Lungs Need Space

Objectives:

- To understand how human lungs are impacted by the pressure of grain.
- To comprehend the implications of not being able to breathe if surrounded by grain.

You will need:

- Large round latex balloon
- Large diameter drinking straws
- Duct or masking tape
- 5-gallon bucket
- Corn, soybeans, or other grain

Activity:

Attach the straw to the balloon securely so no air can be released. Blow up the balloon through the straw. It will need to fit in the bucket so keep it smaller than the bucket diameter. Place a finger over the straw opening so the air is not released.

Hint: Blowing up the balloon several times without the straw first will make it easier to blow up after the straw is attached.

Place the balloon in the bucket holding on to the straw opening so air is not released. Have another person pour the grain on top of the inflated balloon so there are several inches of grain on top. Allow all the children to see that the balloon is covered with grain.

Gradually release the air from the balloon. Have the children watch what happens to the grain level. It should go down as the air is released. After all the air is released, try to blow the balloon up with the grain on top. If enough grain is on top of the balloon this can't be done.

If time allows, have each person do their own balloon and straw. This way there is no problem with spreading germs by sharing straws.

Questions:

Q: What body part does the balloon represent?
A: Lungs.

Q: What happened to the grain height in the bucket as the air in the balloon was released?
A: The grain went down proportionately to the amount of air that the balloon took up.

Q: Why is it more difficult to blow up the balloon when under the grain?
A: The weight of the grain is pushing on the balloon so it can't expand. This same concept works on the lungs of a person surrounded by grain.

Q: How does the grain impact the ability of the lungs to function properly?
A: Just like the balloon, when the lungs must push against the heavy grain they cannot inflate properly. This is when suffocation can take place.