

Lesson Plan for *Packing for Antarctica* Spreadsheet Activity

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Grade Level: 4-8

Overview: In this math/social studies/science//technology lesson, students use Microsoft Excel or Appleworks spreadsheets to create a packing list for their “pretend” trip to Antarctica.

Ohio Math Content Benchmarks

Grades 3-4: Data Analysis and Probability Standard

1. Collect and organize data from an experiment, such as recording and classifying observations or measurements, in response to a question posed.

Grades 5-7: Data Analysis and Probability Standard

4. Determine appropriate data to be collected to answer questions posed by students or teacher, collect and display data, and clearly communicate findings.

Ohio Technology Benchmarks

Benchmark A: Communicate information technologically and incorporate principals of design into creation of messages and communication products

Benchmark B: Develop, publish and present information in format that is appropriate for content and audience.

Grade 6: Publication

1. Create and publish information in printed form (e.g., use software to produce homework assignments, reports, flyers, newsletters).
2. Develop and publish information in electronic form (e.g., slide presentations, multimedia products, Web materials).

Grade 7: Productivity Tools

1. Select an appropriate software tool to create and publish print information (e.g., word processor for a report, desktop publishing tool for signs/calendars/newsletters).

Ohio Reading Benchmarks

Grades 4-7: Informational, Technological and Persuasive Text Standard

- A. Analyze the importance of setting
- E. Demonstrate comprehension by inferring themes, patterns, and symbols

Ohio Social Studies Benchmarks

Grades 3-5: Social Studies Skills and Methods

- Use problem-solving skills to make decisions individually and in groups.

Grades 6-8: Geography

- Explain how the environment influences the way people live in different places and the consequences of modifying the environment.

Ohio Science Content Benchmarks

Grades 6-8: Scientific Ways of Knowing

Benchmark A: Use skills of scientific inquiry processes (e.g., hypothesis, record keeping, description and explanation).

Materials needed:

- Computers with Microsoft Excel or Appleworks spreadsheet program
- Internet access to L.L. Bean website **OR** L.L. Bean catalogs

Procedure:

1. Working in small groups or pairs, ask students to brainstorm a list of 10 essential items that they would want to have with them if they were stranded in a wilderness area near them. Students should also be ready to explain why they would want to have each of these items. Items must be specific, such as: oranges for vitamin C, beef jerky which is meat that doesn't easily spoil, fresh water, a knife, a crank operated flashlight, and so on.
2. Share responses with the class discussing how this is specific to each particular environment. Ask how the items would differ if they were stranded in a rainforest, a prairie, a desert, or the South Pole.
3. Ask students what they think they might need if they were going on an expedition to Antarctica and discuss what would be appropriate for temperature and climate. Explain that the temperature is moderate at Palmer Station. The maximum temperature on a typical January day is **37 °F / 3 °C**. The minimum temperature is **35 °F / 2 °C**. Discuss what the environment might be like. Include intense sun and UV exposure due to ozone layer depletion, and warmer temperatures because January is summer due to Antarctica's location in the southern hemisphere.
4. Provide each student with a copy of the student worksheet provided with this lesson. Introduce the activity by reading the first few paragraphs.
5. If students have never used Excel spreadsheets, demonstrate using a Whiteboard or put students in partners, one reading directions while the other enters information.
6. Have students create spreadsheet.
7. Evaluate spreadsheets based on rubric included.
8. Then explain to the class that an unthinkable tragic event has occurred while at Palmer Station. There was a power outage and all of the backup equipment has failed. Discuss what emergency survival items they included on their spreadsheet. Necessary items might include flashlights with batteries, waterproof matches for a fire building for warmth.
9. As homework or a Language Arts extension activity, have students reevaluate their list to include any additional items they would want to bring for this emergency situation and why. This could be in the form of a paragraph or short essay depending on student ability levels.
10. Read survival books listed below and discuss survival themes of each and how environment plays a critical role in survival needs.

