“give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime”
— Old English Saying

Introduction

The use of simple physical teaching aids or demonstrations have long been recognized as a valuable strategy for enhancing the learning process and achieving greater knowledge retention. Good examples of how effective this approach can be include how most of us learned to securely tie our shoes, tighten a nut, ride a bicycle, or avoid picking up hot objects. Once learned, the knowledge or skills stayed with us for a lifetime. It’s one thing to hear a verbal explanation of a concept, but often quite different to have it demonstrated, allowing us to visualize or experience it.

Good teachers have a “toolbox” of proven teaching aids that they can draw upon to engage students in the learning process. (Take a moment and recall the many teaching aids that your parents, employers or previous teachers have used to change your life.)

The following examples of safety-related teaching aids are designed to enhance the GEARING UP contents. They have been tested, are easy to assemble or fabricate, and can be incorporated in both classroom and informal settings. Remember, keep it simple and the likelihood for success will be increased.
Avoid the Traps of Risk Taking

Youth, especially males under the age of 21 tend to be among the highest risk takers, and account for a disproportionate percentage of agricultural related injuries. Contributing to this behavior is their level of emotional and intellectual maturity, desire to ‘fit-in’ and/or please others, and a general lack of appreciation for the serious consequences of certain types of risk taking. In this activity, simple mouse and rat traps will be used to illustrate what a hazard is, why a hazard may be attractive, risk taking, and the potential consequences of risk taking.

Procedure:
1. Assemble different types and sizes of mouse and rat traps (preferably unused) and an uncooked hot dog. In some cases, such as the sticky board types, there is little or no threat to human safety. If a spring type trap is unset is also presents no real hazard.
2. Set the mouse trap. Once set, which generates no small amount of anxiety for some people, the potential of having a finger pinched is very real.
3. Fold a dollar bill and attach it to the bait holder portion of the mouse trap before setting the trap. You have now illustrated an attractive hazard which might lead someone to take a risk in retrieving the money, even with the knowledge that there may be painful consequences (That is why a mouse goes after the cheese).
4. Using the hot dog, try to remove the dollar bill without springing the trap.

If you replace the mouse trap with a rat trap and use a five-, ten- or 20-dollar bill, what happens to the level of the hazard and the willingness of participants to take the risk of retrieving the money, and the potential consequences? Are we not acting like mice going after the bait when we blindly take risks, even when we know the consequences? How does the mouse usually end up?

Ask the participants to identify activities that they have done that represent similar risk-taking activities with even far more serious consequences. These might include:
- crossing the road in front of oncoming traffic
- diving into water without knowing how deep the water is
- pulling a stick wedged into the discharge chute of a lawnmower without shutting off the mower
- trying to beat a train to the railroad crossing
- bypass starting a tractor without being on the seat
- taking a shortcut through a pasture with a bull in it

Materials Needed:
- Mouse trap
- Uncooked hot dogs
- Rat trap
- 1, 5, 10 and 20 dollar bills
**Every Farmer Needs a Safety “Toolbox”**

Using an empty toolbox and an assortment of tools, this activity will impress on the participants that having the appropriate personal “tools” can make working on a farm safer and more productive for both themselves and their co-workers.

**Procedure:**

1. Hold up the empty toolbox and ask participants what can be accomplished with an empty toolbox. Not much! Maybe one of them can recall a time a machine broke down at an isolated site on their farm and a simple basic tool such as pliers or a screw driver was all that was needed to fix the problem. But upon opening the toolbox, nothing useful was to be found, just a lot of broken parts. A toolbox without the right tools, is not very helpful.

2. Ask participants what “tools”, or personal qualities, a person needs to have to stay safe when working on a farm. Have them think beyond what goes into a normal toolbox.

3. Using actual tools, illustrate the importance of personal attributes needed to be a safe worker. These should include:
   
   - Knowledge (tire inflation gauge, micrometer, tape measure, antifreeze tester) – you need to know what you are doing and understand the workplace.
   - Patience (WD-40, paint brush, sand paper or file) – some tasks are hard and take extra patience. Being in a hurry can cause trouble.
   - Strength (large hammer, breaker bar with socket, chain) – workers need to have the physical strength to complete many farm tasks.
   - Willingness to working together (ratchet and socket, hammer and punch, drill bit and drill) – many farm-related tasks require teamwork.
   - Flexibility (adjustable wrench, pliers, vise grips, rope) – uncertainties like the weather, requires flexibility.
   - Discernment (plain, Phillips, hex head screw driver, ratchet and several sockets) – you need to be able to select the right tool to get the job done safely.
   - Self-preservation (goggles, safety glasses, gloves, dust mask) – you need to care about yourself and others to avoid taking unnecessary risks.

