

A Trucker Buddy CURRICULUM



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Suggested Guidelines for Use Subjects:

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I. MATHEMATICS

The Trucker Buddy program exposes students to mathematics not only in an academic setting or technical arena, but also in real-life, practical situations. By participating in the Trucker Buddy program, students who may find mathematics intimidating can develop and improve their skills in a nonthreatening, fun environment.

Trucking Company Simulation

The class can be divided up into teams, each to set up their own company. For example, a variety of loads could be available with each one paying a different sum for being hauled and each available in a different location to be delivered to a determined destination. Using the most recent location of their Trucker Buddy, the teams would have to determine which load would be best for him/her to take. Routes, weight, salary, mileage, fuel, driving time etc. would have to be calculated. The team that delivers the load at the least expense could be the winner.

Addition/Subtraction/Multiplication and Division

Lesson plans involving adding and subtracting states and miles driven can be used to teach basic math skills. Calculating miles per hour, fuel used, miles per tank of fuel and average speed can help students apply math to their day to day lives.

Algebra

For older classes basic and complex algebra problems can be used based on the travels of their Trucker Buddy. Word problems using the travels of the Trucker Buddy can be introduced to help students to improve their math skills.

Estimation

Using information provided by the driver, the class can determine the predicted mileage, gas consumption, etc., for the year.

Graphs and Table

Weight and fuel mileage comparisons work well here. Tables or graphs showing comparison of driver mileage from week-to-week can also be used.

Percentages

Class can calculate the percent of a week the driver spends traveling, and the percent of a week the driver spends in various other aspects of the job.

Measurement/Conversions

Metric conversions can be calculated if, for example, a driver in Detroit is delivering cargo to a city in Canada. If he needs to check in at a weighing station, how would he convert his weight from non-metric to metric?

II. ENGLISH

Active participation in the Trucker Buddy program encourages students to exchange ideas and understand that writing styles vary from application to application. The program can help them determine when a particular style is appropriate. It can also teach them that listening skills are as valuable as writing skills.

Pen Pals

In addition to their Trucker Buddy pen pal, the classes in different locations involved in the program could become pen pals. They immediately have something in common about which to write and can exchange information and ideas about each other, such as their home towns, their school, their interests, etc.

Creative Writing

Various "trucking" situations can be set up, and students can write about creative solutions to problems. Topics such as "The Halloween Truck" could be assigned for some real creative expression. Collecting funny "trucker" terms, such as "alligators on the road" (large piece of a tire), are excellent introductions to story writing. See Index 1 or www.layover.com/slang.htm for more examples.

Emails

Trucker Buddies are utilizing emails to communicate with their classes. Emailing can develop both writing and typing skills. Grammar and spelling can be honed by using the tools on most word processing and email programs.

Business and Friendly Letters

Students should use the proper formats for letter writing. Having the class write business letters to the trucking company their Trucker Buddy represents can be a good "real life" exercise.

Journals

Based upon facts received from the driver, a "driver journal" could be written. Fictional journals, or journals based upon their participation in the program can also be written.

Advertising/Marketing

Students could develop and write a business plan for a product or idea related to the trucking industry, for example, a truckstop. Once the business plan is done, they could then write copy for a marketing brochure to help promote their product or idea.

Poetry

Information received can be used to give the background necessary to write "truck" related poetry.

Newspaper

A class paper dealing with "Trucker Buddy" experiences can be written.

General Writing

All types of writing can be done. Students can do very realistic writing, such as "explain the process of determining a route". Descriptive paragraphs, essays, and narratives are all possible.

Outlining

Many categories in the trucking industry lend themselves very well to the outlining process.

For example:

A. Tractor

1. Cab
2. Engine
3. Fifth Wheel

Debates

Using data from magazines, newspapers, and the driver, the class can debate issues such as the "Safety of Trucks", "The National Speed Limit", etc.

Interviews

These can be conducted with the driver, or members of another class participating in the program.

Listening Skills

Someone can read a message from your driver to the entire class. The audience can take notes and such things as paraphrasing and outlining could take place.

Proofreading

Have the driver send you a letter with errors in it. The class can then do the proofreading necessary.

