

# Rural Roadway Safety

background information & activity book



# Rural Roadway Safety Educational Packet

Farm Safety For Just Kids is a non-profit organization working to promote youth safety within the rural environment. This is done through the production and distribution of educational materials and the initiation of programs about farm and rural safety and health. Outreach coordinators and a chapter network of grassroots volunteers conduct educational programs to prevent health hazards, injuries, and deaths to children and youth. Rural roadway safety is one topic addressed by Farm Safety For Just Kids. A multitude of resources are available to teach a variety of topics such as ATV safety, machinery safety, livestock safety, and chemical safety.

Thank you for your interest in making the rural environment safer by teaching others about staying safe on the farm and on rural roads. Please use the following guide to assist you in your rural roadway safety program. Feel free to contact Farm Safety For Just Kids at (800) 423-5437 or visit [www.FarmSafetyForJustKids.org](http://www.FarmSafetyForJustKids.org) with questions or concerns.



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Refer to the Farm Safety For Just Kids website at [www.FarmSafetyForJustKids.org](http://www.FarmSafetyForJustKids.org) for additional information.

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## Background

### WHERE DO MOST CRASHES TAKE PLACE?

Rural roads are more dangerous than urban roads. What influences this? (road conditions and surfaces, attitudes toward driving, more speeding, less seat belt usage)

- ▶ The fatality rate per 100 million vehicle miles traveled is 2.5 times higher in rural areas than in urban areas. (Why? Further from medical services, more rollovers, collisions with larger vehicles)
- ▶ 40% of occupants killed in rural motor vehicle crashes involved a rollover as opposed to 26% in urban areas. (Why? Hills, gravel surfaces, speed)
- ▶ Rural drivers represent 71% of drivers who died en route to the hospital compared to 29% for urban drivers. (Why? Farther from medical care)
- ▶ The response by EMS is longer in rural than in the urban areas – 19 minutes to a rural crash versus 7 minutes to an urban crash. (Why? Longer to get to injured person)

### WHAT AGE GROUP IS AT GREATEST RISK OF VEHICLE RELATED INJURIES?

Teenagers have the greatest risk of injury,

- ▶ Motor vehicle crashes are the leading cause of death for teens
- ▶ In 2010, seven teens died every day from motor vehicle injuries.
- ▶ A U.S. teen dies in a traffic crash an average of once every hour on weekends and nearly once every two hours during the week.
- ▶ Teen drivers are three times more likely than drivers aged 20 and older to be in a fatal crash.
- ▶ 22% of young drivers involved in fatal crashes were drinking. Alcohol involvement is higher among males than among females.

### WHY ARE TEENAGERS AT GREATEST RISK?

Teens are at an increased risk due to:

- ▶ Inexperience and underestimate dangerous situations
- ▶ More likely to speed
- ▶ Allow shorter headway between cars
- ▶ Have the lowest seat belt use

### HOW IMPORTANT ARE SEATBELTS WHEN TRAVELING IN A VEHICLE?

- ▶ The majority of young people killed in passenger vehicles were not wearing their safety belts.
- ▶ 63% of the young people age 16 to 20 killed when riding in passenger vehicles were not wearing seat belts

People least likely to buckle up are:

- ▶ Young males
- ▶ Pickup truck drivers and passengers
- ▶ People living in rural areas

### WHAT VEHICLES TRADITIONALLY HAVE THE LOWEST SEATBELT USE?

Nearly two-thirds (65%) of rural pickup truck occupants killed were unrestrained – the highest percentage of any passenger vehicle occupants killed among both rural and urban areas.

### WHAT ISSUES OTHER THAN VEHICLE TYPE AFFECT SEATBELT USE?

- ▶ Driving location
- ▶ Passenger number
- ▶ Alcohol use - 56% of the young drivers involved in fatal crashes who had been drinking were unrestrained

## Background

### WHAT CHARACTERISTICS ARE UNIQUE TO DRIVING IN RURAL AREAS?

- ▶ Cars and trucks must share the road with large, slow moving machinery.
- ▶ Livestock and wild animals are more abundant within a rural setting. They can dart into your vehicle's line of sight very quickly.
- ▶ Road conditions in the country such as gravel and dust influence your ability to drive safely.
- ▶ Train crossings can be hazardous. Slow down and look both ways before crossing train tracks.

### SHARING THE ROAD WITH LARGE MACHINERY

Large machinery such as combines take up a lot of road space and can extend beyond the center of the road.

Farm machinery and tractors travel at a slower pace than other vehicles and you will need to slow down quickly if you come up behind them. This means that drivers sharing the road with them need to exercise extra patience and caution. Large farm machinery are especially prevalent during spring planting and fall harvest.

A left hand turn by tractors and slow moving vehicles is an especially hazardous operation. The large equipment operator has to cross in front of the faster moving vehicles. Watch for turning signals and stay alert.

### DRIVING A TRACTOR OR OTHER FARM EQUIPMENT ON THE ROAD

The size of a typical farm tractor and implement is often huge. Imagine how much of the road the tractor would take up. Slow moving vehicles require a SMV emblem on the back of the vehicle. These emblems are made of bright red and orange reflective material which allow for headlights from an oncoming vehicle to see the farm equipment from a distance.

### LIVESTOCK AND WILDLIFE ARE COMMON IN RURAL AREAS

In some areas, livestock are used for transportation and farm work. As a vehicle driver, allow room on the road for horses and buggies to safely travel. This is especially true if you live in an area with Amish where buggies are often used as a means of transportation.

Deer or other wild game can dart in front of your vehicle. Even alert drivers can't always avoid a collision with a deer since they move very fast. Deer can run into your vehicle or your vehicle can run into them. Be especially alert at dusk and dawn when they are most active.

### CROSSING TRAIN TRACKS

Depending on location, trains often travel through rural regions at high speeds. Warning systems may not be adequate in remote areas. Be alert and don't cross tracks without looking both ways.

### THE DANGEROUS ACT OF RIDING IN THE BACK OF A PICK UP

The cargo area of a pick up or trailer is never a safe place to ride. Be sure that all passengers are wearing safety belts and riding inside the pickup cab.

Observed safety belt use among pickup truck drivers and passengers is only 73 percent compared to the 83 percent in passenger cars and 85 percent in vans and SUVs. Of pickup truck occupant fatalities, 65% were unrestrained. The ejection rate for occupants of pickup trucks involved in fatal crashes is nearly double the rate for passenger car occupants – because pickup trucks in fatal crashes roll over twice as often as passenger cars, but SUVs have the highest rollover rate. The rollover rates of fatal crashes involving pickups in rural locations are 42% while the urban rate is 17%. You can increase the odds of survival in a rollover crash in light trucks by nearly 80 percent by wearing a safety belt.

## HAZARDS ATTRIBUTED TO THE RURAL ENVIRONMENT

- ▶ Some bridges in rural areas have room for only one vehicle to cross at a time. Slow down when approaching a bridge and be prepared to alternate with approaching vehicles if necessary.
- ▶ Use caution when traveling on gravel roads as vehicles handle differently than they do on pavement. Roads with newly surfaced gravel as well as those with washboard conditions deserve extra caution. Don't get caught in newly graded road surfaces that have large amounts of loose gravel. If your tire is pulled into the gravel it is difficult to get back into the hard surface of the road.
- ▶ Dust from the road surface can interfere with visibility.
- ▶ Steep ditches on the side of rural roads can be treacherous if your vehicle gets too close. Stay away from the edge of the road without getting into the lane of other traffic.
- ▶ No center markings prevent vehicles from knowing exactly where their driving area is located.

## DISTRACTED DRIVERS

- ▶ Driving requires full attention and focus. Distracted driving has become a major issue nationwide and increases your risk when driving in rural areas.
- ▶ Using a cell phones and texting have become one of the leading causes of driver distraction. This puts themselves and their passengers at risk.