The attitude, skills, and behaviors that a worker brings to the job site are just as important as the actual tools he or she might need to complete the job.
Using Your Hands to Communicate Your Thoughts

Mastering universal hand signals; enable people to communicate when beyond hearing range, save time, prevent injuries, reduce risk of severe injury or death, and removes language barriers.

In this activity the students will practice their hand signals by directing another student through an obstacle course.

- **Option 1** – Two students, one directing the other with hand signals only, no talking for all options.
- **Option 2** – If there is room for two obstacles courses, have two groups and see who can navigate it the fastest and safest. Have time penalties for infractions or unsafe procedures.
- **Option 3** – Time as many groups as you want. Impose a time penalty for infractions and unsafe procedures
- **Option 4** – Have one group attempt to complete the obstacle course without using the universal hand signals.

**Procedure:**
1. Set up an obstacle course using tables and chairs. Include turns and backing up. You can also add a load (box or object) to pick up and place (have various heights with options to place it)
2. Design the course to utilize as many of the hand signals as possible.
3. Run-off handouts showing the hand signals and their purpose. One for each participant.
4. Set-up groups based on your option, see above.
5. Make a handout for the one giving the hand signals that explains the obstacle course. If doing multiple groups keep them separated so they are not able to watch the other group.
6. Complete the obstacle course. Depending on the option, you may need to time each group.
7. No talking allowed. Use only hand signals to navigate the other person through the obstacle course.
8. The speed of the walker can be adjusted by the student giving the signals. Could result in a safety infraction if too fast, assign a penalty if that happens.
9. Have non-participants observe and then critique when done.

Have an open discussion about how the group(s) performed. Stress that it is important to learn the universal hand signals so one can communicate their thoughts safely and accurately. One can master these by practicing these hand signals with a friend.

**Materials Needed:**
- Tables and chairs
- Handout showing hand signals
- Box or object for load
- Rope to outline the course (optional)
- Stopwatch – if timing the performance
Farming is a Contact Sport

Safe ladder use and fall prevention includes an understanding that to be successful it must require a commitment to maintaining, as much as possible, “three-points-of-contact.”

In this activity, safe ladder use will be demonstrated by focusing on:

- Always keeping your belt buckle facing towards the ladder or steps
- Always maintaining three-points-of-contact (one foot and two hands or two feet and one hand)

**Procedure:**

1. Set up a 6’ – 8’ step ladder in its proper extended position.

2. Have participants demonstrate climbing the first two steps with the rest of the participants critiquing their method. Have them consider:
   - Do they start with their strong leg first?
   - Do they always keep their belt buckle facing the ladder?
   - Do they always maintain three points of contact?
   - Is it possible to carry a gallon can of paint and meet these criteria?

Unlike the comedians who get laughs from falling, falls in the work place are no laughing matter. It remains one of the most significant causes of serious injury and death.
**Stored Energy Can Be Trouble**

There are all sorts of stored energy found in agricultural workplaces that have the potential of causing serious injuries. These include batteries, springs, compressed air, aerosol spray cans, LP gas and anhydrous ammonia tanks, inflated tires, raised hydraulic components, hydraulic accumulators, tow straps under loads, and flammable liquids such as gasoline and diesel fuel. Each of these listed types of stored energy has been involved in documented deaths and serious injuries when the energy they contained was suddenly or unintentionally released and impacted a worker.

In this activity participants will become more aware of the potential hazards of stored energy using simple forms of it such as found in springs underload, inflated tires, aerosol cans, and nylon tow straps.

**Procedure:**

1. Start with the large rubber band and ask participants if anyone would like to volunteer to be “snapped” with the stretched rubber band (They will get the point).

2. Ask the question, “What causes the pain when the stretched rubber band strikes the skin? It is the stored energy that is released when the rubber band makes impact.

3. Point out how each example of stored energy found on farms has a much higher level of stored energy that can cause severe injuries. A blow from a heavy stretched spring on a piece of farm machinery can be fatal, a narrow stream of pressurized lubricant from an aerosol can may cause an eye injury, or over-inflating a tire can cause it to explode causing either death or serious injury. Even the low-pressure tires on a farm tractor can explode with terrific force if overinflated because of the amount of air they contain.

