

Rollover Ranch Invitation

Greetings Teacher Participant,

Thank you for your interest in using Immersive Virtual Reality in your classroom. You received 5 headsets loaded with Rollover ranch and STEM VR Game. Also included is an educational guide with tractor, ATV, and electrical safety sheets, pre and posttest for students, evaluation, and directions on how to use the headsets. Please note that the **headsets are locked down** so teachers and students can not add games to them. However, if there is an educational application you would like added please notify us and **we can add a program from our admin portal**. We did add an additional game created by UNL for those interested in STEM education.

We have included a checklist for you to use when packing the Headsets. All the information and guides can be found on our website @ <https://rolloverranch.com>

As a teacher we are asking you to assist us with evaluating this program. We would ask you to administer a pretest and posttest as well as the student and teacher survey regarding use of the headsets. The goal is to gain insights on both student and teacher perceptions of this IVR program. Your participation is voluntary.

- We would recommend having the students complete the knowledge pretest before starting the unit.
- Teach Safety Information.
- Have students participate in the headset, we suggest no longer then approximately 20 minutes in the headset at a time and debriefing after student use.
- Finally have the students complete the survey and post test
- There are printouts of the assessments and surveys as well as electronic QR codes to complete the surveys online.

Additionally, as a teacher, we would invite you to participate in a survey about your experience with the mail out program. We would also enjoy it if you sent pictures of the students (with permission please) to sue.schuelke@unmc.edu or on the resources page of the Rollover Ranch website (rolloverranch.com) to be posted later. Include something of your school in it.

When you have completed using the headsets please repackage them, complete the checklist, use the preprinted mailing label, and send them on to the next destination.

If you have any questions or concerns, you can reach Sue Schuelke at 402 472-7356 or sue.schuelke@unmc.edu or Matt Kreifels at matt.kreifels@unl.edu

Thank you very much for your participation as we work towards a safer Agricultural community.

Sue Schuelke

Matt Kreifels

Rollover Ranch: How to guide

1. When you receive the Headsets charge the headsets, so they are ready to go. Overnight is preferred. If you see that the headsets are getting low on battery, plug them in between each student.

The hand controllers use AA batteries.

2. Put the headset on your head using the head strap to make sure it is securely on your head and that the field of view isn't blurry, if it is, adjust the headset until comfortable for viewing.
3. Turn the Oculus Headset on (small button on the right side of the headset).

Adjust volume with the button on the bottom of the headset by your nose.

4. Oculus will ask you to set a boundary- you may set a stationary boundary. See this video for instructions on how to set a boundary at www.rolloverranch.com/resources

*To prevent falling we recommend playing the game in a seated position.

Rollover Ranch instructions on the Meta Quest 2: See the video instructions at www.rolloverranch.com/resources

Select rollover ranch from the menu

To begin the game, select the task you want to complete: Table one describes the activities in each task.

To move in the game, you will transport using the hand controllers (See hand controller guide).

Point at the ground or sign, such as "mount" to where you want to go, you will see a beam \ and click.

Once you begin a task you may notice a red beam on the horizon reaching to the ground, this beam shows you which direction you should go towards.

If you want a map or list of activities. you can reach over your right shoulder and grasp to pull out a clipboard, to put it back just drop it.

If you flip the tractor, have an accident with the ATV or get shocked you will be shown a screen with the cause of the accident. **PLEASE** read this and learn what caused your accident and think about what you would do differently the next time.

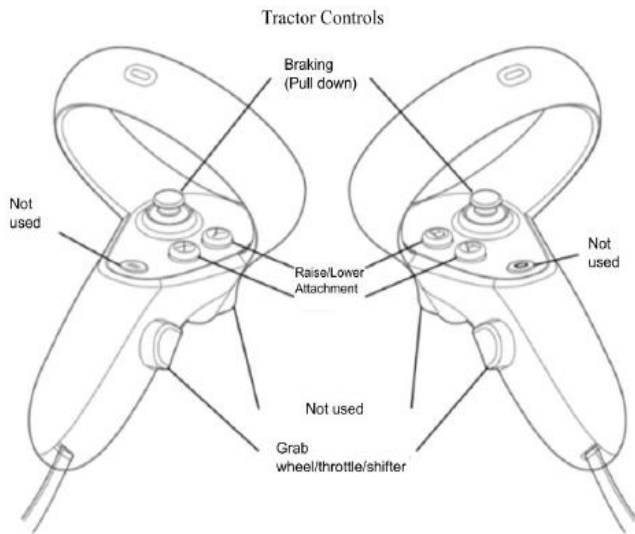
If the game gets “stuck” you can escape back to the beginning of the game using the oculus button.