## PREVENTING RURAL ROAD CRASHES

- ▶ Always wear your seat belt and remind others in the vehicle to do the same.
- ▶ Stay within the speed limit.
- ▶ Be alert to other traffic especially large machinery.

## REFERENCES

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- ▶ NHTSA. 2006. Traffic crashes take their toll on America's rural roads: The need to establish rural seat belt programs. Washington D.C.
- ▶ NHTSA. 2009. Fatal crashes involving young drivers. Traffic Safety Facts Research Note. Washington D.C.
- ▶ NHTSA. 2012. Rural/urban comparison. Traffic Safety Facts 2010 Data. Washington D.C.
- ▶ NHTSA. 2012. Young drivers. Traffic Safety Facts 2010 Data. Washington D.C.
- ▶ NHTSA. 2012. Young drivers report the highest level of phone involvement in crash or near-crash incidences. Traffic Safety Facts Research Note. Washington D.C.



## SPEAKER INFORMATION

As a speaker for the Safe Rural Roads program you have been asked to relate the message of how to stay safe on rural roadways. For this project, you will be addressing adolescent students in an approximately hour long presentation.

A PowerPoint presentation covering the important topics about rural roadway safety is available. Within the presentation pictures show many of the hazards associated with driving in the country. Additional topics such as sobriety and substance abuse may be addressed, but the main focus should be keeping people safe while on rural roads and the importance of wearing seat belts. Please use this outline as a guide for your talk.

Program objectives:

- ▶ Promote safe behaviors on rural roads
- ▶ Encourage the use of seat belts while using rural roads

## SUGGESTED SPEAKER OUTLINE

- A. Differences between rural and urban crashes
- B. Characteristics of rural crashes
  - a. More than one fatality per crash
  - b. Involvement of trucks
  - c. Vehicle rollovers
  - d. Severe vehicle damage
  - e. Head-on collisions
  - f. Ejected persons
- C. Conditions of rural roadways
  - a. Loose gravel
  - b. Curves and hills
  - c. Soft shoulders
  - d. No center line
  - e. Animals and livestock
- D. Large slow moving vehicles
- E. Pickups
  - a. Danger of riding in the cargo area or bed
  - b. Safe driving practices
- F. Importance of using seat belts on rural roadways as a driver and passenger

## MEDIA CAMPAIGN

Rural road safety is crucial for everyone. A media campaign, if done correctly, will reach out to parents and grandparents as well as small children within the community. The messages about the importance of wearing seat belts, avoiding distractions while driving, and safety when sharing the road with farm machinery are crucial messages for the public to understand and follow.

An effective media campaign will have many facets to reach the community in various ways. Conducting educational programs, sending out press releases, airing public service announcements (PSAs), holding seat belt check-ups, and rewarding those using safe behavior are all examples of a valuable media campaign. Radio PSAs can be found on [farmsafetyforjustkids.org](http://farmsafetyforjustkids.org). Each component can be modified to address the uniqueness of each community.

## SEAT BELT CHECK UP

One way to emphasize the importance of wearing seat belts to the public and others not involved in the educational programs is to hold an unannounced seat belt checkup. Determine a rural location and time when many vehicles will be present. This might be a school parking lot, a large discount store in the area, or football game. Contact the person at the facility to make arrangements for the event. Take safety into consideration when planning the event.

Rewarding individual participants for wearing their seat belt is important. This could be done by giving each person a "ticket" for wearing their seat belt and promotional item (candy, small items such as pens, visor clips, paper tablets, etc. used in the vehicle) as a reminder of staying safe while in a vehicle. Making a big deal about who was versus who was not wearing a seat belt can be done by making a public recognition. A poster in the school hallway or an announcement at the Friday night football game are examples of doing this.

The data collected at the event can be used within a press release to publicize the information within the community.

## PUBLIC SERVICE ANNOUNCEMENTS

Public Service Announcements (PSA) are great ways to get messages about staying safe on rural roads to the general public. If you have a radio station in your community ask them to run them when space and time is available. This could be a written PSA or a prerecorded version and usually run for 10, 15, or 30 seconds. A tagline at the end of the PSA will give your organization or other funding agencies credit and contact information. Keep the tagline in mind when timing. Modify or write your own to meet your specific needs:

10 second PSA examples:

- ▶ Are you wearing your seat belt when you're traveling on rural roads? If not, this could be the last radio message you ever hear. Buckle Up or Eat Glass – NOW. TAGLINE
- ▶ What happens when a bug hits a windshield? That could happen to you – Buckle Up or Eat Glass. TAGLINE
- ▶ When was the last time you asked a friend to wear his or her seat belt? Be a friend and ask them to wear theirs, and save their life. TAGLINE
- ▶ What's cooler? Wearing a seat belt or lying in a casket? Buckle Up or Eat Glass. TAGLINE

15 second PSA examples:

- ▶ In a hurry to get to town before the grocery store closes? Slow down when you're sharing the road with slow moving farm equipment. They're huge and take up more than their share of the road. Don't end up in a rush to be dead. TAGLINE
- ▶ If you're texting while driving, you're 23 times more likely to get in a crash. And, just because you're driving in the country doesn't change that. Put the cell phone away and live to see another day. TAGLINE
- ▶ Tractors are used for farm work, not transportation. By riding on a tractor, you're not only putting yourself at risk, but also the driver when you distract him from driving safely. Find a safer way to get from one location to another. TAGLINE

- ▶ ATVs or 4-wheelers are great fun and are a nature lover's dream machine. They belong on the trails and in the fields, not on the public roads. You could get a ticket for driving on the roads or even worse die in a crash with another vehicle over twice your size. TAGLINE

30 second PSA examples (using two voices):

- ▶ #1: Driving in the country is WAY different than driving in town.
- #2: I know. I was driving to practice the other day and just as I came over the hill by the Johnson place there was a HUGE combine taking up most of the road. I almost hit him.
- #1: That's what I mean. It's not like that in the city or on the interstate. Were you going too fast?
- #2: I didn't think so, but it scared me and I hit the brakes hard.
- #1: Wow, you're lucky you made it to practice.
- #2: Yea, I'd sure hate to miss coach's laps. (sarcastically)
- #1: Slow down the next time. It would be a bummer to lose our starting point guard. TAGLINE



## PUBLIC SERVICE ANNOUNCEMENTS (CONTINUED)

- ▶ #1: Hey, your cell phone is beeping. Aren't you going to answer it? (car engine sounds)

#2: Nope, whoever it is can wait. I need to pay attention to driving.

#1: Dude, we're on a gravel road in the country and there's no traffic within miles so no one is going to see you.

#2: That's not the point. You're 23 times more likely to get into a crash if you're texting. Your eyes are off the road for 5 seconds when you text. I don't want to go in to the ditch.

#1: Yeah, I'd rather you didn't either.

#2: Yeah, I need all my concentration to safely drive on the ruts in this gravel road and to watch for farm equipment pulling out.

#1: Whoever just texted you will still be there when you stop. Better late, than never. TAGLINE

- ▶ #1: Hey Joe, can I get a ride with you in the tractor over to the west place. I don't want to ride with my Dad in the pickup.

#2: Heck no, the tractor is a work vehicle, not a way for you to avoid your Dad.

#1: But your tractor is so much cooler.

#2: I know you wouldn't mean to, but you'd distract me while I'm driving. This tractor has a lot of horsepower and I don't want to crash.

#1: Nothing's going to happen.

#2: That's easy for you to say, but did you know that this cab will only protect me as the driver if we roll this thing. This tractor does not have a seat designed for an extra rider. I'm also going to be wearing my seat belt and you wouldn't have one.

#1: Guess, it sounds like I better hop in the pick-up with Dad. Thanks for looking out for me. TAGLINE

- ▶ #1: Hey Joe, look at my new 4-wheeler. Get on, I'll give you a ride.

