

ISTEP+
Grade 10 Writing

Driverless Cars

Practice Set 2

Directions

Read the article "Driverless Cars Are Coming." Then answer the questions.

Driverless Cars Are Coming

- 1 Can you imagine a time in the future when no one buys cars because no one needs them anymore? Google cofounder Sergey Brin can. He envisions a future with a public transportation system where fleets of driverless cars form a public-transport taxi system. The cars he foresees would use half the fuel of today's taxis and offer far more flexibility than a bus. He believes such cars would fundamentally change the world.
- 2 Television and movies have long been fascinated with cars that could drive themselves. In reality, Google has had cars that could drive independently under specific conditions since 2009. Their cars have driven more than half a million miles without a crash, but so far, Google cars aren't truly driverless; they still alert the driver to take over when pulling in and out of driveways or dealing with complicated traffic issues, such as navigating through roadwork or accidents. So what roadblocks lie ahead for the autonomous car?

Sensing the World

- 3 Let's begin by looking at which companies are making computer-driven cars. Originally, many futurists believed the key to developing self-driving cars someday wasn't so much smarter cars as smarter roads. For example, in the late 1950s, General Motors created a concept car that could run on a special test track. The track was embedded with an electrical cable that sent radio signals to a receiver on the front end of the car. Engineers at Berkeley tried something similar, but they used magnets with alternating polarity. The car read the positive and negative polarity as messages in binary code¹. These smart-road systems worked surprisingly well, but they required massive upgrades to existing roads, something that was simply too expensive to be practical.
- 4 Without the option of smarter roads, manufacturers turned to smarter cars – but how much smarter did the cars need to be? For starters, they needed a whole lot of sensors. Google's modified Toyota Prius uses position-estimating sensors on the left rear wheel, a rotating sensor on the roof, a video camera mounted near the rearview mirror, four automotive radar sensors, a GPS receiver, and an inertial motion sensor. The most important bit of technology in this system is the spinning sensor on the roof. Dubbed LIDAR, it uses laser beams to form a constantly updating 3-D model of the car's surroundings. The combination of all this input is necessary for the driverless car to mimic the skill of a human at the wheel.

¹binary code – a coding system that uses the binary digits 0 and 1 to represent a letter, digit, or other characters in a computer and other electronic devices

Driving or Assisting?

- 5 Sensors are nothing new, of course. In the 1980s, automakers used speed sensors at the wheels in the creation of antilock brakes. Within 10 years, those sensors had become more advanced to detect and respond to the danger of out-of-control skids or rollovers. The information from the sensors can cause the car to apply brakes on individual wheels and reduce power from the engine, allowing far better response and control than a human could manage alone. Further improvements in sensors and computer hardware and software to make driving safer are also leading to cars that can handle more and more driving tasks on their own.
- 6 Antilock brakes and driver assistance still seem a long way from the dream of calling a driverless cab to take us wherever we desire, but Sebastian Thrun, founder of the Google Car project, believes that the technology has finally begun to catch up to the dream. “There was no way, before 2000, to make something interesting. The sensors weren’t there, the computers weren’t there, and the mapping wasn’t there. Radar was a device on a hilltop that cost two hundred million dollars. It wasn’t something you could buy at Radio Shack.” So just how driverless will the cars be in the near future?
- 7 In 2013, BMW announced the development of “Traffic Jam Assistant.” The car can handle driving functions at speeds up to 25 mph, but special touch sensors make sure the driver keeps hold of the wheel. In fact, none of the cars developed so far are completely driverless. They can steer, accelerate, and brake themselves, but all are designed to notify the driver when the road ahead requires human skills, such as navigating through work zones and around accidents. This means the human driver must remain alert and be ready to take over when the situation requires. This necessitates the car being ready to quickly get the driver’s attention whenever a problem occurs. GM has developed driver’s seats that vibrate when the vehicle is in danger of backing into an object. The Google car simply announces when the driver should be prepared to take over. Other options under consideration are flashing lights on the windshield and other heads-up displays. Manufacturers are also considering using cameras to watch that drivers are remaining focused on the road. While the driver watches the road, the car watches the driver.
- 8 Why would anyone want a driverless car that still needs a driver? Wouldn’t drivers get bored waiting for their turn to drive? “The psychological aspects of automation are really a challenge,” admits Dr. Werner Huber, a BMW project manager driver. “We have to interpret the driving fun in a new way.” Some manufacturers hope to do that by bringing in-car entertainment and information systems that use heads-up displays. Such displays can be turned off instantly when the driver needs to take over – something not available to drivers trying to text with a cell phone. In this way, the in-car system is actually a safety feature, and safety is a big concern.