*When you have completed the game, wipe the headset down for the next player.

Game Activities

Task	Implement	Activity
Feed the cow	Tractor	Need to get the front prongs on the tractor and lift a round bale and take it to the cattle pen to feed the cows
Chase the cow	Tractor	Take the tractor out to chase the loose cow back to their pen
Fix the pivot	Tractor	You will need to get the toolbox and take it out to the pivot
Cut the tree	Tractor	Get the chain saw from the shed by the lake and go to the road with the fallen tree.
Put out the fire	Tractor	Put the loader bucket on the tractor, go to the lake to get a loader full of water and put the fire out.
Explore the Farm	Tractor or ATV	Collect golden tractors, they could be anywhere
Get the mail	ATV	Take the ATV down the driveway to get the mail
Feed the cow	ATV	Put a bale of hay on the ATV and go to the cow pen to deliver the hay
Take the auger to the neighbor	Tractor and auger	Get the tractor and back it up to the auger, you can raise and lower the auger. Take it down the road to the neighbor’s
Dig a fencepost hole	Fencepost digger	Dig holes in the lawn for the fence posts but remember to call the properties

Tractor Controls



Throttle Control (Switch between L/M/H)

GRAB +



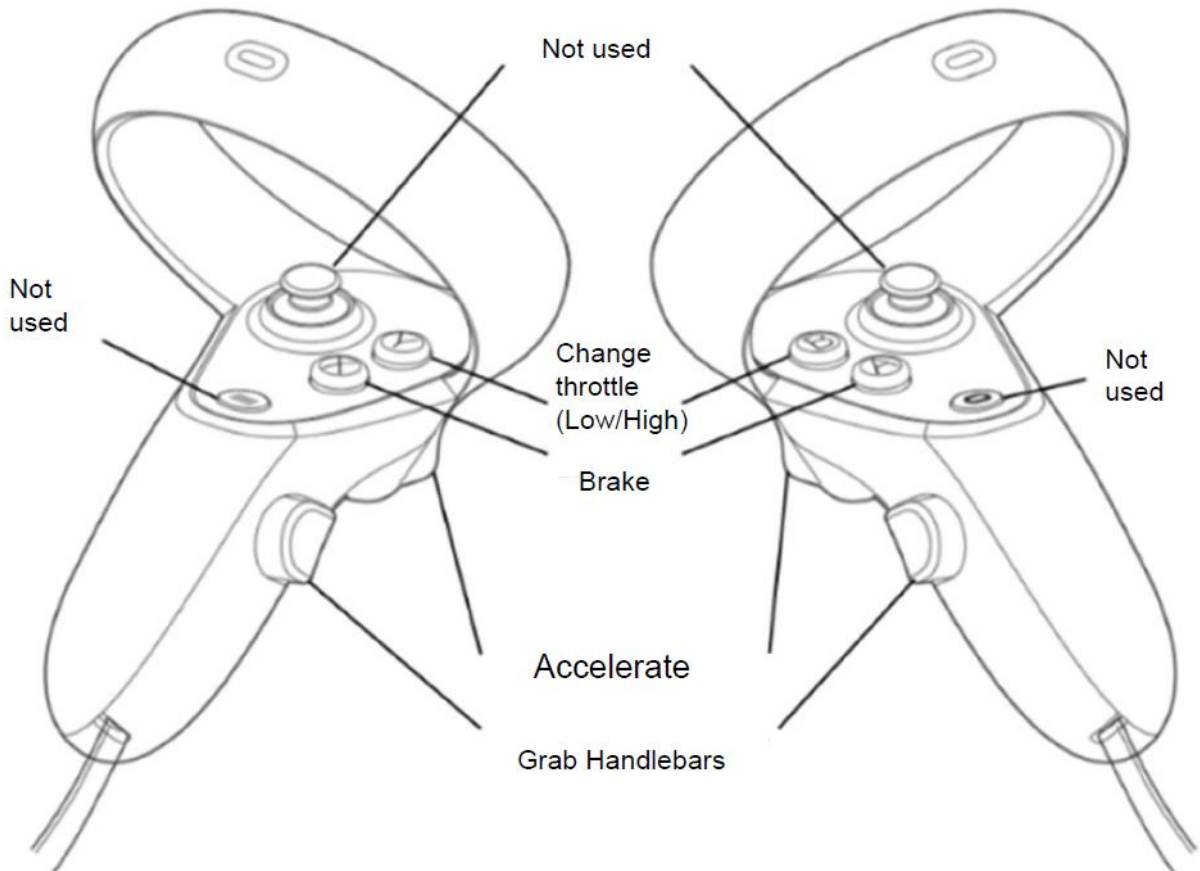
Shifter Control (Switch between P/N/R/1/2/3)