#2: No thanks, I know they are great to ride, but I've got a big game on Friday night.

#1: What do you mean?

#2: Did you know that one-third of ATV-related deaths and injuries are to kids our age and younger. Many of these injuries happen when more than one person is on the ATV. Both the operator and the passenger are at risk and I don't want either one of us to get hurt or worse.

#1: It's nice to hear you care.

#2: I do care, which is why I'm going to remind you to wear your personal protective equipment and never ride on paved surfaces. TAGLINE



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## PRESS RELEASE

Use the template below to draft a press release about your event to send to local media outlets. Content in [brackets] is meant to be replaced with specific information.

### NEWS RELEASE

For Immediate Release

For more information:

[Contact name]

[Affiliation]

[Phone Number]

[Email address]

[Contact name]

[Affiliation]

[Phone Number]

[Email address]

Safe driving on rural roads discussed at [location]

[CITY, STATE] ([date]) - On [date] an educational program took place at [location] to help youth understand ways to stay safe on rural roads. [Speakers name] with [speaker's organization affiliation] presented a program focused on a variety of rural roadway hazards and good safety practices.

In addition, a seat belt checkup was held on [date] to see how many youth were wearing their seat belts while driving or riding as a passenger. This unannounced checkup identified [number] "caught" wearing their seat belt and were given [promotional item] as a way of recognizing their efforts to stay safe. Later, all those wearing their seat belt were publically recognized by [event used to recognize youth].

More than half of all fatal vehicle crashes take place in rural areas. Loose gravel, soft shoulders, and sharing the road with large slow moving vehicles contribute to this high number of crashes. A lower rate of seat belt use in rural America also makes the problem worse.

For further information about ways to stay safe while using rural roads contact Farm Safety For Just Kids at 800-423-5437 or [www.farmsafetyforjustkids.org](http://www.farmsafetyforjustkids.org). Or call [local organization contact information].

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## PRE-POST SURVEYS

Conducting surveys of your intended program audience can identify information related to the issue of using rural roads safely. If the surveys are done before a program takes place, it will give the presenter a basis for where his/her audience is in relation to rural road safety issues. The program can then target issues lacking by the audience.

The surveys can be conducted prior to an educational presentation and again after the program in a pre/post test format. This will identify knowledge, attitude, or behavior change. This information is self reported so there is a chance the information may be slanted. The resulting information will make a great newspaper article.

The objectives of your program will determine what to include within the survey questions. The seat belt survey asks attitude and behavior questions. The law/crash and rural/urban surveys seeks information about safe rural road use knowledge. The questions can be combined or rewritten to be specific to your program.

Surveys can be completed and tabulated several ways. They can be copied, distributed, completed, collected, and tabulated by hand if there are only a few surveys. If many surveys will be completed, an easier way to complete the process is using an electronic software program. Survey Monkey has a simple program that can be used without cost. Your school or institution may have a paid subscription which would allow you to do more complicated tabulations. Download the questions onto the web site and send an invitation to your audience. A note from you prior to the electronic survey distribution will help ensure completion of the surveys.

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## SEAT BELT SURVEY

- YES    NO    If you rode in a private vehicle to school this morning, did you use your seat belt? If you rode on a school bus to school, leave the question blank.
- YES    NO    If you rode in a private vehicle to school this morning and someone was not wearing a seat belt, did you remind them to buckle up? If you rode on a school bus to school, leave the question blank.
- YES    NO    Do you ever ride in a pickup cargo area?

Of the vehicles listed below, which ones do you always buckle your seat belt?

- ▶ Car
- ▶ SUV
- ▶ Pickup

What is your response to someone that reminds you to buckle your seat belt?

- ▶ I buckle up and tell them thank you for the reminder.
- ▶ I buckle up, but only grudgingly.
- ▶ I ignore them.
- ▶ I make fun of them for being picky.

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## RURAL CRASH SURVEY

Alcohol consumption among teens while driving is involved with many vehicle deaths. Which of the following statements is true?

- ▶ Youth drivers are less likely to use seat belt restraints when they have been drinking.
- ▶ Youth drivers are more likely to use seat belt restraints when they have been drinking.
- ▶ More females than males are involved in alcohol related crashes.

What percentage of rural pickup truck occupant fatalities was unrestrained?

- ▶ 51%
- ▶ 65%
- ▶ 34%
- ▶ 89%

In rural fatal crashes, which vehicle type has the highest rollover percentage rate?

- ▶ Pickups
- ▶ SUV
- ▶ Vans
- ▶ Passenger cars
- ▶ Large Trucks

Primary          Secondary          What type of seat belt law does your state have?

Primary seat belt laws allow law enforcement officers to ticket a driver or passenger for not wearing a seat belt, without any other traffic offense taking place. Secondary seat belt laws state that law enforcement officers may issue a ticket for not wearing a seat belt only when there is another citable traffic infraction.

Go to the following web site to find out your state specifics: [http://www.ghsa.org/html/stateinfo/laws/seatbelt\\_laws.html](http://www.ghsa.org/html/stateinfo/laws/seatbelt_laws.html)

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## RURAL/URBAN COMPARISON SURVEY

Which of the following statements is true?

- ▶ About half of the U.S. population lives in rural areas, but experiences fewer than a quarter of the fatal crashes.
- ▶ Only one-tenth of the Nation's population lives in rural areas, yet three-fifths of all fatal crashes occur there.
- ▶ Over half the Nation's population lives in rural areas, yet nearly all of fatal crashes take place there.
- ▶ Less than one-fifth of the Nation's population lives in rural areas, yet three-fifths of all fatal crashes occur there.

What is the fatality rate of rural crashes as opposed to the rate of crashes taking place in urban locations?

- ▶ The rural crash rate is more than twice that of urban crashes.
- ▶ The rural crash rate is less than that of urban crashes.
- ▶ The rural crash and urban crash rates are about the same.
- ▶ The urban crash rate is more than twice that of rural crashes.

What is the average response time of EMS personnel to arrive at a road crash scene?

- ▶ Emergency Medical personnel arrive at urban crashes in less than half the time of those attending to rural crash victims
- ▶ It takes Emergency Medical personnel twice as long to arrive at a urban crash than those attending to rural crash victims
- ▶ There is no difference between EMS service time to rural and urban crash scenes

Which of the following statements is correct about when fatalities take place?

- ▶ Only one quarter of rural speed-related fatalities occur on week days.
- ▶ Over half of rural speed-related fatalities take place at night.
- ▶ Urban as opposed to rural crashes are more likely to take place within higher posted speed limit zones.
- ▶ More deaths due to alcohol-impaired driving crashes take place in urban areas than in rural areas.

How often is alcohol involved in fatality crashes?

- ▶ More fatalities involving alcohol take place in urban than rural areas
- ▶ More fatalities involving alcohol take place in rural than urban areas
- ▶ Rural and urban location does not impact the number of alcohol related crashes

How does location impact the rollover rates of pickup trucks?

- ▶ The rollover rates of fatal crashes involving pickups in rural locations is much greater than that in urban locations
- ▶ The rollover rates of fatal crashes involving pickups in urban locations is much greater than that in rural locations
- ▶ The rollover rate of fatal crashes in rural and urban locations is about the same

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## SURVEY ANSWERS

### Seat Belt Survey

No right or wrong answers. Use the questions to spark discussion among the group about attitudes regarding seat belts and how that can impact safety.

### Rural Crash Survey

#1: Varies by state. You'll have to research the answer by visiting [www.ghsa.org](http://www.ghsa.org) and searching for state seat belt laws.

#2: Youth drivers are less likely to use seat belt restraints when they have been drinking.

#3: 65%

#4: SUV

### Rural vs Urban Comparison Survey

#1: Less than one-fifth of the nation's population lives in rural areas, yet three-fifths of all fatal crashes occur there.

#2: The rural crash rate is more than twice that of urban crashes

#3: Emergency medical personnel arrive at urban crashes in less than half the time of those attending to rural crash victims.