Waiting on the Law

- 9 Most driving laws focus on keeping drivers, passengers, and pedestrians safe, and lawmakers know that safety is best achieved with alert drivers. Presently, traffic laws are written with the assumption that the only safe car has a human driver in control at all times. As a result, in most states it is illegal even to test computer-driven cars. California, Nevada, Florida, and the District of Columbia have led the country in allowing limited use of semi-autonomous cars; manufacturers believe that more states will follow as soon as the cars are proved more reliably safe. Still, even if traffic laws change, new laws will be needed in order to cover liability in the case of an accident. If the technology fails and someone is injured, who is at fault – the driver or the manufacturer?
- 10 Automakers are continuing their work on the assumption that the problems ahead will be solved. Tesla has projected a 2016 release for a car capable of driving on autopilot 90 percent of the time. Mercedes-Benz, Audi, and Nissan plan to have cars that can drive themselves by 2020. The road to the truly autonomous car stretches on ahead of us, but we grow closer to the destination every day.

Item Stem

In the article “Driverless Cars Are Coming,” the author presents both positive and negative aspects of driverless cars. Using details from the article, create an argument for or against the development of these cars.

Be sure to include

- your position on driverless cars
- appropriate details from the article that support your position
- an introduction, a body, and a conclusion to your argumentative essay

Student Response 1

"BEEP... BEEP... CRASH!" Jessica was awoken. She had fallen asleep at the wheel because she was not fully in control and hadn't gained knowledge of the roadwork site ahead. She was told that her car was smart enough for driving alone. There was no need for anyone to be alert because it was supposed to know what it was doing. "Driverless Cars Are Coming" reveals the dangers of driverless cars by showing their extreme costs of money, not being 100% effective, and even the possibility of risking the safety of people.

First, driverless cars would cost tremendous amounts of money. The text states, "These smart-road systems worked surprisingly well, but they required massive upgrades to existing roads, something that was simply too expensive to be practical." This reveals the effectiveness of driverless cars with new roads, but also the terrifying amounts of money that would be spent to create such a luxury. Even the author informs the impractical comfort. The text also states, "Without the option of smarter roads, manufacturers turned to smarter cars-- but... they needed a whole lot of sensors." This shows that since the roads would be extremely costing, companies tried better cars. Better cars means that they would have to have major technology to be as effective as an alert human. Either way, whether with new roads or smarter cars, driverless cars would be very damaging to the pocketbook.

Not only would driverless cars cost a decent amount, but they would also not be 100% effective. The text reads, "... none of the cars developed so far are completely driverless... but all are designed to notify the driver when the road ahead requires human skills." This shows the ineffectiveness of the driverless car. If someone wants this type of car, they wouldn't get the full luxury of relaxing. The car would not be able to do certain things causing them to need a driver. The text also reads, "This means the human driver must remain alert and be ready to take over when the situation requires." This, again, shows that the driver would always need to be attentive and prepared to step in and work through certain situations. The driverless car would be useless because the driver is still alert and focused on what's ahead.