GRAB +



ATV Controls

ATV Controls (hand must be grabbing handlebar)



Tractor Safety Tips

- Approximately 50% of tractor fatalities come from tractors turning over either sideways or backwards.
- Rollover protective structure (ROPS) should be present or added to a tractor and seat belt worn to maintain the driver within the structure.
- One seat on a tractor means one rides only – the operator. Standing on the tractor drawbar, axle housing, side links of three-point hitch, rear-wheel fenders etc. are common UNSAFE locations to ride.
- Shut off tractor before dismounting.
- Watch out for tree limbs.
- Use caution and be aware of slope incline, driving up a slope that is too steep or driving too close to the edge of a bank or ditch.
- Do not drive too fast for conditions, such as rough lanes. Slow down!
- Do not turn a tractor sharply with a front-end loader raised.
- Always travel with a loaded bucket as low to the ground as possible. Use a wide front-end tractor for loader work rather than a narrow front wheel tractor to improve stability. Make sure the load must not be bigger in size than the bucket. Load rollback can result. Consider if the tractor needs more ballast added.
- All tractors should have a PTO master shield to protect the tractor operator and helpers.
- To maintain tractor stability, the “angle of pull” should be kept low as possible by hitching to the drawbar only.
- Farm Injury Specialists from the U.S. and Canada have developed consensus opinion that a guide to tractor operations by age groups is a way of matching youthful capabilities with tractor operation.

References

WC Harshman, AM Yoder, JW Hilton, & DJ Murphy. (2013) The Pennsylvania State University, Reviewed by TL Bean and D Jepsen, The Ohio State University and S Steel, National Safety Council. Hazardous Occupations Safety Training in Agriculture (HOSTA).

<https://cultivatesafety.org/>

www.nagcat.org

<https://www.ars.usda.gov/northeast-area/docs/safety-health-and-environmental-training/tractor-safety/>

ATV Safety Tips

If you are going to ride an ATV, CPSC recommends key safety tips to follow:

- Get hands-on training from a qualified instructor, *e.g.*, in an ATV Safety Institute (ASI) course.
- Always wear a helmet and other protective gear, such as eye protection, boots, gloves, long pants and a long-sleeved shirt.
- Never ride with more passengers than there are seats. Most ATVs are designed for one rider.
- Riders younger than 16 should only drive age-appropriate youth model ATVs, and never adult ATVs.
- Off-road vehicles are designed to be driven only on off-road terrain, not paved surfaces.
- Never ride on public roads except to cross where permitted by law.
- Do not tow a load that weighs more than the total weight of the ATV plus the operator, and only hitch to the manufacturer's hitch point.
- Avoid drinking alcohol before or while driving an ATV, because alcohol can impair judgment and response time.

Some hills may be too steep to ride up or down in a straight line. If so, you may be able to ascend or descend the hill by riding across it at an angle—called traversing the slope. However, **you should not attempt to traverse a surface that's extremely slippery, rough, or loose.**

When traversing, be sure to:

- Keep both feet on the footrests.
- Lean uphill.
- If the terrain is soft, turn your wheels slightly uphill to stay on a straight line. However, turning your wheels too far or too quickly could make your vehicle start to tip or flip over.
- If your ATV starts to tip, turn downhill. If you can't turn because of obstructions, jump off on the uphill side.
- Keep your speed steady. Sudden acceleration could tip your ATV.

To learn more about ATV safety:

Take a hands-on ATV RiderCourseSM and the free online E-Course.

Call: 800.887.2887

Visit the following websites:

www.ATVsafety.gov

<https://atvhelper.com>

<https://extension.psu.edu/the-safe-use-of-atvs-in-agriculture>

Electrical Safety Tips

DO's

- Be aware of overhead power lines and their exact locations at all times. Avoid equipment contact with overhead power lines.
- If you must go under or near a power line, have someone spot for you to make sure there is plenty of clearance. Learn hand signals for communicating with your spotter.
- Move irrigation pipe, augers and other farm equipment with extreme caution. Aluminum irrigation pipe is light, easy to carry and conducts electricity.
- Lower tillage equipment before pulling it under power lines. Make sure that truck beds are completely lowered.
- Equipment should maintain a minimum 10-foot clearance from lines, because electricity can arc through the air between the line and the grounded equipment.
- Water and electricity do not mix. If you are working in damp conditions, always plug into an outlet that has a Ground Fault Circuit Interrupter. For pivot irrigation systems, make sure the panel boxes are watertight and always shut and locked.
- Know where your fuse boxes and circuit breakers are located. Teach your hired help and family members where they are located as well.
- Always have an emergency plan in place. Teach hired help and family members what to do in case of an emergency.