#4: Over half of rural speed-related fatalities take place at night.

#5: More fatalities involving alcohol take place in rural than urban areas.

#6: The rollover rates of fatal crashes involving pickups in rural locations is much greater than that in urban locations.

# Lesson Plans

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## Seat Belt Sanity

Seat belt use in rural areas is often lower than in urban areas. When teaching the concepts of safety on rural roads stress the importance of using seat belts. Use examples from rural settings to stress seat belt importance such as:

- ▶ Coming up on a slow-moving vehicle like a combine
- ▶ Coming over a hill and not seeing a tractor until it's too late to slow down
- ▶ Losing control of a vehicle on gravel surfaces and crashing into a ditch

Studies show that you are more likely to be thrown from a vehicle when in rural areas. Seat belts give you a better chance of survival by keeping passengers inside the vehicle. When in open vehicles such as a tractor, farm implement, or the back of pickup, unrestrained passengers are more likely to be ejected in a collision.

### ACTIVITY 1

Build an Air Car

Targeted Audience: Middle to High School age

Learning Objective: Students will understand the importance of wearing a seat belt while traveling on rural roads.

Concept: Newton's First Law of Motion helps explain how a seat belt helps protect your body. Because of inertia, objects tend to remain in motion. This means moving objects will continue to move in a straight line unless a force is applied to change that direction. If a vehicle you are riding in happens to stop suddenly or collides with another object, wearing a seat belt may save your life. If the car suddenly stops, your body, because of inertia, will keep moving at the same speed and direction as the vehicle. Seat belts restrain you when the car slows or stops suddenly.

You will need:

- ▶ A balloon
- ▶ A small square of Styrofoam such as a meat tray
- ▶ A small empty thread spool
- ▶ A small object to represent a person
- ▶ Tape

Follow these steps:

1. Using a ballpoint pen or other sharp object, punch a 1/8h inch hole in the center of the Styrofoam square.
2. Tape the spool directly over the hole. Place tape over the ridge that sticks out around the bottom of the spool sealing tightly all the way around the spool.
3. Inflate the balloon. Twist and pinch the top of the balloon's neck so no air escapes. Keeping the balloon twisted, stretch it over the neck of the spool. This is easier when two people work together. Do not allow the air to escape.
4. Place the small object on the Styrofoam platform. The Styrofoam represents the vehicle, the balloon the power, and the object a person.
5. Place the air car on a smooth floor or counter. Let go of the balloon neck and give the car a small push.
6. Have students observe what happens to the small object when it thrusts forward. What happens when the car comes to a stop or hits another object?
7. Repeat the procedure after taping the object to the car. What happens to the object this time? Make the analogy between the tape and a seat belt.

## Seat Belt Sanity (continued)

Normally the force of friction will slow down the object, but it's not the case here. Air escaping from the balloon formed a thin, low-friction layer between the surfaces of the air car and the smooth surface. Because there was almost no friction to act upon the car, you were able to see inertia in action. The car moved in the direction in which you pushed it. The small object moved with the car if taped in place or was thrown off by the initial thrust of power from the releasing air.

### ACTIVITY 2

Seat Belt Simulation

Targeted Audience: Elementary age

Learning Objective: Students will illustrate the need for seat belt restraint use.

Concept: Unrestrained passengers in a vehicle are more likely to be thrown out of the vehicle than those wearing seat belts in a collision. This exercise will show the difference between restrained and unrestrained passengers.

You will need:

- ▶ Convertible toy car and/or pickup toy truck large enough to allow passengers/driver
- ▶ Toy figures or dolls proportional in size to the car/pickup
- ▶ Solid objects, such as textbooks or blocks of wood
- ▶ 36 inch plywood or piece of sturdy cardboard
- ▶ Tape

Follow these steps:

1. Set up a 1 inch high ramp using the books or wood to prop up the plywood or cardboard. Make a barrier at the bottom of the ramp out of more books or a wall.
2. Place a toy figure or doll in the vehicle as a driver. If using the pickup place a doll in the bed.
3. Place the vehicle with its "driver" at the top of the ramp and let it roll down the ramp. (Let the car go without pushing it.)
4. Observe the relative speed the vehicle is traveling and record the distance the passenger was thrown.
5. Increase the height of the ramp by 1-2" and repeat the activity, recording observations.
6. Increase the height to approximately a 45 degree angle.
7. After each test discuss speed, time from start to crash, and distance of passenger from vehicle.
8. If you have a vehicle that allows for more than one person, tape one in place to represent a seat belt and allow the other to sit freely. Repeat the demonstration and compare results.

Questions to ponder:

- ▶ What happened to the passenger in the first trial? Why?
- ▶ How far did the passenger travel from the vehicle in the first trial?
- ▶ If using a pickup, what were the differences among the driver, cab passenger, and the person in the pickup bed?
- ▶ Did the speed of the vehicle make a difference in how far the passenger traveled? If so, how?
- ▶ What conclusions can you make about speed on the impact of car passengers if a crash takes place?

## Braking for Safety

Different road surfaces influence the ability to stop a vehicle. When traveling on gravel roads not only does the friction of the road surface affect braking ability, but also the control the driver has on his/her vehicle. Discuss how gravel, dirt, and mud hinder the ability of the driver to have control of the vehicle. Discuss characteristics such as snow and ice relative to rural roadway driving.

### ACTIVITY 1

Friction comparison

Targeted Audience: Middle to high school age

Learning Objective: Students will compare a road's surface on a vehicle's ability to brake effectively.

Concept: Tires, friction, and surfaces affect a vehicle's braking ability. Braking ability influences the likeliness of a resulting crash.

Vehicle tires push against the road to help propel the car forward. All surfaces are covered with little bumps and hollows. When two surfaces rub together, these bumps and hollows catch and stick to each other. This resistance to sliding is called friction. The tread on tires creates friction between the rubber and the road surfaces so cars are able to accelerate and brake rapidly. If there was little or no friction between two surfaces, the tires would slide around. This happens on ice because smooth surfaces decrease the friction between the tire and the road. Bald tires can also have this effect.

You will need:

- ▶ Matchbox vehicles
- ▶ 5" X 36" strip of fake fur material (representing very rough road surfaces)
- ▶ 5" X 36" strip of coarse sandpaper (representing moderate road surfaces)
- ▶ 5" X 36" strip of wax paper (representing slick road surfaces)
- ▶ 36" square flat board
- ▶ Ruler

Follow these steps:

1. Glue each strip onto a flat surface.
2. Place a toy vehicle at the narrow edge of each "road surface". Give the car a push.
3. Measure how far the car moves.
4. Raise the board slightly and repeat steps 2 and 3 keeping the push the same for each vehicle. Measure the distance traveled by each vehicle. Notice the direction the vehicle moved. Did it go straight? Why or why not?

Rough surfaces can create more friction than smooth surfaces. When a small amount of friction is present, the vehicle traveled a long distance. When a large amount of friction is present, the vehicles traveled a short distance. Ice, rain, and bald tires decrease the amount of friction on the road surface. The type of road surface also makes a difference in the amount of friction present. Don't be fooled into thinking the more gravel on the road, the better you will be able to stop. Getting caught in loose gravel can pull you into the ditch. Gravel road driving is different than driving on paved surfaces and requires extra training.

## Braking for Safety (continued)

### ACTIVITY 2

Road surfaces impact the stopping distance and skid length of a vehicle when it has to stop suddenly. There are web sites that do the calculations for different situations (dry, icy, wet, etc.).

This is just one web site and others are available. Find them by typing in “stopping distance calculator” in the search box.

<http://forensicsdynamics.com/stopping-distance-calculator>

Make comparisons about resulting distances required when traveling on different road surfaces. This calculator does not take into account upward/downward road slant or snow/ice/gravel depth. Make predictions about how these variables would impact stopping distance.

