

Hazardous Materials

Take a look at these different examples of hazardous materials:



Pesticides



Bleach



Antifreeze



Laboratory Chemicals

Safety Masks

Take a look at these different examples of safety masks:

Surgical Masks

Doctors and nurses often wear surgical masks to prevent the spread of bacteria and viruses. These masks are worn over the nose and mouth and help prevent the spread of disease from person to person.



Face Shields

People who work with dangerous equipment can wear face shields. These shields cover the whole face and block any flying debris from hurting the wearer.



Ventilation Masks

Firefighters and other people that work around unsafe air wear ventilation masks to make sure that they have access to clean, unpolluted air. These masks cover the whole face and are connected to a clean air supply.



Investigating Hazardous Locations

Choose a hazardous location to work with.

Location 1: Caves in Ecuador

Scientists want to figure out what life is like in caves in Ecuador. However, there are many different hazards in the caves, including particles in the air from the feces of bats that live in the caves. This mask must protect workers from these airborne particles.

Requirements:

- Must have a filter to filter air that is breathed in.
- Must cover mouth and nose of person wearing the mask.
- Must have strap (s) to hold the mask on the face.
- Must have a spot to attach a cave light or flashlight.



Location 2: Underground Shopping Center in France

Construction workers want to create an underground shopping center in France. The underground shopping center will be underneath a big city in France. When the construction workers are clearing rock and dirt, they can be exposed to viruses that live in the soil. One disease is anthrax, which is a deadly disease that causes skin and lung lesions, leading to death. This mask must protect workers from breathing in dirt and other debris.

Requirements:

- Must have a filter to filter air that is breathed in.
- Must cover mouth and nose of person wearing the mask.
- Must have strap (s) to hold the mask on the face.
- Must have a protective cage to prevent the person's face from being hit with rocks.



Location 3: Farms in the United States

Farmers in the United States often use fertilizers to give their plants nutrients to help them grow. One very effective fertilizer is called anhydrous ammonia. Anhydrous ammonia can cause burning of the eyes, nose, and throat after breathing even small amounts. With higher doses, coughing or choking can occur, and if the dose is high enough, it can suffocate the lungs, causing death. This mask must protect farmers from breathing in anhydrous ammonia fumes.

Requirements:

- Must have a filter to filter air that is breathed in.
- Must cover mouth and nose of person wearing the mask.
- Must have strap (s) to hold the mask on the face.
- Must be thin to be able to be stored in a truck or tractor toolbox.



Designing a Safety Mask

Sketch the design for your safety mask below! Make sure to label important parts and features.