Lastly, the ineffectiveness on the driverless car is huge, but not as impacting as the safety of the "driver" and the passengers. The author writes, "Most driving laws focus on keeping drivers, passengers, and pedestrians safe, and lawmakers know that safety is best achieved with alert drivers." This provides the information about risks that would take place with a driverless car. Alert drivers see what could happen and they are able to predict the possibilities of crashes or accidents. A machine wouldn't be able to think about what other drivers are about to do let alone determine

the best possible option to escape the collision. The author also writes, "If the technology fails and someone is injured, who is at fault--the driver or the manufacturer?" With driverless cars, it would be very difficult to determine who is at fault in certain situations. The judge isn't going to be able to ask the car why it did what it did or see if the car was built wrong. It would be a long, stressful task to solve who was at fault.

Driverless cars could be very risky to pursue because of the money, effectiveness, and safety concerns. "Driverless Cars Are Coming" did provide many examples of the luxury it would be to have driverless cars that would perform like a taxi service. This article also was informative of the dangers of these cars and what might happen because of them. The decision still has to be made. A car that would be luxurious, but would invite disaster? Or, sticking with tradition and providing safety for the generations to come?

Writing - 5 pts

The response hooks the reader with a possible scenario of the dangers of driverless cars. It fully develops the main idea by stating three ideas ("Driverless Cars Are Coming" reveals the dangers of driverless cars by showing their extreme costs of money, not being 100% effective, and even the possibility of risking the safety of people). Also, well-chosen details support each idea. The response is well organized and cohesive, with a solid introduction and conclusion. Some transitions are weak (First, Lastly) and there are minor inconsistencies in the phrasing of sentences and vocabulary (Even the author informs the impractical comfort). Holistically, the response represents a Score Point 5.

Language Conventions - 4 pts

The response demonstrates full command of most conventions, with minor errors in sentence structure and one spelling error (terifying). This response represents a strong Score Point 4.

Student Response 2

Driverless Cars

Could you imagine a future when Men didn't show off, and compare there sparkly, brand new cars? A future without people owning cars doesn't seem like a future at all; in fact it feels like we would be going in the past. According to the article, Sergey Brin, "envisions a future with a public transportation system where fleets of driverless cars form a public-transportation system." I'm going to explain to you why Google's cars are Not truly driverless, humans must remain alert, and why this is not approved by law.

Without the car being truly driverless isn't truly a driverless car? In the article it states, "Google's cars arnt truly driverless; they still alert the driver to take over when pulling in and out of driveways or dealing with complicated traffic issues, such as navigating through roadwork or accidents." With this being said, the car is Not driverless. The driver will still have to drive at certian points. There is truly no purpose of getting a "driverless car" when you still may have to drive.

Although the cars may be able to get you from point A, to point B, you still would have to be alert. In the passage it says, "The human driver must remain alert and be ready to take over when the situation occurs." This means, that a person would be sitting in a car watching what happening but not actually driving. And also that at any given time you may have to randomly start driving. No one truly wants to sit around and wait to drive. This is also why you should just drive yourself.

Lastly the law is actually on the opposite side of the driverless cars. It says, "Traffic Laws are written with the assumption that the only safe car has a human driver in control at all times." This means that this car is not safe. In fact its technology and anything could happen to the programming.

Writing - 4 pts

The response adequately presents three main ideas (Google's cars are Not truly driverless, humans must remain alert, and why this is not approved by law) and supports the ideas with sufficient details. Ideas are organized logically and most transitions enhance meaning (Without the car being truly driverless is it a truly driverless car? . . . Although the cars may be able to get you from point A. to point B, you still would have to be alert); however, the response provides a weak conclusion. The response demonstrates control of vocabulary and complex sentence patterns. The persuasive style is appropriate for the task there is a sense of audience (There is truly no purpose of getting a "driverless car" when you still may have to drive). This response earns a Writing Score of 4.

Language Conventions - 4 pts

This response has superior command of both grammar and sentence structure. The minor punctuation errors, spelling errors (dosen't, remaine, opposit), and capitalization issues (Men didn't Show off . . . the car is Not driverless) do not impede comprehension. This response earns a Grammar Score of 4.

Student Response 3

I strongly agree with driverless cars. We are a building nation and need to keep building and keep changing for the best of us. We have been changing since the Industrial time in our history. The ideas we have came up with and the things we have made are uncontrollably amazing. Since then we have build a strong independent nation. We need to move just one more step in our world, and that is the driverless cars.