Questions to Ponder:

- ▶ Which road surface would have more friction: A loose gravel road or a hard-packed gravel road? A paved road or a gravel road?
- ▶ Why are tires with reduced tread considered unsafe?
- ▶ How is skid length affected by speed and road surfaces?



## It Costs How Much?

Peer pressure during adolescence is powerful. It is tempting to allow friends to ride in the cargo area of a pickup truck or to drive fast to impress your friends. Remember, dangers exist for those riding with you as well as you as the driver. Due to the isolation of the area, we may be tempted to speed because the risk of getting caught by police is lower, but the risk of crashing is higher. Financial consequences also affect teenagers whether driving in the country or city.

### ACTIVITY 1

Figuring out the cost of getting a ticket

Targeted Audience: Middle to high school age

Learning Objective: Students will evaluate the impact ticket(s) has/have on auto insurance costs.

Concept: Getting a traffic violation has its price. Not only do you pay for the ticket, but your insurance premiums may increase. The following story problem will show students how many hours they would need to work to pay off a speeding ticket and pay higher insurance rate.

Before doing the following activity contact your state or provincial highway patrol or department of transportation.

- ▶ Is there a law against passengers in pickup truck cargo areas?
- ▶ What are your state's restrictions on adolescent driver's licenses?

Each state law is different. Adjust the story to reflect what your specific laws are.

Problem:

Joe, age 17, drives a pickup truck. He enjoys the freedom of having his own vehicle, but isn't wild about the fact that he has to pay his own insurance premiums. His insurance used to cost \$75 per month. That is, until he got a ticket for letting friends ride in the back of his pickup truck! Because one of the passengers in the cargo area was under 16 years of age, the DMV will put a point on Joe's license, which will increase his insurance rate by 5%. He found out the ticket cost was \$150 plus a court fee of \$50.

Joe is worried about money. He works 15 hours per week at a local store, and is paid \$10 per hour. Help him figure out his finances by answering the following questions.

1. How many hours does Joe need to work to earn enough money to pay for the ticket and court fees?

Ticket = \_\_\_\_\_  
 Court fees = \_\_\_\_\_  
 Total = \_\_\_\_\_ (divided by \$10 per hour)  
 = \_\_\_\_\_  
 Hours needed to work to pay for ticket and court fees.

2. How many hours does Joe have to work to pay his total annual insurance at the higher rate?

$\$75 \times 12 =$  \_\_\_\_\_ (annual fee before incident)  
 $\times .05 =$  \_\_\_\_\_ (insurance increase)  
 = \_\_\_\_\_ New insurance cost  
 (annual fee plus increase - divided by \$10 per hour)  
 = \_\_\_\_\_  
 Hours needed to work to pay for revised car insurance

## It Costs How Much? (continued)

### ACTIVITY 2

#### Fender Bender Costs

Targeted Audience: Middle to high school age

Both major and minor accident incidents take place on all roads, whether rural or urban setting. In the case of rural roads, major road incidents involving major vehicle damage are more likely to take place due to the speed involved in a crash. Vehicles are often completely destroyed when involved in a crash taking place on a rural road. In the case of a major crash costs can be very high. That is not to say that minor incidents don't take place in the country. Insurance helps, but your rate may increase after a crash.

Take this case. Alicia was driving her SUV and backed into the mail box at a low speed when backing out of the driveway. Although the vehicle was minimally damaged, did not affect the vehicle's drivability, and no human injuries occurred, the cost of fixing the vehicle was surprising. Figure the monetary costs of this situation. Insurance costs or increases due to accident rates are not taken into account.

Vehicle Parts	
Parts	\$92.95
Paint material	\$140.60
Sub Total Parts	\$_____
Tax (7% or whatever your rate is)	\$_____
Total Parts (parts plus tax)	\$_____
Labor (13.7 hours at rates of \$38-\$70 per hour)	\$794.60
Tax (7% or whatever your rate is)	\$_____
Total Labor (labor plus tax)	\$_____
Total Repair Cost	\$_____
Hours required to pay repair bill _____	(Total divided by hourly wage)

#### Questions to ponder:

- ▶ What should Joe say the next time friends want to ride in the back of his pickup truck or encourage him to speed?
- ▶ What youth driver's license restrictions are reasonable and which ones are unfair?
- ▶ What are ways to reduce the financial impact of vehicle crashes?

## Big vs Small

The variation in size of vehicles can be great when large farm implements are sharing the same road with smaller vehicles. Many drivers do not realize the differences and the impact these differences make. Other dangers such as poor visibility, loose gravel, curves, hills, and speed variations complicate the situation and tragic results.

### ACTIVITY

Mass Force Demonstration

Targeted Age: Middle school and above

Learning Objective: The students will judge the impact of different weighing vehicles when they collide.

Concept: Vehicles on the roadways have different sizes and weights. The differences are even greater when large farm machinery is involved.

Targeted Audience: Elementary to high school, increasing the complexity of the concepts as children get older. This lesson could be adapted to be a momentum problem for high school physics.

You will need:

- ▶ Curved 36" board with groove cut down the middle of the entire length
- ▶ 4 marbles (2 small and 2 large)
- ▶ Ounce or gram measuring scales

This demonstration will show what might happen when a small vehicle collides with a large vehicle such as a tractor or combine.

Show the marbles. The bigger ones represent large farm machinery such as a combine or tractor. The smaller ones represent cars or smaller vehicle. The marbles can be painted to look like a combine or other vehicles. Have the audience compute the size relationship by weighing both marbles and dividing the larger one by the smaller one. Relate this relationship to the actual weights of vehicles. Explain that this relationship would probably be even greater in real life. Combines can weigh 30,000 to 40,000 pounds and tractors vary greatly from 1500 to 100,000 pounds. For this exercise use a combine weight of 40,000 pounds and tractor weight of 60,000 pounds so students can make weight comparisons in their head. Use 4,000 pounds for the weight of an average size car.

Explain that the momentum created by the rolling marbles on the downward curve represent moving objects. Using the two smaller marbles set one on the groove of each side. Release the marbles at the same time. They should collide in the middle and both should roll back up the groove approximately the same distance. This represents two small cars. Next, do the same thing with two bigger marbles, representing two tractors or combines. Results should be similar to using the two smaller marbles.

The third time, use one small marble (car) and one large marble (tractor/combine). The bigger marble should knock the smaller one off the board. Emphasize the direction of each marble upon impact. Try the demonstration several times to allow youth to see well and reinforce the concept.

Questions to Ponder:

- ▶ Which marble was most likely to stay in the groove? Why? Relate this to the difference in size of vehicles.
- ▶ How far did the small marble (car) fly when hit by the large marble (combine)?
- ▶ Within this demonstration we were comparing weight. Another difference between cars and farm equipment is height of the driver. What does the driver of a car see as compared to the driver of a combine? How does this influence line of sight and safety?

## Watch for Slow Pokes

Many slow moving vehicles use rural roadways including tractors, combines, harvesting equipment, and other farm implements being transported. These big machines travel at a much slower speed than cars and pickups. Slow moving vehicle emblems, made of reflective material, are attached to the back of farm machinery to alert faster traffic to slow down in order to avoid a collision.

### ACTIVITY

Reflectivity Comparison

Targeted Age: Middle school and above

**Learning Objective:** The students will visualize the importance of reflective material on visibility from a distance.  
**Concept:** Due to the difference in speed, a slower vehicle needs to be visible from a distance in order for the faster vehicle to slow down and avoid a collision. To facilitate this, machines that travel less than 25 miles per hour are required to have slow moving vehicle emblems on the back of the vehicle for visibility. Laws vary by state about what constitutes a slow moving vehicle and when SMV emblems are used. Check your state laws by calling your Department of Transportation or going online.

It is important that the emblems, which are made of highly reflective material, be clean and in good shape. As SMV emblems age, they lose their reflective ability.

