feet of snow, no problem, and dig them out and feed on them and when they're full, they'll take off, and move again, and go up and over mountains with ease. This is a feature of wolverines that's always compelled me is their ability to inhabit those landscapes where other species can simply not make a living, particularly in the winter.

As I said before, I'm really excited about the team we have assembled for the Ring of Darhad and really excited to make a contribution to wolverine science and other wildlife that we see in Mongolia during this trip. Thanks for your interest in this trip. We certainly can answer any questions you have now or in the future so please don't hesitate to be in touch and any wolverine questions or questions about the expedition itself are always welcome. Thanks so much and we'll report back when we're done. Thanks. Bye.

Forrest McCarthy

Video at http://www.adventureandscience.org/mongolia-team.html

Hi, I'm Forrest McCarthy, geographer and adventure athlete. I've been very fortunate over the last 20 years to travel some of the wildest places left on Earth. One of the most memorable and meaningful jobs I ever had was working as a wolverine wildlife biologist near my home in the Greater Yellowstone Ecosystem.

Wolverines are one of the most fascinating creatures to me. I like to explore wild places that are really remote and often covered in snow and ice. These same wild places for wolverine are home.

These animals are biologically engineered to handle some of the most rugged and harshest terrain on Earth. They have big, thick, heavy fur that allows them to not hibernate and stay active all winter long. They have built in crampons which make them be able to climb steep snow and ice. So the opportunity to travel to the Alti Mountains in the Darhad region of Mongolia and research this illusive and fascinating animal is incredible and the only thing that makes it even better is the opportunity to share the experience with all of you.

Rebecca Watters

Video at http://www.adventureandscience.org/mongolia-team.html

Hi, my name is Rebecca Watters and I am a writer, an artist, and a scientist and I am the Director of the Mongolian Wildlife and Climate Change Project. We study a number of species that are likely to be climate sensitive but the flagship species and my personal favorite is the wolverine.

Wolverines are members of the weasel family and they remain poorly known because they are incredibly hard to study. They live in the most rugged environments on earth. They move over long distances and they are naturally rare.

Wolverines are tied to cold environments. They den in the snow and they require cool summer temperatures in order to survive. They reach the southern extent of their range in North America in the U.S. Rockies where they live at really high altitudes. And because they require deep spring snow to den, they are likely to lose habitat as the climate warms.

Because of the uncertainty about future snowpack, wolverines are considered threatened in the U.S. In Eurasia, wolverines reach the southern extent of their range in the mountains of Mongolia. No one had ever studied wolverines in Mongolia before I began this project in 2009.

I first went to Mongolia 13 years ago as a Peace Corps volunteer. I spent two years living ger or a yurt. I taught ecology to middle school students and teachers and I spent my summers working for the National Park system surveying for snow leopards.

I learned to speak Mongolian fluently and I came to really respect the country especially the Mongolia commitment to conservation and wildlife. I knew it was a place I wanted to continue working and I was most strongly drawn to their mountainous regions which are so similar in so many ways to the U.S. Rockies.

Our research project is committed to working closely with Mongolian scientists and communities so that we learn from Mongolians detailed knowledge of the environment. And, also to exchange skills so that we leave Mongolians with methods to monitor their own wildlife populations.

The work we've done in Mongolia so far consists mostly of interviewing people in all of Mongolia's mountain regions and doing basic surveys for tracks. Our surveys in Mongolia have always been in the summer or the fall and this expedition is our first opportunity to survey for wildlife while snow is on the ground. We'll be moving over the landscape in the same way that wolverine move over it – at high altitude, continuously, for a very long distance.

The survey will give us baseline knowledge about where wolverines are in the landscape, which will help my project establish sites for further camera and hair snare DNA monitoring. Mongolia is a rigorous place to work. There are not that many roads, there is not that much infrastructure, and there is very little money for wildlife research. So, the kinds of things we do in the U.S. where we have helicopters, and snowmobiles and radio collars won't work in Mongolia. We have to come up with a low-tech way to understand the wildlife population. Automatic cameras and DNA analysis from hair snares should help provide a way to do this and the track surveys that we are doing in this expedition will help us figure out where to place those cameras and hair snares. Hopefully this will help us gain an understanding of how we can conserve this species both here and in North America at the southern end of its range in both hemispheres.

Your Name _____

PLAN AN EXPEDITION

If you were to go on an expedition, or an adventure with a mission or purpose, what would you need to do to plan and prepare for your trip?

Number the tasks below to show in what order you would plan and get ready for an expedition.