DON'Ts

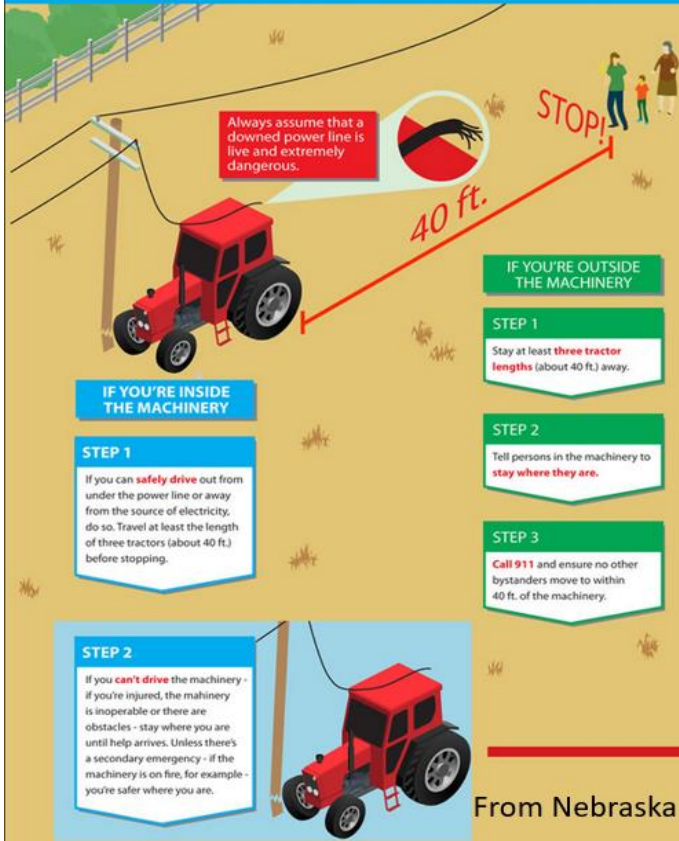
- Don't attempt to fix any damaged guy wires. Contact your local public power utility immediately.
- Don't count on rubber tires to insulate you because tires aren't pure rubber. They contain steel and carbon black. Both will conduct electricity.
- Don't touch or move anyone who is in contact with electricity. You could be shocked. When calling 911 or your local emergency number, be sure to report an electric-contact accident.

[Downed Power Line Accidents Involving Farm Machinery](#)

Reference: <https://www.nppd.com/outages-safety/electrical-safety?locale=en>

DOWNED POWER LINE ACCIDENTS INVOLVING FARM MACHINERY

Follow these rules to stay safe around downed power lines.



Always assume that a downed power line is live and extremely dangerous.

STOP!
40 ft.

IF YOU'RE OUTSIDE THE MACHINERY

STEP 1
Stay at least **three tractor lengths** (about 40 ft.) away.

STEP 2
Tell persons in the machinery to **stay where they are**.