You will need:

- ▶ Yellow reflective tape
- ▶ Red reflective tape
- ▶ Orange reflective tape
- ▶ Colored construction paper
- ▶ Flashlights
- ▶ Dirt or mud
- ▶ Optional: actual SMV emblems (one new and one faded)

Cut out 8 inch triangular shapes from the reflective tape and several colored paper sheets. Tape the triangles on a wall of a large inside room where lights can be turned off. Explain to the students that the lights will be turned off so they will be prepared to stand still. From a short distance (within 10 feet) use the flashlight to highlight the triangles. Turn the lights back on and have the students rearrange objects in order of how easy it is to see each object. Have the students move backwards to be as far away from the objects as possible. Repeat the lighting demonstration and rearrange the triangles according to their reflectivity.

Mix dirt and a little water to make a mud paste. Apply mud to a portion of the reflective tape shapes. Repeat the light demonstration and observe the effect on visibility.

If you have actual SMV emblems repeat the light demonstration comparing the faded and new emblems.

Questions to Ponder:

- ▶ What variables had an influence on the visibility of the shapes?
- ▶ How did the distance influence the visibility of the objects?
- ▶ Why is it important to keep SMV emblems clean?

Reflective tape, markers, and SMV emblems are available through Gempler's. 1-800-382-8473 or [www.gemplers.com](http://www.gemplers.com).

# Don't Be a Human Projectile

Tractor fenders, grain wagons, and pickup cargo beds are dangerous places for passengers. They may be thrown from the vehicle when impact with another vehicle or object takes place. This can also happen when the vehicle stops suddenly. Serious injury or death can result from the force of a body hitting the ground or another object.

## ACTIVITY 1

Impact of Speed

Targeted Age: High School

Learning Objective: Students will determine the impact when ejected from a vehicle

Concept: When an object falls, it picks up speed as it falls because of gravitational pull. This is called acceleration. Being thrown from a vehicle is referred to as ejection. The object will make contact with the ground or another object with a deadly velocity.

Problem:

Suppose that you're riding in the back of a pickup or on the fender of a tractor at 33 mph (that's pretty fast for a tractor, but slow for a pickup). The vehicle swerves and you are thrown into something solid, like a wall or vehicle.

Definitions:

- ▶ Velocity (v) – rate of motion; speed of a moving object in a direction
- ▶ Distance (d) – the length an object has traveled
- ▶ Acceleration (a) – increase in speed
- ▶ Ejection – thrown out forcefully

Given:

- ▶ Velocity = acceleration X time (v=at)
- ▶ Distance= ½ acceleration X time squared (d= ½ at<sup>2</sup>)
- ▶ 1 mile = 5280 feet
- ▶ a= 32 ft/sec<sup>2</sup> (for falling objects on earth)

Proof:

Conversion of 33 miles per hour to feet per second.

$$\frac{33 \text{ mile}}{1 \text{ hour}} \times \frac{1 \text{ hour}}{60 \text{ mins}} \times \frac{1 \text{ minute}}{60 \text{ seconds}} \times \frac{5280 \text{ feet}}{1 \text{ mile}} = \frac{33 \times 1 \times 1 \times 5280}{1 \times 60 \times 60 \times 1} = \frac{174,240 \text{ feet}}{3,600 \text{ seconds}} = 48.4 \text{ feet per second}$$

In order to figure velocity, you must know how long it takes to fall 36 feet. For this assignment, we calculated the elapsed time as 1.5 seconds. Now you can figure the velocity at impact.

$$V = at$$

$$V = \frac{32 \text{ feet} \times 1.5 \text{ seconds}}{\text{Seconds}^2}$$

$$V = 48 \text{ feet per second}$$

# Don't Be a Human Projectile (continued)

## ACTIVITY 2

### Impact of Velocity

Targeted Age: All ages

Learning Objective: Students will visualize the impact of being thrown from a moving vehicle when an object is hit from a distance.

Concept: The faster a vehicle moves the greater the distance an object (or body) is thrown if they are not restrained. When a flying object (or body) hits a hard surface (road, tree, guard rail, etc.) damage will occur.

You will need:

- ▶ A watermelon or cantaloupe approximately the size of a person's head
- ▶ Markers
- ▶ Plastic covering if doing the demonstration indoors
- ▶ Ladder or deck where an object can fall onto the ground

Draw a face on the melon with the markers. Talk about the head as the most important part of the body and its approximate size. The average head weighs approximately 8 to 12 pounds, approximately 8% of the weight of the whole body. The brain is about 1/3 of the weight of the total head.

Place plastic covering on floor if doing demonstration indoors. A preferred format would be outside if the weather is nice. The demonstration will make a mess.

Drop the melon from a distance, the higher the better, making sure participants and not in line with the falling melon. Discuss the resulting melon breakage and the correlation to a head hitting an object.

Questions to Ponder

- ▶ Instead of riding in an exposed area, where might be a safer place to ride?
- ▶ If you were a driver of a tractor or pickup and were asked by your peers to ride along on the tractor fender or pickup cargo area, what might be a reasonable and safe reply?
- ▶ What preventive procedures influences the damage done by two objects colliding during a collision? (slow down, wear seat belts, driving cautiously, proper brakes, etc.)

## Attitude Influences Behavior

Although vehicle crashes can take place on any type of road situation, a great number of serious incidents happen within the rural environment. The specific conditions of rural roads such as gravel, hills, soft shoulders, blind intersections, sharing the road with large farm implements, and others require additional attention to be safe while riding and driving in the country.

### ACTIVITY

Attitude Behavior Continuum

Targeted Age: Middle School through High School

**Learning Objective:** The students will determine their own attitudes toward issues related to riding and driving on rural roads.

**Concept:** Attitudes and behaviors often influence each other. Before behaviors can change in a positive direction, a positive attitude is essential. Recognizing the difference between attitude (mental point of view) and behavior (actions) is crucial to understanding the process of staying safe.

You will need:

- ▶ Writing material
- ▶ List of 5 to 10 attitudes related to rural roads (A list is supplied, but you can make your own list more specific to your community.)
- ▶ 3 large cards with the numbers "1", "5", and "10" on each respective card

Tape the "1" card on one wall with the "10" card on the opposite wall. Place the "5" card in the middle. Have participants number a piece of paper from 1 to 5-10 (whatever number of statements you choose). Read each statement asking each person to individually put a number from 1 to 10 down beside each number. A one means total disagreement and a ten represents total agreement, with five meaning a neutral position. A three would be leaning toward disagreement and a seven would be leaning toward agreement. Emphasize there are no right or wrong answers.

When the recording is completed, have everyone stand up with their answers in hand. Instruct them to go to the number card closest to their response for the number one statement. If someone asks what the statement was, respond that you will read it as soon as everyone is positioned. If controversial statements are used there will be a wide variety of responses. Facilitate a discussion about why people answered the way they did. At the end of each statement discussion, participants may move to a different number if the discussion swayed your number choice. Repeat for each statement. Encourage discussion about attitudes and behaviors.

**Suggested Statements:**

- ▶ My favorite color vehicle is silver.
- ▶ Pickups are cooler vehicles than cars.
- ▶ I always wear my seat belt while in a moving vehicle.
- ▶ Having people in the vehicle while I'm driving is not a distraction to me.
- ▶ I would never drive a vehicle after drinking an alcoholic beverage.
- ▶ Parents are the best driving instructors.
- ▶ Riding on a tractor with a friend is dangerous to both the driver and the passenger.
- ▶ Speeding is never okay.
- ▶ While driving and coming up behind a slow moving vehicle, I'd pass it as soon as possible.
- ▶ There are too many laws that restrict youth drivers.

## Attitude Influences Behavior (continued)

Ten statements take a lot of time to have an active discussion after each statement is read. Five to seven questions is a better number. A silly question (type or color of vehicle) at the beginning will make the exercise more fun and help the participants understand the process. Gradually increase the complexity of the questions. Have statements worded both positively and negatively.

