

Mission Survival



Background

To survive in a hostile environment, basic human requirements must be met. Earth's atmosphere provides the air we need to breathe, atmospheric pressure that the human body requires to function, and protection from much of the harmful radiation from the Sun. On Earth, some basic human needs include food, water, shelter, and clothing. The body can go without food longer than it can go without water. Shelter provides protection from the elements such as extreme temperatures and inclement weather. Likewise, proper clothing allows humans to live and function in comfort. Usually, these needs are easily met. However, in extreme situations, humans must prioritize their needs in order to survive. Tools, resources, and skills may be necessary to obtain food and water or to construct proper shelter and make clothing. Communication can be key to survival as well. In a hostile environment, successful teamwork may be all that stands between the life and death of individuals.

Skills

- Reaching consensus
- Problem solving
- Team building
- Communication skills

Objectives

Students will:

- Discuss and reach consensus on items to include in a survival kit in an emergency situation.
- Decide, evaluate, and formulate problem solving skills to plan a course of action.
- Establish criteria for the contents of a survival kit.
- Identify hostile environmental elements to be overcome in Antarctica.
- Compare and contrast the hostile environment of Antarctica to other places on Earth or in the Solar System.

Overview

This activity is a classic way to generate discussion, problem solving, and consensus building around survival issues in a hazardous environment in the event of a hypothetical emergency situation. Students are asked what to do in the event they are stranded in Antarctica several days walking distance from base camp. The class must make a plan and prioritize those items needed for a survival kit.

Key Question

Why is reaching consensus and prioritizing essential to making team decisions?

Key Concepts

- Good communications skills are part of teamwork.
- Reaching a concensus and prioritizing are important skills for successful teamwork.

Materials & Preparation

1. Based on the scenario, students will plan what they would do. Each group must reach consensus. Should they stay put near the plane or head for the base camp?
2. Student/teams will need to come to consensus on their answers (i.e., complete agreement).
3. Have students put a star next to the essential items for their survival kit.
4. As a class or in groups of six, have students answer the questions on the student worksheet.

Management

This activity should take one class period to complete. You can break the class into small groups of six students and have teams share their solutions with the class, or do the activity as an entire class.

The teacher should focus less on “the answer” than on promoting critical thinking and consensus building skills. Pay attention to the leadership that will emerge in the group



work. It may provide you with some surprising insight into your students and impact how you assign them to roles for the Learning Center mission.

Reflection & Discussion

1. What do humans need for survival in a hostile environment?
2. What items are “nice to have,” but not essential?
3. Why is it important to have emergency plans in place?
4. What kind of emergency plans do you know in case of a fire, earthquake, or power outage?
5. What kind of emergency measures are on airplanes, cars, or in homes?

6. What was difficult about reaching consensus? What would make it easier next time?
7. Compare and contrast survival in Antarctica to planning to live on the Moon, Mars, or a long duration space mission.

Transfer & Extension

1. Plan and create a first aid kit for home use.
2. Find out the skills needed for wilderness survival training, where a person spends several days alone living off the land.
3. What contingency plans are in place for the Space Shuttle, the International Space Station, or a space suit?
4. What can your class do to help those that survive a natural disaster?

Mission Survival



Life in a hostile environment requires careful thinking and planning to meet human survival requirements. In many respects, Antarctica is an excellent training ground for a long duration, human mission on Mars. Like Mars, Antarctica is barren and typically very cold. Unlike Mars, Antarctica has air, atmospheric conditions fit for humans, and access to water.

You are part of six-person crew on its way to Antarctica to collect meteorites, which are easily found in the white snow. Just short of base camp, the plane develops electrical problems and crashes. Miraculously nobody is seriously injured, but all radio communication has been permanently damaged.

The pilot estimates that the team is approximately a five-day walk from base camp. Another plane with a second crew will be flying out to camp in two weeks.

1. As a class or in groups of six, answer the questions below. You will need to come to consensus on your answers (i.e., complete agreement).