Suggested survival themed reading list for middle school students

Non-Fiction

J 919.89 Sh11a2

Armstrong, Jennifer *Shipwreck at the Bottom of the World: The Extraordinary True Story of Shackleton and the Endurance*

When their ship is crushed in a frozen sea for nine months, Shackleton and his men make a perilous journey to reach inhabited land.

J796.52 P481w

Pfetzner, Mark *Within Reach: My Everest Story*

The author describes how he spent his teenage years climbing mountains all over the world, with an emphasis on his two expeditions up Mount Everest.

Fiction

Clarke, Judith *Al Capsella Takes a Vacation*

Al's surfing vacation plans go awry when he and his friend end up in the middle of nowhere instead of the party town they planned to visit with their parents.

Hobbs, Will *Far North*

After the destruction of their floatplane, sixteen-year-old Gabe and his Dene friend, Raymond, struggle to survive a winter in the wilderness of the Northwest Territories

Paulsen, Gary *Hatchet*

After a plane crash, thirteen-year-old Brian is alone in the wilderness, learning to survive with the aid of a hatchet.

Sachar, Louis *Holes*

Stanley's family has a history of bad luck, so he isn't too surprised when he is unjustly sent to a boy's juvenile detention camp in the Texas desert.

Taylor, Theodore *The Cay*

A boy and an old man are stranded on a small island after the freighter on which they were traveling was torpedoed by a World War II German submarine.



Packing for Antarctica!



Name _____

(Let's pretend) Congratulations on being one of the select scientists going to Antarctica! You have just received notice of medical clearance and are PQ'd (physically qualified) so you know that you are definitely going. You have so much to do before you are ready to go. One of the important things you need to do is get your clothes and supplies and pack them. Lucky you have been given \$1000 from the generous L. L. Bean Company to help you out. Catalogs will be provided for you or you may go to LL Bean online at: <http://www.llbean.com>. You can choose any of the items you wish but there are a few things to remember:

1. You can only take 3 bags with you. Buy your bags from L. L. Bean! They have great travel bags!
2. You must take enough clothes to last for at least 1 week because there is laundry service available at Palmer one time per week.
3. You must get clothing and other gear you think you might need. See the packing list requirements on the attached list titled "What to Pack for Palmer".

Directions for PC users

You are going to keep track of your order using an Excel spreadsheet. Follow the directions below to create your Excel document. **Note ** Words in **Bold** font are what you enter.

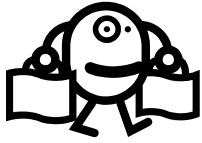
1. Go to **Start** and select **All Programs**. Find **Microsoft Office** and then select **Microsoft Excel**. You have just created a new spreadsheet. Now you need to save it.
2. Go to **File** and select **Save as**. Create a new folder by selecting the icon that says **Create a new folder** and name the folder **Your name's Antarctic Expedition Order Sheet**. Select **Enter** to save your work.
3. You will now be at cell A1. Type in **Item Description**. Go to cell A2 and type in **Item Quantity**. In cell A3 type **Cost per Item**. In cell A4 enter **Total Item Cost**.
4. You are going to enter some formulas to do some calculations. You need to have the item quantity. Multiply the item cost by the item quantity to calculate the total item cost. Enter in cell D4 **=B2*C2** and select **Enter**.
5. Columns C & D need to be made into currency (money). Put your cursor on the column heading **C**. The whole column should be highlighted. From the top menu, select **Format**, then **Cell** and choose **currency** and select **OK**. Then do the same for column D). Put your cursor on the column heading **D**. The whole column should be highlighted. From the top menu, select **Format**, then **Cell** and choose **currency** and select **OK**.

6. Now you are ready to add the formulas for calculating the total cost of your order. Go to cell D40. Type in the formula that tells the cell to make it equal the total of everything in cell D2 through D39. Type in: **=sum(D2:D39)** and select **Enter**. It's really important to hit the enter key anytime you enter a formula.
7. You are ready to begin creating your order, but before you do, save your work by selecting **File** and then **Save**. Do this every few minutes to save you work just in case.
8. Now go to the L. L. Bean website and begin placing your order.
9. Review the orders to make sure you have not gone over your limit and that you have everything you need. **Think ahead to any emergency situation that you might need to prepare for.** Don't be concerned about tax and shipping because L. L. Bean has generously offered to skip these charges.