Encourage participants to become familiar with the sources of stored energy they work around and follow the warnings that are often found on these items. For example, a tire may have a warning about maximum inflation pressures, batteries on tractors have warnings about the potential of explosive gases, and most nylon tow straps come with warnings about potential failure and “snap back” if their capacity is exceeded.

**Materials Needed:**

- Springs
- Large rubber band
- Tire
- Aerosol cans
- Tow strap
The Drawbar is the Place to Hitch

One of the primary causes of rear overturns while operating a tractor is hitching a heavy load above the drawbar. These incidents are often fatal because the operator has little time to react.

**Procedure:**
Using a scale toy tractor with a drawbar, a large rubber band, and block of wood as wheel chocks, the potential for rear tractor overturns will be easily demonstrated.

1. First hitch the rubber band to the tractor drawbar and apply a load. The tractor will move in the direction of the load being applied.

2. Block the wheels and again apply a comparable load (Use duct tape to hold the block of wood in place). Again, the tractor will attempt to move in the direction of the load, and the front axle will remain on the ground.

3. Next attach the rubber band to a point on the rear of the tractor above the level of the axle (a paper clip can be used). When the load is applied, what happens?

4. Block the wheels and again apply a comparable load to the high hitch point. What happened when the load was applied?

When a heavy load is attached too high on a real tractor, the front end raises off the ground and, without much effort, the tractor can be pulled over backward. On older tractors without a ROPS, this is a formula for a fatal overturn.

**Materials Needed:**
- Toy tractor with drawbar
- Large rubber band
- Block of wood
- Duct tape
Avoid Getting Caught Up in Your Work

Part of our nature is to resist having something taken away from us, especially when we have a good firm grip on it. This a normal human response that may be associated with self-preservation or greed. In other words, we don't let go of things easily and may believe that “possession is 90% of the law”. This response to stay in “control” can, however, put us at risk when working around machinery that is prone to having crop residue or other material become caught in the operating components. In this demonstration, using a 3-foot piece of ½” PVC pipe or a smooth yard stick, participants will gain a better appreciation of how fast and far a hand can be pulled into the components of a machine when their natural tendency is to hang on rather than to let go.

Procedure:
1. Grip one end of the pipe or yard stick (make sure it is smooth with no splinters) and invite class participants to firmly grip the other end.

2. Explain that the pipe or yard stick represents a corn stalk hung up in the combine header or a stick jammed in the throat of a rotary mower. Have them imagine both machines are operating, and it is their intent to quickly remove the foreign object and get back to work. Explain that you, hanging on one end of the pipe or stick, represents the material being suddenly pulled into the machine. Each participant grabbing onto the other end needs to respond by letting go as fast as possible to avoid being pulled into the machine.

3. Without warning, jerk your end and have the class observe what happens.

In nearly all cases, the participant’s first reaction will be to tighten their grip causing their hand to move towards you 6-12.” In some cases, the exercise will turn into a tug-of-war that in a real situation the machine will always win.

Finally, make the point that the machine is always faster and stronger than any human. A hand is never worth risking for a worthless piece of debris. The only safe way to dislodge material from a machine is to first TURN IT OFF.

Materials Needed:
- ½” PVC pipe, approximately 3’ long
- Yardstick (must be smooth with no rough edges and splinters)
Don’t Get Wrapped Up in Your Work

The average person greatly underestimates the time it takes to safely complete a task, especially hazardous ones. This is one of the reasons why possums, and sometimes pedestrians are struck trying to cross a rural road with oncoming traffic, or truck drivers get hit by a train while trying to beat it to a railroad crossing. This inability to estimate time is also a significant contributor to farm workers being caught in operating machinery such as a PTO shaft spinning at 540 rpm. One of the most frequent comments made by survivors of these entanglement incidents is “I never realized how fast this could happen.”

This demonstration simply involves a lace-up work boot or shoe on which the shoe lace has been replaced with a cord approximately 30 feet long. One end of the replacement lace should be about 12 inches long while the other end will be about 28 feet long. Leave the short end loose outside the footwear while the other end should be coiled up and stuffed inside, out of sight, until the demonstration.