III. READING

Participation in the Trucker Buddy program provides students with real-life situations and examples that encourage them to use and improve comprehension and analytical skills.

Understanding Sequence of Events

The trucker must pick up his load, get assignments, drop the load, clean the trailer, hook up the trailer, call the dispatcher, etc. Students can arrange these events into the correct order, and check with the driver to see if they are right. If the driver suggests a different sequence of events, discussion can follow as to why there is a discrepancy.

Categorize and Classify

Components of the truck, trailer, computer system, etc., can be grouped in various ways based upon size, usage, and so forth.

Topic, Main Idea, Supporting Details

The topic is Transporting Material; main idea is getting the load somewhere at a specified time. Supporting details include fuel consumption, mileage, etc.

How to Use Reference Resources

An instructor can suggest a current event, for example, the recent strike, diesel fuel price increases, insurance rates, then the students can use libraries, trade journals, newspapers, Internet web sites, magazines, editorials, etc. to research and discuss consequences of this event. The students can then present their ideas to their Trucker Buddy for further discussion.

Inference/Logic

If a truck is out of service for a day or two, what can we infer about such items as pay, maintenance costs, and so forth?

Compare and Contrast: Automobile vs. Tractor Trailer

Predicting Outcomes

The weather is not good along the route your driver is taking. What will the effect be on arrival times? (Determine regular MPH and reduced MPH).

Decision Making

Set up simulations, or actual scenarios that the driver has gone through, where groups can discuss decisions to be made. For example, let's say a driver receives information that a road is closed along his route because of snow, but it's expected to be opened any time. The driver can either continue on his present route and hope that the road will be opened shortly, or he can take another route that is a longer distance. Without knowing specifically when the road will open, should he continue on his current route and hope that the delay is minimal, or take the road that is open, even though distance-wise it is longer, but may in reality, take less time?

IV. GEOGRAPHY

By tracking their Trucker Buddy's progress as he drives his route, students are exposed to many geographical locations and the unique characteristics of these locations. They can get descriptions from the driver what the terrain is like, how the weather is, and other facts about various regions.

Postcards

Cards sent to you by the driver will help to make the country "come alive".

Games

Many types of games can be created, such as "Guess the Load". (You know where the driver is...now try to guess what load is probably in the truck based on geographic facts you have learned about his location. Example: Your driver is in Idaho— do you think he is hauling potatoes or oranges?)

Routes

Maps and/or routing software can be used to try to figure out the best routes from one location to another. Once the route is determined, the students can check with their Trucker Buddy to see if this is the route he would choose.

Comparisons

Find the locations of two trucks. Compare the geographical areas, products produced, etc. You can also use information from your driver in an attempt to get a "feeling" for various parts of the country.

V. History

Historic Locations

Many times truck drivers drive by historic locations that most the children will never see in person. As the Trucker Buddies send pictures about different historic locations or sites then history lessons can be brought into the class discussion.

When the Trucker Buddy drives by Mt. Rushmore and sends a picture or a letter about it then the class can be gathered to learn about how the monument was developed and built including how the rock face was designed and the labor force used to build it.

VI. Active Learning

Tactics that Encourage Active Learning

Use the following tactics during class to ensure that students are actively engaged in thinking about the content. Students should be called on randomly (using the deck of cards method for instance) so that everyone participates. When students do not know when they will be called on they are much more likely to remain alert and engaged in the learning process. Students should be routinely called upon to:

1. Summarize or put into their own words what the teacher or another student has said.
2. Elaborate on what they have said.
3. Relate the issue or content to their own knowledge and experience.
4. Give examples to clarify or support what they have said.
5. Make connections between related concepts.
6. Restate the instructions or assignment in their own words.
7. State the question at issue.
8. Describe to what extent their point of view on the issue is different from or similar to the point of view of the instructor, other students, the author, etc.
9. Take a few minutes to write down any of the above.
10. Write down the most pressing question on their mind at this point. The instructor then uses the above tactics to help students reason through the questions.
11. Discuss any of the above with a partner and then participate in a group discussion facilitated by the instructor.

Tactics that Encourage Active Learning

{In Critical Thinking Handbook: Basic Theory and Instructional Structures}

INDEX I

Glossary of Truck Terms

ABS (Antilock Braking System)

Computer, sensors and solenoid valves which together monitor wheel speed and modulate braking force if wheel lockup is sensed during braking. Helps the driver retain control of the vehicle during heavy braking on slippery roads.