During the discussion address issues such as:

- ▶ Which of the statements refer to an attitude and which refer to a behavior
- ▶ Make a connection between one of the attitude statements and one of the behavior statements (Example: Wearing a seat belt (behavior) is dependent upon whether my parents are in the vehicle (attitude).
- ▶ Items out of the driver's control (examples: laws, other vehicles sharing the road, etc.)
- ▶ Items within the driver's control (examples: allowing passengers, following laws, etc.)



Students at an Iowa high school demonstrate the Attitude Behavior Continuum with middle school students. Video of this demonstration is available on YouTube. Search for "Farm Safety For Just Kids."

## Creative Messaging

Rural roads hold unique hazards for those riding in and driving vehicles. The messages of safety are important to all those using rural roads.

### ACTIVITY

Creation of Audio/visual safe rural road message

Targeted age: Middle school through high school

Learning Objective: Students will demonstrate an aspect of rural road safety by producing an audio and/or visual representation about a key concept of staying safe while on rural roads.

Concept: There are many unique aspects of using rural roads safely. Mass media plays a major role in letting people know about these specific hazards. Hazards such as driving on gravel, distractions, sharing the road with slow moving vehicles, and wildlife on roads are just a few of the topics that could be addressed. Videos made for use on You-Tube, posters made for posting in local businesses, articles written for local papers, and PSAs written and read at local radio stations make an impact on the public's recognition of the situation.

Give an overview about using rural roads safely. The enclosed PowerPoint presentation can be used by an FFA instructor, a local law enforcement official, or a student as a basis for the presentation. Additional resources can supplement the information. Have students identify the unique aspects of driving on rural roads.

As individuals or groups, choose a rural road topic (gravel, SMVs, hills, distractions, etc.) to highlight within your project. Determine the medium (artwork, audio, visual, audio/visual, written essay, etc.) to convey the safety messages related to the topic. In most cases an outside agency will be needed to finalize distribution of the product. If you're producing a video, check out You-Tube's restrictions. If you're writing a PSA, contact the local radio station to ask if you can read the message on air. If you're writing an essay, contact your school or the newspaper office to see if they will run it. If you're producing artwork, check to see if there are art fairs where it might fit.

Questions to Ponder:

- ▶ What makes a good media campaign?
- ▶ What considerations do you need to take into account when determining topic and your correct audience? (What age group is most at risk of this issue, are there gender differences, what media reaches this audience best, etc.)
- ▶ What are ways to increase getting your message to your intended audience?

# Puzzles

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# Rural Road Safety Bingo

Find someone in the group who can say yes to a statement. Write the person's name in the square. Each person can only sign once. The first to fill five squares in a row wins!

Driven a tractor	Driven a vehicle on a gravel road	Rode with someone traveling too fast on a gravel road	Rode on a tractor as a passenger	Rode in a vehicle without a seat belt
Suggested to someone else to buckle up their seat belt	Been in a vehicle crash	Texted while driving	Rode in a pickup cargo area	Rode in a vehicle with someone texting while driving on the interstate
Suggested to someone that they should slow down	Rode in a vehicle traveling above the speed limit	FREE SPACE	Live on a farm	Rode a bus to school
Never rode a bus to school	Live in a rural area	Hit an animal while riding in a vehicle	Always uses a seat belt when in a vehicle	Had to stop in a vehicle while a train went by
Passed a tractor while riding in a vehicle	Passed a horse and buggy while in a vehicle	Been in a dusty area while in a vehicle	Live in an urban area	Been in a foggy area while in a vehicle

# Safe Rural Road Word Find

1. Types of vehicles used on rural roads

2. Animals often found in rural areas

3. Road conditions often found in rural areas

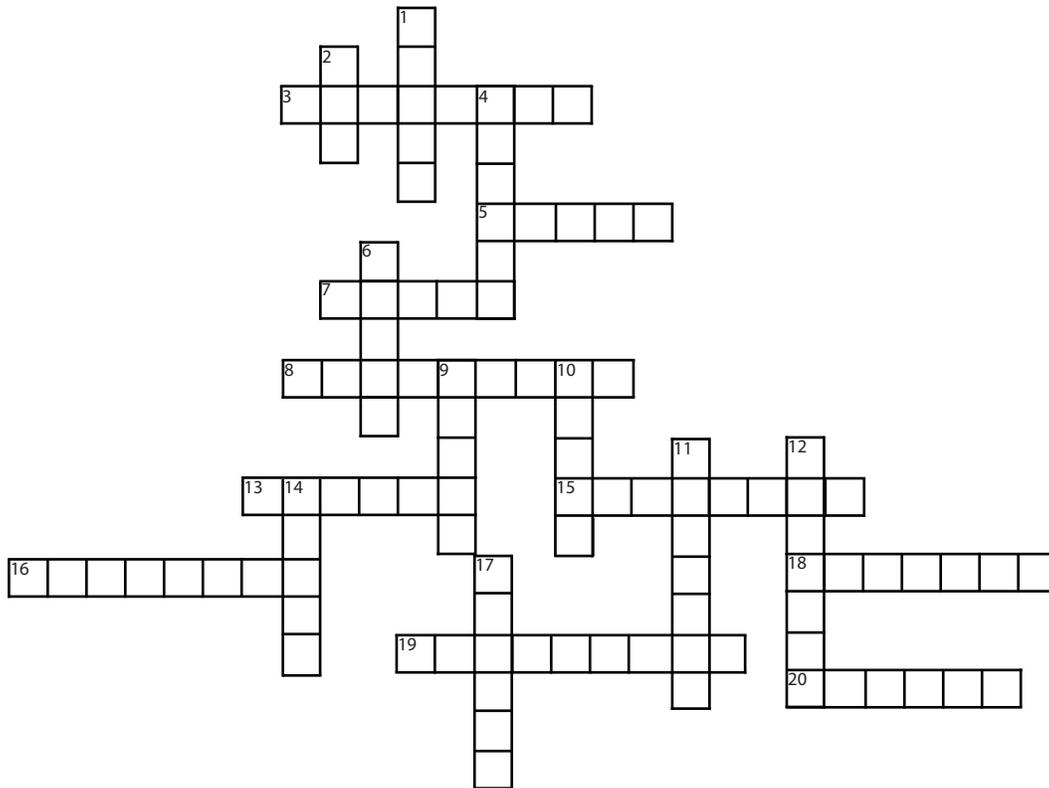
4. Vehicles having SMV emblems displayed

5. Another word for urban

P	L	C	L	Y	T	I	C	J	L
I	O	A	R	O	T	C	A	R	T
C	K	V	C	O	W	D	E	E	R
K	A	Y	D	D	U	M	V	A	N
U	N	L	G	Y	T	S	U	D	G
P	K	C	U	R	T	I	T	A	C
I	Y	R	E	N	I	H	C	A	M
V	S	U	Q	C	Y	G	G	U	B
R	Y	L	Y	S	K	C	A	R	D
N	O	O	C	C	A	R	A	J	S

# Crossword Puzzle



## Across

3. Death
5. Area away from country
7. Fine particles in the air
8. Animals on farm
13. Structure spanning obstacle
15. Area on side of road
16. Turning over of vehicle
18. Common farm machine
19. Equipment to make farm work easier
20. Loose rock surface

## Down

1. Connected railroad cars
2. Common passenger vehicle
4. Wound
6. Area that deviates from straight
9. Rate of motion
10. Collide suddenly
11. Drainage area under road
12. Distraction while driving
14. Area away from cities
17. Light truck

## Window Boxes

There are 4-letter, rural road related words in each strip of letters. Each word has the letters in the correct order, but additional letters are intermixed within the letters. A clue is given for each word.