Procedure:

1. Ask the participants how much shoelace would be wrapped up on a PTO shaft turning at 540 rpm in the three seconds it would take to respond to being caught. Some will argue that their response time is faster than 3 seconds while forgetting that entanglements rarely involve a warning. As with possums, human reaction times are simply slower than we think. (That is why there are so many dead possums on the highway.)

2. Once the guessing has stopped, have one participant take the long end of the shoelace, coiled up inside the footwear and stretch it out. He or she will have to walk nearly 28 feet away from the boot or shoe. That’s how fast and how much, loose clothing can be wrapped up in a spinning shaft in just 3 seconds.

Once a worker’s clothing becomes entangled, the potential of having arms and legs pulled in becomes very high.

Materials Needed:

Lace-up work boot with a shoe string (cord) that is 28 feet long on one side and 12 inches on the other side. The 28-foot-long string/cord should be coiled and stuffed inside the boot with only the end extending. Any type of cord similar in diameter to a shoe lace will work. You will need to be able to thread it through the eyes of the shoe.
Knots are Not Insignificant

There are dozens of different types of knots used to secure everything from a ship to the dock, a pony to a post, or a tarp over a load. Using the right knot can prevent losing a load of hay bales or having to chase a steer around the fairgrounds. In some cases, the right knot may mean the difference between life and death (rock climbing). For example, the wrong knot used to connect two bales of baling twine on a hay baler can lead to broken bales and the risk of injury when trying to unplug the baler or re-baling the broken bales.

Even though knot tying is largely a lost art, being able to tie a simple square knot can come in handy for everyone. In this activity, learning how to confidently tie a square knot, will illustrate that there are correct ways of accomplishing tasks and doing things incorrectly can have serious consequences.

Procedure:
1. Using a two-foot piece of baling twine, show participants how to tie the two ends together, using a square knot.

2. Provide each participant with a section of baling twine to give them the opportunity to practice.

A square knot provides a secure way to connect two ends of a string or rope. The harder you pull on the rope, the tighter it becomes. (It can also be very difficult to untie.) If time allows, you may wish to demonstrate how to tie other types of useful knots. (There are several websites that demonstrate knot tying.)

Materials Needed:
- Baler twine (two-foot long piece for every person in the class)
Don’t Be “Fuelish”

Each year, according to the National Burn Institute and the CDC (Centers for Disease Control), approximately 14,000 Americans are treated for burns from gasoline-related fires. This includes incidents involving refueling of vehicles and equipment, using gasoline to start or accelerate fires, and misusing gasoline as a cleaning solvent. What makes gasoline so useful, are the same characteristics that can make it extremely hazardous.

It is relatively cheap, portable, easy to handle, readily evaporates and ignites, and it contains a lot of stored energy.

In this activity, participants will be shown the importance of storing gasoline in appropriate containers, and the characteristics of a container that makes gasoline safer to transport, store, and use.

Gasoline is relatively safe when used and stored appropriately. But, when spilled and allowed to mix with the right amount of air contains more energy than an equivalent amount of dynamite. How gasoline is transported and stored is extremely important.

Procedure:

1. Ask participants to list all the equipment they have at their home or farm that use gasoline as a fuel. These items will include:
   - older tractors
   - lawn mowers
   - chain saws
   - rotary garden tillers
   - cars and trucks
   - portable compressors and generators
   - weed trimmers

2. Using the containers, starting with the plastic milk jug, point out what makes the container appropriate or inappropriate for storing gasoline. The U.L. approved container is the safest way to store gasoline because it can withstand external heat without failing, has a secure, spring loaded cap and a flame-resistant device in the filler tube to prevent a flame from flashing back into the container. Nor, should gasoline be transported inside the passenger compartment of a vehicle. At no time should a plastic milk jug or glass container be used to store or transport gasoline. Also, gasoline should be stored in a well-ventilated area away from potential ignition sources such as water heaters and electric panels.

Materials Needed:

- Empty 1 to 5-gallon red plastic gasoline container with a standard nozzle and with an automatic shut off valve one piece
- U.L. approved gasoline storage container
- Empty milk container
Is the Shortest Way the Best/Safest Way?

Moving agricultural equipment from one location to another can be challenging and potentially hazardous. There are a variety of situations when it might be better/safer to pick an alternative route.