Air Ride Suspension

Suspension which supports the load on air-filled rubber bags rather than steel springs. Compressed air is supplied by the same engine-driven air compressor and reservoir tanks which provide air to the air brake system.

ATV (All Terrain Vehicle)

Vehicle designed for any type of terrain.

AVI (Automatic Vehicle Identification)

System combining an on-board transponder with roadside receivers to automate identification of vehicles. Uses include electronic toll collection and stolen vehicle detection, (see IVHS)

AVL (Automated Vehicle Location)

Class of technologies designed to locate vehicles for fleet management purposes and for stolen vehicle recovery. Infrastructure can be land-based radio towers or satellites, (see IVHS)

Axle

Structural component to which wheels, brakes and suspension are attached.

Drive axles are those with powered wheels. Front axle is usually called the steer axle. Pusher axles are unpowered and go ahead of drive axles.

Rear axles may be drive, tag or pusher types. Tag axles are unpowered and go behind drive axles.

BBC

Distance from a truck's front bumper to the back of its cab.

Bill of Lading

Itemized list of goods contained in a shipment.

Blind Spot

Areas around a commercial vehicle that are not visible to the driver either through the windshield, side windows or mirrors.

Bunk

See Sleeper.

Cabover (Cab-Over-Engine, COE)

Truck or tractor design in which the cab sits over the engine on the chassis.

Cargo Weight

Combined weight of all loads, gear and supplies on a vehicle.

Cartage Company

Company that provides local (within a town, city or municipality) pick-up and delivery.

CB (Citizens Band Radio)

Two-way radio for which no license is required by the Federal Communications Commission (FCC). Long beyond its heyday in the '70s, CB is still used by truckers and motorists for everything

CDL (Commercial Driver's License)

License which authorizes an individual to operate commercial motor vehicles and buses over 26,000 pounds gross vehicle weight. For operators of freight-hauling trucks, the maximum size which may be driven without a GDL is Class 6 (maximum 26,000 pounds gross vehicle weight).

CG (Center of Gravity)

Weight center or balance point of an object, such as a truck body. Calculated to help determine optimum placement of truck bodies on chassis.

Chassis Weight (Curb Weight, Tare Weight)

Weight of the empty truck, without occupants or load.

Common Carrier

Freight transportation company which serves the general public. May be regular route service (over designated highways on a regular basis) or irregular route (between various points on an unscheduled basis).

Container (Shipping Container)

Standard-sized rectangular box used to transport freight by ship, rail and highway. International shipping containers are 20 or 40 feet long, conform to International Standards Organization (ISO) standards and are designed to fit in ships' holds. Containers are transported on public roads atop a container chassis towed by a tractor. Domestic containers, up to 53 feet long and of lighter construction, are designed for rail and highway use only.

Contract Carrier

Company that transports freight under contract with one or a limited number of shippers.

Converter Dolly (Dolly)

Auxiliary axle assembly equipped with a fifth wheel (coupling device), towed by a semitrailer and supporting the front of, and towing, another semitrailer.

Cube (Cubic Capacity)

Interior volume of a truck body, semitrailer or trailer, measured in cubic feet.

Dead-Heading

Operating a truck without cargo.

Doubles (Twins, Twin Trailers)

Combination of a tractor and two semitrailers connected in tandem by a converter dolly, (see Converter Dolly)

Driveline

All the components which together transmit power from the transmission to the drive axle(s). These consist of at least one driveshaft (propeller shaft) with a universal joint at each end.

Drivetrain (Powertrain)

All the components, excluding engine, which transmit the engine's power to the rear wheels: clutch, transmission, driveline and drive axle(s). (See Powertrain)

DRL (Daytime Running Lights)

System that automatically turns on a vehicle's low beam headlights when the parking brake is released and the ignition is on.

EDI (Electronic Data Interchange)

The business-to-business interconnection of computers for the rapid exchange of a wide variety of documents from bills of lading to build tickets at auto plants.

Exempt Carrier

Company which transports commodities exempted from Interstate Commerce Commission (ICC) economic regulation.