As in the passege "In the 1980s, automakers used speed sensors at the wheels in the creation of antilock brakes." That specific line is proof that we are still incredibly building a strong nation. We have the brains now, and so we need to make the ideas. Driverless cars can and will save thousands of lives. I wouldn't understand why anyone wouldnt want to save peoples lives. In the long run this idea is the best idea google or car manufacturers have came up with.

Especially if it has to do with drivers that text. Everyday someone either gets hurt or is dead, because of a driver who textes behind the wheel. With the driverless car we would rarely have to not worry about the drivers who text. Technology has changed the world for the good and bad. This idea is deffinitly the best idea ever.

Though there are also the cons about this wonderful idea. The driver still has to be paying attention on the road and car to be prepared. To be prepared to take the wheel at any time the car alerts you. Sorry, but there won't be any sleeping on this car ride today. Also, all of the money this is going to cost us to even get the idea started will be uncontrollably hazardess to we the people. One other thing could be that the sensors could easily glitch and throw the car off balance completely. Not everything we make or come up with is perfect.

The whole idea of this i believe is to keep us moving through time and ability of our world. "Mercedes-Benz, Audi, and Nissan plan to have cars that can drive themselves by 2020." The great that, that would be for us, and the how big that step would be. Now all we have to do unfortunetly is wait.

Writing - 4 pts

The response adequately develops a position (We need to move just one more step in our world, and that is the driverless cars). Details, however, are mainly unsupported statements (Driverless cars can and will save millions of lives . . . we would rarely have to not worry about the drivers who text). More specific details are used to support the counter-argument (The driver still has to be paying attention . . . all of the money this is going to cost . . . the sensors could easily glitch and throw the car off balance); this affects the ability to present a unifying theme that supports driverless cars. While there is an introduction, body, and conclusion, transitions between and within paragraphs are weak and the writing lacks cohesiveness. Vocabulary is somewhat controlled and there is an attempt to maintain a style appropriate to the purpose. Holistically, this response is a low Score Point 4.

Language Conventions - 3 pts

The response demonstrates errors in punctuation and spelling (uncontrollably, passege, hazardess) that have a minimal impact on comprehension. Capitalization and sentence structure are generally controlled, illustrating both varied sentences and sentence fragments (Especially it has to do with drivers that text). The frequency of errors, however, makes this response a low Score Point 3.

Student Response 4

In "Driverless Cars Are Coming," the author provides many positives and negatives about the evolution of cars driven without any human interference. Their discussion points are questions raised over how driverless cars operate, the history, problems then and now, law officials' decisions on agreeing with or banning smart cars, and how long more progress will take. From how the author describes the progress made by many decades, there should be more development of smart cars. It is practically on its way at lightning speed.

There have been many different models of driverless cars, but very few have been successful or profitable. In the 1950s, there were concept cars that drove on a special test track with electric cables, but they proved to be unsuccessful. In the 1980s, speed sensors were tested in the creation of antilock brakes, and within a decade, they became more advanced. The modern model of driverless cars has been developed for about a decade and is said to be for public use in 2020, though several states have not been convinced of the car's capabilities. The evolution of these cars has come a long way, and someday, they will be in our own lives.

There is no shortage of support for driverless cars because there is not shortage of support for the future. It evolves the same as we do year after year. Although, the next thought in about 20-30 years will be how to top the model we adopt as our own. If there is a device that shows how far history has brought us, it would have to be the automobile. Whether it is with a wind-up engine or no driver assistance, there is a place for change and the world is on its way to a positive future.

Writing - 3 pts

The response attempts to establish a main idea (there should be more development of smart cars) and offers some details, but their relevance is unclear and progression is difficult to follow because ideas are not grouped effectively. While there is a beginning, middle, and end, the second paragraph repeats the history of the development of driverless cars, resulting in weak organization and undeveloped ideas. The response is closer to a summary of the article than a persuasive essay. The response demonstrates good control of vocabulary and complex sentence. Holistically, the response earns a Score Point 3.

