

<http://www.wku.edu/universityexperience/meteor.html>

Meteor Strikes

This activity sets up a hypothetical scenario and requires students to offer solutions based on their own reasoning and problem-solving skills. The activity begins with a scenario that requires students to make decisions which will affect the survival of humanity. The purpose of this activity is to have students work together to reach a consensus on how to approach a difficult decision. It helps them use critical thinking skills such as analysis and evaluation to determine what the best (not "correct") answer may be.

In this exercise, students:

Will be able to evaluate the information available and decide what factors and traits are most important for the long-term survival of humans on Earth.

Effectively present their arguments orally and in writing.

Work collaboratively to agree on a common approach to a shared problem.

Analysis:

Write each group's list on the board and discuss the thinking behind each: look at the categories that each group developed, and the priorities they attached to them. Discuss the process each group went through to complete the assignment.

Scenario

15 people are aboard the international space station when a large asteroid strikes the earth with the force of 1 Trillion tons of TNT. After four days, there are no signs of survivors on the Earth and all efforts communicate with the planet have failed. There is a large layer of smoke and dust surrounding the planet and thus, for the time-being, there is no way for the attached space shuttle to return to Earth without guidance and support from the surface. You must assume that the 15 people described below are the only humans known to be alive.

The problem

There are 15 people on the space station, but if all of them stay on the station, they will run out of oxygen and food in approximately two months. However, computer projections indicate that the dust in the Earth's atmosphere will not be able to be penetrated for at least six months, at which time it may be possible to navigate a safe return to Earth. Based on the oxygen-producing capacity of the station, only a crew of 6 people would be able to stay alive for six months.

Your task is to decide, based on the information you have been given, which six people should be allowed to remain on the space station (and live) and who should be selected to leave. There is only one shuttle capable of returning to Earth. We will assume that the people selected to leave the station will do so peacefully. At stake is the survival of humans on Earth. The repopulation of humans on Earth will begin with the survivors selected by your group.

Carefully evaluate all of the information provided and then decide who will survive and who must leave. Discuss your selections as a group and then write down your list of six survivors and nine who must be sacrificed. State your reasons for your selections. Each member of the group should make their own decisions, but each group must reach consensus as to who will be saved and who will not.

Michelle is 42, married, and the mother of 17-year-old twins. She is an avid runner and the daughter of a famous Chinese scientist. She is also a breast cancer survivor and the author of more than 40 articles in her field of molecular biology.

Caroline is 31 and single. She has no children. She was the co-pilot on the space shuttle that is docked to the space station. She was one of the first people to receive an experimental laser treatment to correct severe near sightedness—something she had to do to qualify for the space program. She is the daughter of a coal miner from West Virginia.

Sumiyo is a 48-year-old physician who came to the space station to carry out medical experiments on the crew. She is the divorced mother of one 24 year old son. She is in excellent health, but her father died from a heart attack when he was 54. She is the first Japanese woman to serve on the space station.

Natasha, age 27, is the youngest person on the space station. She is divorced and has no children (though she had one miscarriage when she was 23). She is a computer expert and her primary role is to oversee the technical aspects of the 300 separate experiments that are currently being conducted on the space station. She is from Moscow.

Addrienne is the first woman from sub-Saharan Africa to voyage to the space station (she is from Zimbabwe). She is 34 and married. She is the mother of two young boys. She is a botanist, studying how a variety of plant species respond to micro-gravity.

Alexandra is 51, single, and has no children. She is the Captain of the crew that last arrived on the space station. She is a veteran of more than 12 shuttle missions and has served as both pilot and navigator of previous shuttle flights. Her mother is a US Senator and her father, now deceased, was a World War Two fighter pilot. She is in excellent health and was raised in Washington DC.

Sergei is 44 and serves as a payload specialist on the crew. He is married and has no children. He is a former Olympic hockey player from Russia. At 6' 4" and 220lbs., he is in excellent physical condition. His father died from the effects of alcoholism, but his mother is still doing well at age 74.

Max is a 32-year-old physician and the divorced father of six children. He is the flight surgeon for the crew. He is from Australia. He is a serious runner, but hypertension runs on both sides of his family and he takes medication to control his blood pressure. He also takes medicine to control his allergies to molds, dust, and pollen.

Hiro is a 41-year-old Japanese businessman and the father of two children. He is the owner of a vast exporting company and is fulfilling his life-long dream to go into space. Through his donation of \$15 million, he is responsible for funding more than 100 experiments on the space station. He is slightly over-weight, and with exception of poor vision, he is in generally good health.

Rahim is the first Iranian to visit the space station. He is 38 and is the most decorated pilot in the Iranian airforce. He is the father of five children. He was the pilot of the original shuttle to the space station, and has been on board the station for five months. Though very slender, he is in good health.

Kerry is 57 and has spent more time in space than any other astronaut. This is his 17th mission. He is married and has three grown children. He was looking forward to retiring from NASA at the conclusion of the mission, returning to California, and pursuing his hobbies of gardening and wood working. He is also contemplating a post-retirement return to school to become a minister. He is the highest ranking member of the crew and serves as the chief administrator of the space station. He is slightly overweight, but is in generally good health.

Steven is 41 and is from Nigeria. He is single and has no children. He is an exercise physiologist, a former professional soccer player, and is studying the effects of weightlessness on muscle density. He has developed a series of exercise machines for the crew and works out for more than three hours every day. He was adopted as a child and has no information about his biological parents.

Jorge is a 29-year-old astrophysicist from Mexico City. He is the father of one two year old daughter. He is studying deep space quasars using the station's powerful telescope. He is not athletic and dislikes exercise, but is in generally good physical condition. He is widely-regarded as one of world's most brilliant young astronomers.

Dimitri is the 32-year-old son of the president of Greece. His mother is the former Miss Universe. He is single and has no children. He was a professional model in his early 20s, and then decided to pursue a career in graphic design. He developed a three dimensional graphics program that allows the computers on board the station to map the surfaces of any object with incredible precision. Other than wearing contact lenses to correct severe myopia, he is in excellent health.

Angelo is 43 and single. He has no children. He is an Italian cartographer who is working on developing the most comprehensive map of deep space ever created. He is the son of poor farmers and grew up raising all of the food he ate. His parents –now in their 70s-- are both still living on their family farm. He has a slight limp from an accident as a child, but otherwise has no health problems.