

Advance Organizer: Automobile Technology Questionnaire

Instructor: Scott Ward, Reed-Custer High School

A. Mark items 1–10 True or False

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|---|---|-----|--|
| T | F | 1. | Anti-lock brakes help a driver stop in a straight line. |
| T | F | 2. | Electric cars can be faster than gasoline-powered cars. |
| T | F | 3. | Honda has the highest mileage ratings of any auto manufacturer. |
| T | F | 4. | Jaguars are American-made cars. |
| T | F | 5. | Tesla has the highest rated car ever according to the NHTSA. |
| T | F | 6. | Front wheel drive was developed to give the driver more control in adverse conditions. |
| T | F | 7. | Using cruise control can help you achieve better gas mileage. |
| T | F | 8. | E85 fuel is made from soybeans. |
| T | F | 9. | The exhaust from a fuel cell car is water vapor. |
| T | F | 10. | The 2014 Corvette has a 0 to 60 mph time slower than the 2014 Camaro Z28. |

B. Mark items 11–20 as Interesting (I) or Boring (B)

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|---|---|-----|---|
| I | B | 11. | Hybrid technology |
| I | B | 12. | Self-driving cars |
| I | B | 13. | Using radar, lasers, and cameras to greatly reduce accidents. |
| I | B | 14. | Dependence on foreign oil |
| I | B | 15. | Aerodynamics in NASCAR |
| I | B | 16. | The evolution of the Volkswagen Beetle |
| I | B | 17. | Drawing prototype car designs. |
| I | B | 18. | Ways to make a car faster, other than horsepower |
| I | B | 19. | Attending a drag race |
| I | B | 20. | Amenities on luxury automobiles |

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C. Mark items 21–30 as **Agree (A)** or **Disagree (D)**

- A D 21. Phones should be disabled when a car is in gear.
- A D 22. Observing an adult driver provides examples of good driving habits.
- A D 23. Raising the speed limit to 70 mph is a good idea.
- A D 24. The building of the ILLIANA Expressway will be a great addition to the area.
- A D 25. People who drive red cars drive faster than other drivers.
- A D 26. “Drive thru” fast food should be eliminated for safety purposes.
- A D 27. All vehicles should be FWD or 4WD.
- A D 28. Plug-in hybrids are more fuel-efficient than their typical counterparts.
- A D 29. Ford has the best looking cars for 2014.
- A D 30. The government should not mandate the wearing of seatbelts.
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Common Core State Standards Alignment: English Language Arts (ELA)

- CC.9-10.SL.1.c** Comprehension and Collaboration: Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.
- CC.11-12.SL.1.c** Comprehension and Collaboration: Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.