Save your work to a disc, folder or print a copy of your order (whatever your teacher requests you to do).





What to Pack for Palmer Station

*This is a condensed version taken directly from
The Antarctic Participant Guide

There will be several stops on your journey to Antarctica. In Chile you will pick up Extreme Cold Weather (ECW) clothing. You may require personal items for the various climates, work, and activities. Planning and prioritizing are very important. You will travel from your airport of departure to Punta Arenas, Chile, on commercial carriers

Carry-on: In addition to your 3 bags that you will check, you are permitted one carry-on that must fit in the overhead bin, or under the seat in front of you. Linear dimensions are a maximum of 157 cm (62 inches) = width + length + depth. Personal comfort in Antarctica is important. *So is environmental protection. When choosing items to make your stay more comfortable, buy and take with you items that are as environmentally friendly as possible.* Try to use biodegradable soaps and shampoos, which will have less impact on the local environment. Eliminate the use of aerosols. Find substitutes for aerosols such as roll-on deodorants, shaving creams in a tube, and other non-aerosol products. Eliminate as many plastic and throwaway containers as possible. If possible, use the backpacker's rule—pack it in, pack it out. Please cooperate with the established recycling program. Share the “Unwanted in Antarctica” list with friends and family who may be mailing you packages. Antarctica is very dry and it is recommended that you use hand lotion and lip balm.

PERSONAL ITEMS TO CONSIDER TAKING

CLOTHING ITEMS:

- ✓ Boots or shoes insulated as needed for your work
- ✓ Glasses; eye and sun, extra pair,
- ✓ Record of prescriptions
- ✓ Gym clothes and shoes for athletics
- ✓ Jacket; pile and windbreaker
- ✓ Pajamas
- ✓ Pants; cotton, denim
- ✓ Shirts, light wool or cotton flannel, long-sleeve (machine washable)
- ✓ Slippers or soft shoes for indoor wear
- ✓ Sock liners; polypropylene or Thermax
- ✓ Socks; cotton and wool
- ✓ Sweaters; heavy and light
- ✓ Swimsuit (for sauna)
- ✓ Towel and washcloth
- ✓ Underwear

MISCELLANEOUS:

- ✓ Alarm Clock
- ✓ Batteries; rechargeable is best
- ✓ Camera/Camera batteries
- ✓ Day pack
- ✓ Hair Dryer
- ✓ Hobby, craft items (small)
- ✓ Holiday attire
- ✓ Laundry bag
- ✓ Lock, combination or key
- ✓ Prescription medications
- ✓ Sewing kit
- ✓ Small sentimental items
- ✓ Toilet articles: sun block, toothpaste, dental floss, soap, comb, razor, shaving cream, deodorant, cosmetics, skin lotion, a carrying case



Indoor clothing choices are up to you. You bring your own regular indoor clothing, including underwear, socks, shirts, and pants. Washable clothing is recommended, and dry cleaning is not available.

Special clothing (climbing boots, cold-weather gear, etc.).

If you are experienced in Antarctic or cold weather conditions, you may add your own cold weather gear for field use.

Sheets. The U.S. Antarctic Program does supply linens, pillows and blankets for the beds.

Laundry. Washing machines and dryers are conveniently located and are free to use. Laundry detergent is also provided free.

Layering. The temperature both inside buildings and outside can vary dramatically. The best way to manage these changes is by layering your clothing. This will allow you to shed or add layers quickly and easily. Several thin layers are more effective than one bulky layer.

Electric power. Power in Argentina, Chile, and New Zealand is 230 volts, 50 hertz. Not all hotels in these countries have converters for U.S. electrical appliances, which operate at 110-120 volts. Bring your own converters and plug adapters for appliances, such as hair dryers. Research vessels and U.S. Coast Guard ships have both 220- and 110-volt power. U.S. Antarctic stations use 110-volt systems.