Safe procedures for public roadway travel include avoiding transporting equipment during low visibility conditions, low light (generally 1 hour before sunset to 1 hour after sunrise), dealing with other weather conditions (fog, rain, snow), transporting over-weight loads, dealing with bridge and road weight limits, matching the tractor’s weight to load weight, transporting over-width equipment, using the transport position, using an escort vehicle, and using warning lights. Some other situations include meeting on-coming traffic, staying in the proper traffic lane, slowing down and utilizing the shoulder if available, accommodating traffic that has accumulated to the rear, pulling onto the shoulder to allow traffic to pass, crossing unprotected railroad tracks, making left turns, and using turn-signals, if equipped.

Procedure:
1. This teaching aid is to be utilized with the activity found in Lesson 7.
2. Create a scenario to haul or drive a piece of farm equipment from the farm to a destination like an elevator or another farm site. You might use one of the student's home farm and local grain elevator.
3. Provide the students with the dimensions and load weights of the pieces of equipment to be transported.
4. Find two alternate routes and identify obstacles like railroad tracks, busy roads, narrow roads, or bridges with load limits (be creative).
5. Use a map app to create a route, then have the students evaluate and determine if there are better/safer routes.
6. Discuss the pros and cons of the routes.
Don’t Be a Blockhead!

Each year, farmers are injured or killed when they use the wrong items for blocking or cribbing equipment while making repairs. Farm equipment has become so large and heavy that supporting it with inappropriate items such as cement blocks can lead to collapse of the equipment causing the worker to be crushed underneath.

The best way to support a machine or heavy component of a machine is by using the supports provided by the manufacturer for that purpose. Most front-end loaders come with locks that hold the loader in the raised position, combine headers have safety header locks, and heavy tillage equipment may be designed to “come over center” preventing it’s components from falling. There are times however when additional support or cribbing is needed, such as working on a tire or sharpening blades on a rotary mower. The most appropriate device to support a load is a jack stand of the correct load capacity. A cement block, regardless of how readily accessible it is, should never be used to support the weight of a piece of farm machinery.

In this activity, participants will be clearly shown why cement blocks should never be used in place of jack stands or blocks of wood intended specifically for use as cribbing.

**Procedure:**
1. Lay a piece of cardboard on the floor
2. Place a standard cement block on its side on the cardboard.
3. Over the block lay a heavy piece of plastic or tarp (to catch flying pieces).
4. Using a large shop hammer or sledgehammer, strike that side of the block a few times.
5. Remove the protective cover and examine the results. In most cases, the block has broken into several pieces.
6. Ask the participants whether or not they would feel safe working under a machine being supported by that block. A good rule to impress on them is to NEVER USE A CEMENT BLOCK AS A JACK STAND.
7. Take the time to demonstrate how to use an appropriate jack stand.

**Materials Needed:**
- Piece of cardboard
- Cement block
- Tarp
- Sledge hammer
- Jack stand (optional)
How Tough are Your Shoes?

If you were to ask a group of farmers to remove their shoes and socks you might find a surprising number of bent, distorted, missing, or damaged toes and toenails. It is not a pretty sight. Each of these permanent impairments comes with a story that some of the owners might be willing to retell, if it hadn’t occurred too recently. This might include the time when:

- a 1,500-pound horse or steer decided to take a break while standing on a farmer’s foot and seemed in no hurry to move on
- an old rusty nail came through the bottom of a jogging shoe or rubber boot while demolishing an old farm building
- a wagon tongue that dropped only 14 inches from the drawbar onto the big toe on the left foot
- a 4’ x 8’ piece of plywood that slid off the side of the truck onto the top of both feet

In almost all industrial workplaces, appropriate safety footwear is required, and often supplied by the employer. This is simply not the case on most farms. Safety footwear provides skid resistant soles that are puncture proof and provides inserts of steel or composite that protects the toes from impact or being crushed by heavy falling objects.

This activity will demonstrate the value of wearing appropriate safety footwear when working on farms and ranches. It involves the use of an old retired shoe, such as a jogging shoe, a safety shoe, an uncooked hot dog, and large hammer.

Procedure:

1. Place the hot dog into the old shoe pushing it towards the front.

2. Set the shoe on the floor or heavy work bench and hit the end of the shoe with a couple of heavy blows to simulate something heavy falling on it.

3. Pull out the hot dog and have the participants examine it for damage. Not to be eaten.

4. Repeat the demonstration with the safety shoe.

5. Ask the participants to identify which shoe they would want to be wearing when moving cattle or unloading cement blocks.