Example:

H	S	I	F	L	V	L	W
---	---	---	---	---	---	---	---

Answer:

H		I		L		L	
---	--	---	--	---	--	---	--

1. Fine particles in the air

T	D	U	E	W	S	T	N
---	---	---	---	---	---	---	---

---

2. Not moving quickly

D	Y	S	L	O	V	E	W
---	---	---	---	---	---	---	---

---

3. Passenger restraining device in vehicle

B	B	S	L	E	L	W	T
---	---	---	---	---	---	---	---

---

4. Place where you sit

W	S	N	E	A	C	K	T
---	---	---	---	---	---	---	---

---

5. Letters making words

T	N	E	M	X	V	L	T
---	---	---	---	---	---	---	---

---

6. Quit moving

C	N	S	X	T	O	L	P
---	---	---	---	---	---	---	---

---

# Dominos

Copy and cut out the following domino blocks. (Laminating them before cutting will increase their durability.) Turn them all upside down. Each player draws 7 pieces. Taking turns, match the clue with an answer or like drawings together. When doubles are used, the player must have a matching piece or draw from pile. If the next player does not have the matching image or definition they must draw. If the player cannot make a match he/she must draw another piece and wait until the next turn. First person to use all pieces wins.

		Condition of rural roads			Dusty	
Condition of rural roads	Condition of rural roads		Condition of rural roads	Condition of rural roads		Icy
Hilly	Curvy	Loose gravel			Vehicles used on rural roads	
			Vehicles used on rural roads	Vehicles used on rural roads		
Vehicles used on rural roads		Tractor		Semi truck	Wildlife found in rural areas	
	Car		Pickup			Wildlife found in rural areas
Wildlife found in rural areas			Wildlife found in rural areas			
	Wildlife found in rural areas	Wildlife found in rural areas		Wildlife found in rural areas	Raccoon	Deer
	Rabbit	Moose				
Skunk						

# Dominos (continued)

 Elk	 Livestock that could get run over if not restrained	Livestock that could get run over if not restrained	 Livestock that could get run over if not restrained	 Livestock that could get run over if not restrained	Cattle	 Sheep
Hogs	Horses	Road signs	 Road signs	 Road signs	Road signs	
						
Road signs	 Road signs	Stop	 Yield	Curve	Speed	 Slow
						
Wrong way	 Distractions while driving	Distractions while driving	Distractions while driving	 Distractions while driving	 Cell phone	 People
						
	Alcohol			 	 	
Electronic devices						

## The Rural Road Solution

Figure out who is driving in each hazardous situation, using what vehicle, and what measures each is taking for protection. Use the process of elimination from the clues to identify the safety precautions each person was taking for the road condition and vehicle driven. Only one box will be checked in each column and only 3 boxes checked in each row.

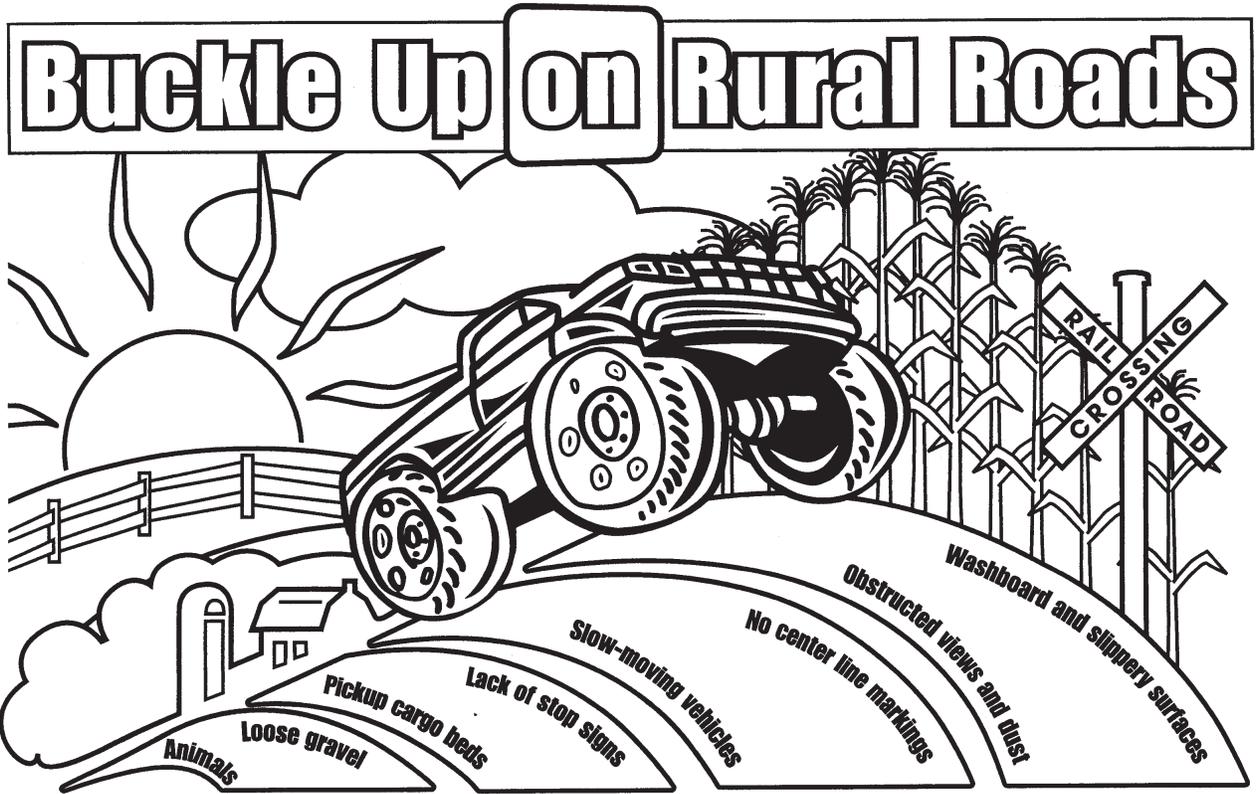
	Road Conditions				Vehicle				Protective Behavior			
	Dusty	Hilly	Icy	Soft shoulders	Car	Pickup	Tractor	SUV	Wear seat belt	No texting	Follow speed limits	Watch for animals
Joe												
Sally												
Nick												
Kristy												

Clues:

- ▶ Sally applied her brakes slowly since she was driving in the winter. She was not driving a car, tractor, or pickup.
- ▶ The pickup driver was coming home from work on a dusty road and watching for animals at twilight.
- ▶ Joe, Nick, and Kristy were not following the speed limit.
- ▶ The tractor driver who was not Joe, Sally, nor Kristy was wearing a seat belt primarily because he/she was driving on a gravel road with soft shoulders.
- ▶ Joe was not driving the pickup.

REMEMBER! Protective behavior is important in all situations and with all vehicles. The answers do not reflect specific protective behavior exclusive to the vehicle nor road condition. Most of the protective behaviors are laws which are enforceable with penalties determined by the state.

# Coloring Fun



## Answer Key

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### WORD FIND

1. Car, van, tractor, pickup, truck
  2. Cow, deer, raccoon, cat
  3. Dusty, icy, muddy
  4. City
- 

### CROSSWORD PUZZLE

Across

3. Fatality
5. Urban
7. Dusty
8. Livestock
13. Bridge
15. Shoulder
16. Rollover
18. Tractor
19. Machinery
20. Gravel

Down

1. Train
  2. Car
  4. Injury
  6. Curve
  9. Speed
  10. Crash
  11. Culvert
  12. Texting
  14. Rural
  17. Pickup
- 

### WINDOW BOXES

1. Dust
  2. Slow
  3. Belt
  4. Seat
  5. Text
  6. Stop
- 

### RURAL ROAD SOLUTION

Joe - Hilly, Car, Not texting

Sally - Icy, SUV, Follow speed limits

Nick - Soft shoulders, Tractor, Seat belts

Kristy - Dusty, Pickup, Watch for animals