Towels and washcloths. The U.S. Antarctic Program does **not** provide towels and washcloths in Antarctica, although it does provide towels on *R/V Laurence M. Gould* and *R/V Nathaniel B. Palmer*. Also, many hotels in New Zealand and South America do not provide washcloths. It is recommended that a small towel and washcloth be part of your hand carry.

Sunscreen. Carry and use a sunscreen with an SPF number of 15 or greater (range 2 - 50). Ensure that it provides both UVA and UVB coverage and that the product expiration date does not occur during your stay. In summer the sun is up 24 hours a day, and its reflection off snow and ice multiplies the potential for sunburn.

Sunglasses. Sunglasses or goggles are critical. Depending on your job description, your ECW clothing issue may include ski-type UV protective goggles, and/or sunglasses. Bring 2 pairs of sunglasses. Make sure they provide 100% UV protection. Frames should be plastic, rather than metal, to avoid freezing to the skin. Consider wrap-around temples, side shields, nose guards, or other features to protect from harsh sunlight and reflections off the snow that may go around your dark lenses.

Antarctic clothing. You will be issued extreme cold weather (ECW) clothing as you pass through Punta Arenas. Special arrangements will be made if you are taking other routes to Antarctica. This clothing will include outer garments necessary for warmth and dryness, pile jackets and pants, gloves, thermal boots, insulated underwear, and other items. Depending on your work, you may also be issued special safety gear (hard hats, gloves, goggles, etc.). Proper clothing fit and functionality are important to achieve maximum protection. You should check each individual item to ensure that it fits correctly, that the zippers work, and quantities are correct. If you expect to gain weight while in Antarctica, which is common, select clothing that fits loosely. The clothing issued to you is U.S. Government property. You are required to return it in South America during redeployment, even if you think it may be of no further use. You are responsible for maintenance of issued clothing in your possession.

NOTE: Understand that while the U.S. Antarctic Program will provide you with what you need for outdoor clothing, participants may bring their own long underwear, heavy socks, etc. to wear if they prefer, when not in flight.

What Not To Pack



Plants, seeds, and animals. The Antarctic Treaty, which all participants must adhere to, prohibits the importation of any seeds, plants (except food plants under controlled conditions for use in the greenhouse), or animals to Antarctica. Additionally prohibited is the removal of any materials such as wood, bone, eggshells, feathers, and plant or animal parts.



Rubric for **Packing for Antarctica** spreadsheet lesson
 *for distribution after spreadsheet has been created



Student Name _____

Part #1 Spreadsheet

Student has included the following necessities and made appropriate choices:

- | | | |
|---------------------------|-----------------------------|------------------------------|
| — All weather boots | — Sock liners | — Day backpack |
| — Sun glasses | — Cotton or wool over socks | — Hairdryer |
| — Gym shirt | — Sweaters 2 warm & 2 light | — Laundry bag |
| — Gym shorts | — Swimsuit | — Sewing kit |
| — Gym shoes | — Towel and washcloth | — Sun block |
| — Windbreaker jacket | — Underwear | — 3 duffle bags or suitcases |
| — Pajamas | — Alarm clock | — Thermal underwear |
| — Pants or jeans | — Rechargeable batteries | — Flashlight |
| — Shirts (7) long sleeve | — Camera and batteries | — Portable heater |
| — Shirts (7) short sleeve | | — _____ |
| — Slippers | | — _____ |

Point value _____ /30 (there are 28 required items and space for 2 write-ins)

Part # 2 Emergency Situation

Student preparation

- _____/10 Student was well-prepared for power outage and had sufficient supplies.
 _____/8 Student was fairly prepared for power outage and had most necessary supplies
 _____/6 Student had a few supplies, but not enough to survive the power outage
 _____/4 Student did not prepare for any emergency situation and

Point value _____ /10

TOTAL POINTS _____ /40