Materials Needed:

- Old, retired jogging shoe
- Work shoe with toe protection
- Uncooked hog dogs (at least two)
- Sledge hammer
Using a Voltage Detector Will Prevent Shocking Discoveries

The purpose of this activity will be to use a simple voltage detector to alert workers to the presence of electricity in order to prevent making contact with electrical current flowing through any electrical device.

It’s amazing how many people are unaware of voltage detection devices, how they work, or how they could potentially save their life or prevent electrical shock. These inexpensive devices should be included in the toolbox of anyone working around electrical devices. Electricity rarely gives a second chance. It is simply too fast.

Procedure:
1. Plug the extension cord into an outlet.

2. Using a voltage detector and the electric cord demonstrate to participants how the voltage detector can be used to detect a “live” circuit or the presence of electrical current flow.

3. Unplug the extension cord and again use the voltage detector to see if an electrical current is present.

4. Explain that the device senses the electromagnetic field generated by current flow and produces, both a visual and audio warning. If the device issues a warning, the risk of electrical shock is present, and the power source needs to be disconnected before any work can be done on the device or circuit.

Since the voltage detector is battery operated, show participants how the battery is tested. It also can be tested with any live circuit such as a receptacle where it should provide a warning. The device does not need to come into contact with a live circuit to set off a warning.
Head Injuries are “No Yolk”

Getting youth to wear protective head gear when operating ATVs, dirt bikes, or snowmobiles can quickly become a wrestling match. Young operators of powered recreational equipment are not easily convinced that a head injury can happen to them, but rather, to only the other guy.

This demonstration uses a dozen eggs in a normal padded foam or cardboard carton to point out the importance of head protection. It builds on the consensus that we don’t transport eggs, loose, in a paper or plastic bag because it’s unlikely they would arrive home without being scrambled. Just as egg producers need to give appropriate attention to safe egg handling, those who operate ATV’s and other outdoor equipment need to give attention to protecting their heads.

Procedure:
1. Bring a participant to the front of the class and have him or her cup their hands together forming a bowl.
2. Take an egg and break it open into the participants cupped hands.
3. Have him or her stand there as you discuss how even the chicken is smart enough to design a protective outer covering for her eggs. Just as there are times when additional protection is needed for the eggs, such as during transport (egg carton), there are times when our heads need additional protection (helmet).

Using an ATV or bike helmet, point out that the human brain is a lot like an egg – it needs not only the protection provided by the hard-bony skull (shell), but, in some cases, from a helmet. Just as it is normal for everyone in the class to transport a dozen eggs home from the store in a carton, it should also be just as normal for youth to wear helmets when operating recreational equipment that exposes their head to injury.

Materials Needed:

- Egg(s) in a carton
- ATV helmet
- Bicycle helmet
Don’t Over-Extend Yourself!

Skid steers have been a common piece of equipment found on many farms for many years. A newer piece of equipment found on farms today is the telehandler. Telehandlers are for tasks such as lifting big round bales and stacking them on a trailer or stacking them in a barn or shed. Telehandlers can lift heavy objects just like can be done with a forklift or skid steer loader. What makes a telehandler somewhat unique is it ability to extend it arm placing the heavy load some distance from the base of the telehandler. But, this ability also brings with it a potential hazard of overturning if the load is over extended.

This activity will emphasize what can happen when a telehandler is used to lift a heavy load and then extended far from the base of the telehandler.

Procedure:
1. Place the lightest object in the bucket of the toy telehandler
2. Starting with bucket in the lowest position and not extended, raise the bucket to several different settings
3. Return the bucket to the lowest position, but extend the arm to its fullest extension. With the lightest object in the bucket raise the bucket to several different settings.
4. Repeat steps 2 and 3 using heavier objects.

Telehandlers are designed to lift heavy loads. But, the higher and further the load is extended from the telehandler the lighter the load must be for the telehandler to maintain its stability.

NOTE: Telehandlers are designed to lift objects. A telehandler should never be used as a means to lift a person.

Materials Needed:
- 1/16 scale Telehandler
- Objects of different weights
- Scales (optional)
Become a Real “Whistle Blower”

The term “whistle blower” has become synonymous with a person who brings attention to something that is wrong or needs correction. The federal government has implemented whistle blower laws that even rewards people for reporting corruption and fraud in government. The Occupational Safety and Health Administration (OSHA) has whistle blower provisions that protect workers for reporting unsafe workplaces.

Every farm and ranch need a few “whistle blowers” who are willing to speak up and point out unsafe conditions that have the potential of causing injury or property loss.