Fifth Wheel

Coupling device attached to a tractor or dolly which supports the front of a semitrailer and locks it to the tractor or dolly. The fifth wheel's center is designed to accept a trailer's kingpin, around which the trailer and tractor or dolly pivot in turns.

Fixed Tandem

Assembly of two axles and suspension that is attached to the chassis in one place, and cannot be moved fore and aft. (see Sliding Tandem)

For-Hire Carrier

Company in the business of transporting freight belonging to others (see Private Carrier).

GCW (Gross Combination Weight)

Total weight of a loaded combination vehicle, such as a tractor-semitrailer or truck and full trailer(s).

Geared Speed

Calculated vehicle speed at the engine's governed rpm in each transmission gear, or (commonly) in top gear.

Gear Ratio

Number, usually expressed as a decimal fraction, representing how many turns of the input shaft cause exactly one revolution of the output shaft. Applies to transmissions, power takeoffs, power dividers and rear axles. Example: If 2.5 revolutions of an input shaft cause one revolution of the output shaft, the gear ratio is 2.5:1.

Grade

Steepness of a grade, expressed as a percentage. Example: A vehicle climbing a 5% grade rises 5 feet for every 100 feet of forward travel.

Gradeability

Vehicle's ability to climb a grade at a given speed. Example: A truck with a gradeability of 5% at 60 mph can maintain 60 mph on a grade with a rise of 5%.

GVW (Gross Vehicle Weight)

Total weight of a vehicle and everything aboard, including its load.

Hazmat

Hazardous materials, as classified by the U.S. Environmental Protection Agency (EPA). Transport of hazardous materials is strictly regulated by the U.S. Department of Transportation.

Horsepower (hp)

Measure of power (the amount of work that can be done over a given amount of time). One horsepower is defined as 33,000 foot-pounds of work in one minute. Example: Lifting 33,000 pounds one foot in one minute, or lifting 3300 pounds ten feet in one minute.

Hours-Of-Service

U.S. Department of Transportation safety regulations which govern the hours of service of commercial vehicle drivers engaged in interstate trucking operations.

FVHS (Intelligent Vehicle Highway Systems)

Blanket term for a wide array of technologies, including electronic sensors, computer hardware and software and radio communications. The purpose of IVHS is to increase efficiency of use of existing highways, reducing travel time, fuel consumption, air pollution and accidents.

Jackknife

To place the trailer at a very sharp angle to the tractor.

Jake Brake

See Retarder.

JIT (Just-In-Time)

Manufacturing system which depends on frequent, small deliveries of parts and supplies to keep on-site inventory to a minimum.

Kingpin (axle)

Pin around which a steer axle's wheels pivot.

Kingpin (trailer)

Anchor pin at the center of a semitrailer's upper coupler which is captured by the locking jaws of a tractor's fifth wheel to attach the tractor to the semitrailer.

Landing Gear

Retracting legs which support the front of a semitrailer when it is not coupled to a tractor.

Lessee

Company or individual which leases vehicles.

Lessor

Company which leases vehicles.

Logbook

Book carried by truck drivers in which they record their hours of service and duty status for each 24-hour period. Required in interstate commercial trucking by the U.S. Department of Transportation.

Lowboy

Open flat-bed trailer with a deck height very low to the ground, used to haul construction equipment or bulky or heavy loads.

LTL (Less-Than-Truckload)

A quantity of freight less than that required for the application of a truckload (TL) rate; usually less than 10,000 pounds, (see TL)

LTL Carrier

Trucking company which consolidates less-than-truckload cargo for multiple destinations on one vehicle, (see TL Carrier)

Overdrive

Gearing in which less than one revolution of a transmission's input shaft causes one turn of the output shaft. The purpose of overdrive is to reduce engine rpm in high gear for better fuel economy. Example: A transmission with an overdrive top gear has a ratio of 0.70 to one. Turning the input shaft 0.7 revolutions causes 1.0 revolution of the output shaft.

Owner-Operator

Trucker who owns and operates his own truck(s).

P&D

Pickup and delivery.

Payload

Weight of the cargo being hauled.

Peddle Run

Truck route with frequent delivery stops.