Based on the scenario above, plan what you would do. Your group must reach consensus. Should you stay near the plane or head for the base camp?

2. The items below survived the crash. If you decide to head for base camp, you can only take what you can carry with you to survive until you can get help or be rescued. What items are essential for your survival kit?

Put a star next to the essential items for your survival kit.

- | | |
|--|--|
| <input type="checkbox"/> Parachutes (2) | <input type="checkbox"/> Twine |
| <input type="checkbox"/> Matches (1 book) | <input type="checkbox"/> Canned chili (2 boxes of 48 cans) |
| <input type="checkbox"/> Sleeping bags (2) | <input type="checkbox"/> Mess kits (6) |
| <input type="checkbox"/> Long underwear | <input type="checkbox"/> Make-up compact with mirror |
| <input type="checkbox"/> Water (12 gallons) | <input type="checkbox"/> Flare gun |
| <input type="checkbox"/> Pick axe | <input type="checkbox"/> Portable radio |
| <input type="checkbox"/> Flashlight | <input type="checkbox"/> Thermal boots |
| <input type="checkbox"/> Candy bars (1 box of 24) | <input type="checkbox"/> Hammer |
| <input type="checkbox"/> Fruit (1 crate of bananas) | <input type="checkbox"/> Screwdriver |
| <input type="checkbox"/> Campstove | <input type="checkbox"/> Nails & screws |
| <input type="checkbox"/> Dehydrated food (2 boxes of 4 dozen packages) | <input type="checkbox"/> Duct tape |
| <input type="checkbox"/> Scissors | <input type="checkbox"/> Collection bags |
| | <input type="checkbox"/> Shovel |



STUDENT WORKSHEET

- | | |
|--|---|
| <input type="checkbox"/> Garbage bags | <input type="checkbox"/> Pen |
| <input type="checkbox"/> Canteens | <input type="checkbox"/> Pocket knife |
| <input type="checkbox"/> Soap | <input type="checkbox"/> Thermal jackets |
| <input type="checkbox"/> Washcloth | <input type="checkbox"/> Compass |
| <input type="checkbox"/> Batteries | <input type="checkbox"/> Thermal gloves |
| <input type="checkbox"/> Can opener | <input type="checkbox"/> Map |
| <input type="checkbox"/> Toothbrush and toothpaste | <input type="checkbox"/> Gun |
| <input type="checkbox"/> Backpack (6) | <input type="checkbox"/> Thermal hats |
| <input type="checkbox"/> Kerosene (1 gallon) | <input type="checkbox"/> Ammunition |
| <input type="checkbox"/> First aid kit | <input type="checkbox"/> Tents (2 two-person tents, 10 pounds each) |
| <input type="checkbox"/> Wool blankets | <input type="checkbox"/> Toilet paper (2 rolls) |
| <input type="checkbox"/> Sunglasses (6) | <input type="checkbox"/> Jewelry |
| <input type="checkbox"/> Chapstick | <input type="checkbox"/> Magnifying glass |
| <input type="checkbox"/> Sunscreen | <input type="checkbox"/> Paper plates |
| <input type="checkbox"/> Cassette tapes | <input type="checkbox"/> Napkins |
| <input type="checkbox"/> Pocket video games | <input type="checkbox"/> Cooler |
| <input type="checkbox"/> Journal | <input type="checkbox"/> Soft drinks (1 case) |

Reflection & Discussion

3. What items will you leave behind?
4. What items don't belong in the survival kit, but you would be willing to carry on a five-day walk to the base camp?
5. Compare and contrast surviving in a hostile environment like Antarctica to surviving in other places on Earth or in the Solar System, such as the Moon, Mars, a space station, or on an extended mission (two year, roundtrip) to Mars.
6. What was difficult about reaching a consensus? What would make it easier next time?
7. Using a Venn diagram, compare and contrast survival in Antarctica to surviving on the Moon, Mars, or a long-duration space mission.