Procedure:
1. Provide each participant with an inexpensive whistle (This might become a little noisy if the group is large).

2. Identify a few examples of hazards commonly found on farms and have everyone blow their whistle, if they agree that they can cause an injury. Examples might include:
   - trying to move something too heavy alone
   - a board with a protruding nail
   - unlabeled containers of chemicals
   - frayed extension cord
   - not using eye protection
   - using gasoline to start a fire
   - not wearing a seat belt
   - transporting gasoline in the passenger compartment of a vehicle

Point out that some people don’t have a high regard for whistle blowers because they point out problems that require time and money to correct. Letting others know that a hazard exists can, however, be the right decision that saves a life, prevents an injury, or reduces the risk of a fire or other loss. Don’t be afraid to be a “whistle blower,” you might save someone’s life.

Materials Needed:

- Inexpensive whistle (one for each member of the class)
- List of hazards commonly found on farms (see example list until procedure step #2)
Don’t Go with the Flow

Grain generally flows freely from a storage container such as a grain bin. But, the flow of grain can be interrupted for various reasons. Farmers may then feel it is necessary to enter the grain bin to fix the issue. If the unloading system has not been shut-off or if another person approaches the grain bin and turns on the unloading auger not realizing that a colleague has entered the bin to fix an issue the person in the bin can be quickly pulled under the surface of the flowing grain.

Flowing Grain has several characteristics that makes it potentially dangerous. In a grain bin:

- Grain flows in funnel downward
- The center grain flows out first
- Grain on the outer edges of the grain bin moves inward toward the center
- If the grain is out of condition, it may crust over creating air pockets underneath the surface
- Grain flows into empty space

This activity will show what can happen should someone enter a grain bin, gravity-box wagon, grain cart, or truck while the unloading mechanism is running.

Procedure:
1. Cut off the bottom of a clear plastic container (2-liter bottle, 5 gallon water dispenser jug).
2. Put cap on bottle and support it upside down. High enough for good visibility. (You may wish to construct a structure to hold the bottle or jug in an upside-down position)
3. Place a collecting container or bucket under the bottle or jug to catch the grain as it is discharged.
4. Fill bottle with grain. Finer grain such as rice or bird feed work best.
5. Place object representing the person in the top of the grain sample (a wooden clothes pin works well).
6. Remove the cap and watch the flow of the grain AND the person at the top of the grain.
7. Use something that you can easily hold and control to stop the flow. Discuss the different characteristics of flowing grain as the students watch the grain flow.

Remind the students that if they are caught in the flow of grain, they will be pulled towards the opening in the center of the bin. Once caught in the flow, it is unlikely they will be able to escape. Grain bins should not be entered if there is any crusted grain and only by a trained professional with appropriate safety gear.
Catching the Animal

You likely have seen a western movie or a professional rodeo event where the cowboy or cowgirl lassos a steer in the middle of a wide-open area. An experienced cowboy/cowgirl makes it look easy. But, for them to actually catch the steer they need a good lasso. A lasso is relatively easy to make with a good quality rope and a bit of skill.

Procedure:

1. Provide each student with a piece of rope, at least 3-feet in length. (If you wish to allow the students to take their lasso home then you should provide them with a rope at least 20-feet long.)

2. Provide each student with a copy of the diagram below on how to make a lasso.

Materials Needed:

1: Pass the end through a rope loop
2: Repeat with the rope end
3: Tighten & loop the end through the first loop
4: Hold and pull to tighten the rope
5: The first loop should tighten and shrink
6: Pass the long end through the loop
7: The Honda knot is completed!
Calling 911 – The First Step of Emergency Response

Thankfully, most of us will never be in a situation in which we will feel the need to reach out for emergency assistance by calling 911. That is one of the reasons why making a needed emergency call is often delayed – there is a general fear or discomfort with engaging with emergency services. For some, it is seen as a sign of weakness or being inadequate. The national 911 system was established to provide a uniform, easy-to-remember and use method of calling for immediate help. Its implementation has saved hundreds of thousands of lives and has become synonymous with “help is on the way.”

This demonstration is designed to help participants; 1) become more familiar with the 911 service, 2) recognize the importance of making an emergency call as early as possible, if the need is really there, and 3) understand the need to provide information requested by the 911 operator in order that the appropriate emergency services can be sent to the scene.

Procedure:
1. Assign one participant to be the simulated 911 operator, using his or her personal cell phone.