Pigtail

Cable used to transmit electrical power from the tractor to the trailer. So named because it is coiled like a pig's tail.

Piggyback

Semitrailer built with reinforcements to withstand transport by a railroad flatcar.

Private Carrier

Business which operates trucks primarily for the purpose of transporting its own products and raw materials. The principle business activity of a private carrier is not transportation, (see For-Hire Carrier)

PSI (Pounds Per Square Inch)

In trucking, unit of measurement for tire air pressure, air brake system pressure and turbocharger boost.

Pup Trailer

Short semitrailer, usually between 26 and 32 feet long, with a single axle.

Relay (Relay Driving)

Common practice in the less-than-truckload industry, in which one driver takes a truck for 8 to 10 hours, then turns the truck over to another driver, pony express style.

Reefer

Refrigerated trailer with insulated walls and a self-powered refrigeration unit. Most commonly used for transporting food.

Retarder

Device used to assist brakes in slowing the vehicle. The most common type of retarder on over-the-road trucks manipulates the engine's valves to create engine drag. (This type is commonly referred to as "Jake Brake" because the predominant manufacturer is Jacobs Vehicle Equipment Co.)

RFG (Reformulated Gasoline)

Gasoline blended with pollution reducing additives.

RoadRailer

Semitrailer specially designed to travel both on highway and on rails.

Rolling Radius

Tire dimension from center of the axle to the ground; measured with tire loaded to rated capacity. Used in calculating geared speed.

RPM (Revolutions Per Minute)

Measure of the speed at which a shaft spins. Most often used to describe engine crankshaft speed. Indicated by a tachometer.

Runaway Truck Ramp

Emergency area adjacent to a steep downgrade that a heavy truck can steer into after losing braking power. Usually two or three lanes wide and several hundred feet long, the ramp is a soft, gravel-filled pathway which absorbs the truck's forward momentum, bringing it to a safe stop. Depending on the surrounding terrain, the ramp may be level or run up or down hill.

Semitrailer

Truck trailer supported at the rear *by* its own wheels and at the front by a fifth wheel mounted to a tractor or dolly.

Shipping Weight

"Dry" weight of a truck including all standard equipment, but excluding fuel and coolant.

Single-Source Leasing

Service in which companies can lease drivers and trucks from the same source, rather than having to procure them from different companies.

Sleeper

Sleeping compartment mounted behind a truck cab, sometimes attached to the cab or even designed to be an integral part of it.

Speedability

Top speed a vehicle can attain as determined by engine power, engine governed speed, gross weight, driveline efficiency, air resistance, grade and load.

Team (Driver Team)

Team of two drivers who alternative driving and resting.

TL (Truckload)

The quantity of freight required to fill a trailer; usually more than 10,000 pounds, (see LTL)

TL Carrier

Trucking company which dedicates trailers to a single shipper's cargo, as opposed to an LTL (Less Than Truckload) carrier which transports the consolidated cargo of several shippers and makes multiple deliveries, (see LTL Carrier)

Tractor

Truck designed primarily to pull a semitrailer by means of a fifth wheel mounted over the rear axle(s). Sometimes called a truck tractor or highway tractor to differentiate from it from a farm tractor.

Tractor Trailer

Tractor and semitrailer combination.

Trip Leasing

Leasing a company's vehicle to another transportation provider for a single trip.

Trip Recorder (On-Board Computer)

Cab-mounted device which electronically or mechanically records data such as truck speed, engine rpm, idle time and other information useful to trucking management.

Truck

Vehicle which carries cargo in a body mounted to its chassis, rather than on a trailer towed by the vehicle.

VIN (Vehicle Identification Number)

Assigned by the manufacturer, this number is unique to each vehicle and appears on the vehicle's registration and title.

VMRS (Vehicle Maintenance Reporting Standards)

Set of codes developed to facilitate computerized tracking of parts and labor used in equipment repair. Established and maintained by the American Trucking Associations.

WIM (Weigh-in-Motion)

Technology for determining a vehicle's weight without requiring it to come to a complete stop.

Yard Jockey

Person who operates a yard tractor.

Yard Tractor (Yard Mule)

Special tractor used to move trailers around a terminal, warehouse, distribution center, etc.

The above truck terms were provided by:

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