_____ TRAIN FOR YOUR EXPEDITION. Practice with your equipment and get physically fit.

_____ DECIDE ON A MISSION FOR THE EXPEDITION. Carefully describe what you want to do.

_____ GET THE MEDIA INVOLVED. Determine the type of outreach you want to do or how you want to share what you learn on your expedition. Contact the media that will help you teach others.

_____ GET PERMISSION. Apply for visas and permits you will need.

_____ RESEARCH THE AREA. Learn about the people of the area and the terrain you will be travelling in, along with where water and food sources can be found.

_____ PICK YOUR TEAM. Invite other people with the skills you need to join you.

_____ MAKE AN EQUIPMENT LIST. Identify the equipment you will need to survive in the area you'll be adventuring in.

_____ PLAN YOUR ROUTE. Decide where to go, how to get there, and where to stay.

_____ DECIDE ON THE DATES OF YOUR EXPEDITION. Determine when you will be adventuring.

Answer the following question.

Can some of these tasks be done in a different order or at the same time? Why?

ANSWER KEY

PLAN AN EXPEDITION

If you were to go on an expedition, or an adventure with a mission or purpose, what would you need to do to plan and prepare for your trip?

Number the tasks below to show in what order you would plan and get ready for an expedition.

9 _____ TRAIN FOR YOUR EXPEDITION. Practice with your equipment and get physically fit.

1 _____ DECIDE ON A MISSION FOR THE EXPEDITION. Carefully describe what you want to do.

8 _____ GET THE MEDIA INVOLVED. Determine the type of outreach you want to do or how you want to share what you learn on your expedition. Contact the media that will help you teach others.

6 _____ GET PERMISSION. Apply for visas and permits you will need.

3 _____ RESEARCH THE AREA. Learn about the people of the area and the terrain you will be travelling in, along with where water and food sources can be found.

4 _____ PICK YOUR TEAM. Invite other people with the skills you need to join you.

7 _____ MAKE AN EQUIPMENT LIST. Identify the equipment you will need to survive in the area you'll be adventuring in.

2 _____ PLAN YOUR ROUTE. Decide where to go, how to get there, and where to stay.

5 _____ DECIDE ON THE DATES OF YOUR EXPEDITION. Determine when you will be adventuring.

Answer the following question.

Can some of these tasks be done in a different order or at the same time? Why?

Your Name:_____

PACK YOUR BAGS

Imagine you are going on a winter expedition and must carry everything you need for one month in a backpack while you ski. (Your skis and poles are not included in this list.)

Directions:

Cut out the possible items to bring from the Pack Your Bags Equipment List.

Glue the items you would bring onto the backpack below. The items you include cannot weigh more than 640 ounces (40 pounds) all together.

Answer the following questions.

What item was the hardest to leave behind? Why?

What items would you need to arrange to pick up at the resupply points?

PACK YOUR BAGS EQUIPMENT LIST

Cut out the following items. Glue the items you would bring on a one-month winter expedition onto the backpack on the Pack Your Bags worksheet. The items you choose cannot weigh more than 640 ounces (40 pounds) all together.

AM/FM radio (20 oz.)	**Avalanche beacon and shovel** (30 oz.)	**Book** (10 oz.)
Camera (10 oz.)	**Camp chair** (100 oz.)	**Camp soap and camp towel** (10 oz.)
Canned meals (200 oz.)	**Cot** (60 oz.)	**Field journal and pencil** (10 oz.)
First aid kit (15 oz.)	**Flashlight and extra batteries** (15 oz.)	**Freeze dried meals** (60 oz.)
GPS, map and compass (15 oz.)	**Handheld video game** (10 oz.)	**Hiking shoes** (15 oz.)
iPad (20 oz.)	**Jacket and snow pants** (40 oz.)	**Jeans** (20 oz.)
Knife (5 oz.)	**Lightweight layers of clothes** (60 oz.)	**Magazines** (10 oz.)
Matches (5 oz.)	**Mittens/gloves and hat** (15 oz.)	**Nuts and energy bars** (40 oz.)
Pillow (40 oz.)	**Portable TV** (45 oz.)	**Potato chips and yogurt** (40 oz.)
Satellite phone (10 oz.)	**Shampoo** (5 oz.)	**Ski boots** (10 oz.)
Sleeping bag (40 oz.)	**Sleeping pad** (10 oz.)	**Slippers** (15 oz.)
Socks (10 oz.)	**Stove, fuel, and cooking gear** (60 oz.)	**Sunscreen and sunglasses** (5 oz.)
Sweatshirt (25 oz.)	**Teddy bear** (20 oz.)	**Tent** (40 oz.)
Toilet paper and trowel (10 oz.)	**Toothpaste and toothbrush** (5 oz.)	**Water bottles full of water** (70 oz.)