2. For each of the following situations, assign a student to serve as the person who calls the 911 operator:
   - motor vehicle collision involving a down powerline
   - an injury involving considerable blood loss
   - a tractor operator entrapped under a rolled over tractor
   - fire on a combine in a remote field

3. Ask each of the students in step 2 to use their personal cell phone to call the 911 operator (the phone number of the student serving as the 911 operator) and explain their emergency situation. As each mock call is made, discuss what information the 911 dispatcher needs to know, including:
   - name of caller
   - location of incident/special directions
   - nature of the emergency
   - number of victims
   - type of injuries

NOTE: In some communities, the local 911 system will allow for students to make actual practice calls to the 911 operator as a means of reducing the discomfort for making such calls. Remind participants that making a 911 call must always be considered a serious matter and should never be done as a joke.
Seeing is More Than Believing

Each year incidents involving the sudden release of anhydrous ammonia (NH₃) result in permanent eye damage or even blindness to farmers who use this valuable crop fertilizer to improve crop yields. These incidents often occur during connecting or disconnecting hose couplings or when trying to unplug an applicator plugged with soil. Nearly all of these horrible injuries could have been prevented if only the farmer was wearing appropriate, splash resistant or un-vented goggles. Even a small amount of NH₃ sprayed into unprotected eyes can cause almost immediate damage to the eyes because of the high affinity NH₃ has for water which makes up over 90% of the eye. In this activity, participants will get just a small taste of what it would be like to experience permanent eye damage due to NH₃ exposure.

**Procedure:**
1. Take two or three pairs of chemical-type goggles (every agriculture or chemistry lab should be equipped with this personal protective equipment) and apply a thin coat of petroleum jelly or Vaseline to the lenses.
2. Have participants put the googles on and try to read text off the board, the clock, or to recognize fellow participants.

Remind participants that NH₃ eye-related injuries are usually permanent unless first aid involving lots of fresh water is used immediately to flush the eyes. Hopefully, they will remember that nothing they do to “get the job done” is worth losing their eyesight.

Also, participants should be reminded that under the Hazardous Occupations Order for Agriculture (HOOA), youth under the age of 16 cannot be employed to transfer, transport, or apply NH₃.

**Materials Needed:**
- Chemical googles, two or three pairs
- Petroleum jelly
**Spreading Disease by Contact**

Young people often share personal items such as cell phones, food, and clothing, without realizing how easy bacteria and viruses can be spread as these items move from person-to-person. This activity provides a simple way to show how even momentary contact with common, everyday items can become a pathway to becoming sick.

**Procedure:**

1. Select at least three simple mechanic's tools such as a hammer, adjustable wrench, and screwdriver.

2. Prior to class coat each item with a product such as Glo Germ (www.glogerm.com) or Germ Juice (www.germjuice.com).

3. When the participants arrive, pass the tools around and ask them to identify each and check for any defects.

4. Once everyone has handled the tools, use the UV black light to show how each of their hands have become contaminated.

5. Have them think of all the other activities they participate in that could cause similar contamination, including:
   - opening and closing doors
   - climbing ladders
   - operating equipment – steering wheels and controls
   - opening and closing water faucets
   - handling ropes and bridles
   - sharing shovels, hoes, and rakes

**Materials Needed:**

- Glo Germ or Germ Juice
- UV Black light
- Mechanic’s tools
Washing Hands Isn’t as Easy As it Looks

For this demonstration you will need a place to wash hands, soap, a product such as Glo-Germ (www.glogerm.com) or Germ Juice (www.germjuice.com), and a UV or black light. It is designed to show that in most cases, the average person does a poor job of washing their hands thus preventing the spread of infectious diseases such as the flu.

Procedure:
1. Have each student apply a small amount of Glo Germ or Germ Juice to their hands and rub them together.
2. Send the students to a hand washing station, either in the classroom or in the nearest restroom.
3. Upon their return, use the black light to check how well they did in removing the simulated “infectious” material. The light will easily reveal areas of heavy concentration around the fingernails or between the fingers.
4. Have the students go back for a “rewash” and see how they do the second time. For those who went to a nearby restroom ask them to identify the surfaces they may have contaminated on their way to and from the hand washing station.

NOTE: Descriptions of similar exercises using disposal gloves and water-based paint can be found at www.cdc.gov under hand washing exercises.

Materials Needed:
- Glo Germ or Germ Juice
- Washing station
- UV Black light