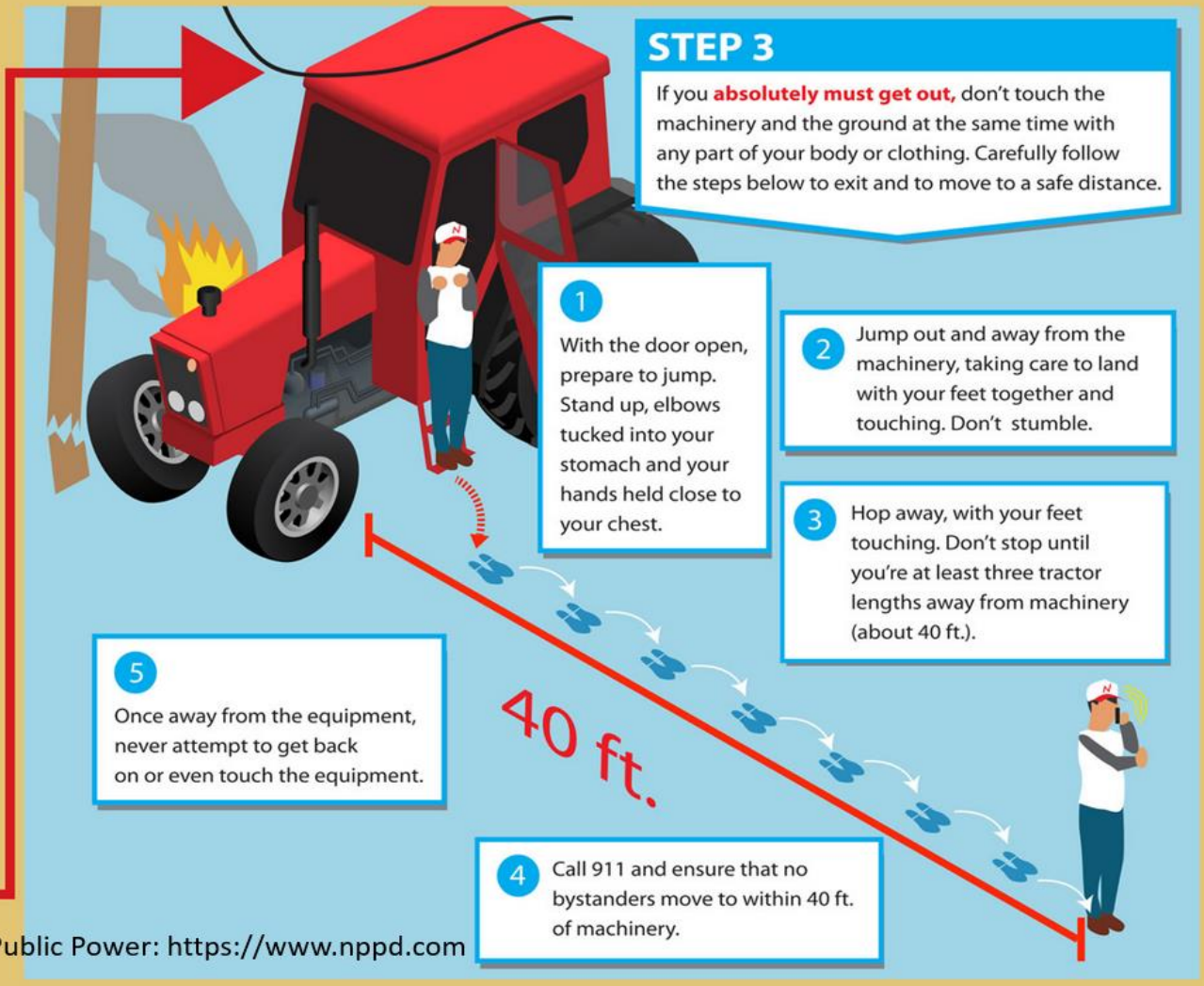
STEP 3
Call **911** and ensure no other bystanders move to within 40 ft. of the machinery.

IF YOU'RE INSIDE THE MACHINERY

STEP 1
If you can **safely drive** out from under the power line or away from the source of electricity, do so. Travel at least the length of three tractors (about 40 ft.) before stopping.

STEP 2
If you can't **drive** the machinery - if you're injured, the machinery is inoperable or there are obstacles - stay where you are until help arrives. Unless there's a secondary emergency - if the machinery is on fire, for example - you're safer where you are.

From Nebraska Public Power: <https://www.nppd.com>



STEP 3
If you **absolutely must get out**, don't touch the machinery and the ground at the same time with any part of your body or clothing. Carefully follow the steps below to exit and to move to a safe distance.

1
With the door open, prepare to jump. Stand up, elbows tucked into your stomach and your hands held close to your chest.

2
Jump out and away from the machinery, taking care to land with your feet together and touching. Don't stumble.

3
Hop away, with your feet touching. Don't stop until you're at least three tractor lengths away from machinery (about 40 ft.).

4
Call 911 and ensure that no bystanders move to within 40 ft. of machinery.

5
Once away from the equipment, never attempt to get back on or even touch the equipment.

Student Pre-Quiz on Ag Safety

QR Code for Phone Access



URL for Computer Access

<https://www.surveymonkey.com/r/PreAgSafetyquiz>

Student Post-Quiz on Ag Safety

QR Code for Phone Access



URL for Computer Access

<https://www.surveymonkey.com/r/AgSafetyPostTest>

Teacher Evaluation

QR Code for Phone Access



URL for Computer Access

<https://www.surveymonkey.com/r/facultyrolloverranch>

Student Evaluation

Evaluation

QR Code for Phone Access



URL for Computer Access

<https://www.surveymonkey.com/r/RolloverRanch>

Hardcopies of surveys and packing checklist included in packet.

All documents and additional videos found on the website
www.rolloverranch.com