Language Conventions - 4 pts

The response demonstrates a good command of conventions. Minor errors in spelling (successful, positive), grammar (because there is not shortage of support for the future), and punctuation do not impede comprehension. There is good control of sentence structure and capitalization, making this response a solid Score Point 4.

Student Response 5

Driveless cars would help with the traffic. There wouldn't be very much traffic if they got cars to fly. But the bad thing about driveless cars would be that there would be alot of air pollution because of all the stuff from the cars. Most of the peope who work on cars for a living would lose there jobs because cars would be completely different. If they didn't make driveless cars and we still had regular cars it would be alot better. Regular cars would be better to have around, they don't do much pollution for us. They maybe alot easier to drive compared to driveless cars, but regular cars could be alot safer also. My position on driveless cars is that I don't think they should make them because the cars we all have and own today are better now then they ever were before. They shouldn't have to change a car because they want to, the people who want to change the cars should askpeople around the world if thats what they really want. They should fouce more on the people then the cars. Thats my argument about regular and driveless cars.

Writing - 2 pts

This response offers a position, but does not provide a clear main idea (I don't think they should make them because the cars we all have . . . today are better). The lack of focus and organization hinders communication of ideas, making the progression of text confusing. There is no introduction, a one-sentence conclusion (That's my argument about regular and driveless cars.), and the body of text contains a stream of ideas that are not connected. The writing demonstrates minimal vocabulary control and does not establish a tone. This response earns a Writing Score of 2.

Language Conventions - 3 pts

The response demonstrates good control of capitalization conventions and sentence structure. Errors in spelling (alot, driveless), punctuation (that's), grammar (they don't do much pollution for us), and paragraphing do not seriously impede the flow of communication. This response earns a Score Point 3 in Language Conventions.

Student Response 6

The article "Driverless Cars Are Coming," well there is positive and negative things about it. Just like there is positive and negative things in life. Such as a death in the family that is a negative thing. Positive is that you can work and have money.

Here are some positive things: You would not have to spend so much money on gas because it said it only uses half the gas. It is far more flexible than most buses. "Google cofounder Sergey Brin can."

Here are some negative things. People would get lazy and not do anything such as not going to play with their children. They would not want to walk to be healthy. Won't be able to do anything because they are to do anything.

That is my opinion in support about the driverless car.

Writing - 2 pts

The response attempts a main idea and demonstrates some development (there are positive and negative things about it . . . You would not have to spend so much money on gas . . . It is far more flexible than most buses). However, the response includes little information and the quote is confusing. While the response uses paragraphs and has an introduction and a conclusion, the conclusion is ineffective and the introduction goes off on a tangent (positive and negative things in life). The response demonstrates minimal control of vocabulary; however the writing exhibits some fluency, but has difficulty establishing a tone. Some ideas in third paragraph are not connected well to the idea of driverless cars (People would get lazy). This response earns a Writing Score of 2.

Language Conventions - 1 pt

The response demonstrates fair control of capitalization, punctuation, and paragraphing, but spelling errors are consistent (negative, flexible), demonstrating minimal control of conventions. Errors in sentence structure often impede the flow of communication (Won't be able to do anything because they are to do anything.) and help earn this response a Score Point 1 in Language Conventions.

Student Response 7

My position on the driverless cars is that we should have them, but not right possible in the near future but not right now. The reason for that is because we don't have the techonolgy or the money to make the cars. After they are made no one will have enough money to buy one or even test drive.

Writing - 1 pt

The response is clearly connected to the task (My position on driverless cars is that we should have them) but includes little information to develop the topic. The response is too brief to demonstrate organization or focus. There is minimal control of vocabulary. This response earns a Writing Score of 1.

Language Conventions - 1 pt

While the errors do not impede comprehension, there are too many in relation to the length of the response to score higher than a 1. There is minimal control of spelling (possible, techonolgy) and sentence structure (but not right possible in the near future but not right now). This response earns a Grammar Score of 1.