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Discussion Guide

- 1. TRUE**—Anti-lock brakes help a driver stop in a straight line. You'll stop faster and be able to steer the car. www.auto.howstuffworks.com
- 2. TRUE**—Electric can be faster than gasoline powered cars. Electric cars are much quicker; they have considerably faster 0 to 60 mph times, because the electricity turns on immediately. Liquid fueled cars need combustion to get the engine going. Top speed is not necessarily better, but quickness is. www.abcnews.go.com
- 3. FALSE**—Honda has the highest mileage ratings of any auto manufacturer. Although Honda is near the top and always among the worlds best, as a manufacturer, the mileage ratings are third, behind Smart and Mini. To Honda's credit, they produce many more models than Smart and Mini put together. www.brighterplanet.com
- 4. FALSE**—Jaguars are American-made cars. Many Jaguars are sold in this country, and it is very difficult to tell anymore which company owns which lines and models, but the Jags are a British company. www.jaguarusa.com
- 5. TRUE**—Tesla has the highest rated car ever according to the NHTSA. The National Highway Transportation Safety Administration rates cars on a Five Star system, with five stars as the highest score. The Tesla Model S actually scored 5.4 stars; a car earns extra points for furthering safety features. No other car has ever scored "perfect" in all five areas. www.teslamotors.com
- 6. FALSE**—Front wheel drive was developed to give the driver more control in adverse conditions. Front wheel drive came in at the same time as many other technologies and to reduce the amount of space the engine occupied. A great benefit of FWD is the fact that the driver can steer while braking, whereas with RWD, you have little control over steering. www.carsdirect.com
- 7. FALSE**—Using cruise control can help you achieve better gas mileage. Cars get better mileage when the engine is not continually revving, or even slowing down quickly. Internal combustion engines run more efficiently when they remain at the same RPM's. The only factors that negatively impact mileage are elevation change and wind speed/direction. www.fueleconomy.gov
- 8. FALSE**—E85 fuel is made from soybeans. E85 is a mixture of fuels: 85% ethanol and 15% gasoline. Ethanol is made from corn. Although it is expensive to produce, it is still considerably cheaper than gasoline (typically \$0.30/gallon). And, although it's cheaper, the gas mileage isn't quite as good. In the long run (depending how you drive) E85 is still cheaper per mile than gasoline. www.fueleconomy.gov
- 9. TRUE**—The exhaust from a fuel cell car is water vapor. When a fuel cell burns hydrogen and separates the oxygen for the hydrogen, the resulting waste is heat and water: water vapor. www.fueleconomy.gov
- 10. FALSE**—The 2014 Corvette has a 0 to 60 mph time that is slower than the 2014 Camaro Z28. The Corvette may not be as fast as some think, or the Camaro faster. The Corvette is actually 0.1 second faster. www.zeroto60times.com

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21. **AGREE**—Phones should be disabled when a car is in gear. A very inexpensive chip could be implanted in phones that would disable the phone when the car is in gear. This would eliminate the two greatest distractions to drivers: talking and texting. Laws/enforcement would be irrelevant. <http://news.discovery.com/autos/cell-phones-driving-texting.htm>
22. **DISAGREE**—Observing an adult driver provides examples of good driving habits. Many adults don't drive according to the Rules of the Road. <http://www.qt.com.au/news/What-bad-habits-ar-you-teaching-your-child-driving/2150440/>
23. **AGREE/DISAGREE**—Raising the speed limit to 70 mph is a good idea. In rural areas, the opportunity for accidents is reduced; therefore drivers may be able to go a little faster. However, many drivers routinely drive 5 to 10 to 15 miles per hour over the posted limit, which would now be 75 to 85 mph. http://articles.chicagotribune.com/2013-08-20/news/ct-met-speed-limit-70-20130820_1_speed-limit-illinois-tollway-interstates
24. **AGREE**—The building of the ILLIANA Expressway will be a great addition to the area. With the Grundy and Will County area becoming the nation's capital of Intermodal ports, this expressway will be vital to the growth and economic interests of the area; regardless of the traffic. <http://www.dot.state.il.us/Illiana/project.html>
25. **DISAGREE**—People who drive red cars drive faster than other drivers. Red cars may get pulled over more often, but there are other factors involved. <http://www.ridelust.com/the-5-car-colors-cops-ticket-most/>
26. **DISAGREE**—"Drive thru" fast food should be eliminated for safety purposes. If we're going to regulate distracted driving because of the possibility of it causing accidents, then should we look at all forms of distracted driving and try to eliminate all? Or, should we reduce the amount of government regulation? Or, should we just wait for the self-driving cars? <http://www.theautoconsultants.com/technical-car-info-awd-fwd-rwd-4wd-a-look-at-drivetrain/>
27. **DISAGREE**—All vehicles should be FWD or 4WD. If FWD is so much safer than RWD, then should all cars be safer? Or, refer to #26. <http://www.theautoconsultants.com/technical-car-info-awd-fwd-rwd-4wd-a-look-at-drivetrain/>
28. **AGREE/DISAGREE**—Plug-in hybrids are more fuel-efficient than their typical counterparts. It depends on how far you drive. The fewer the miles driven, the better a plug-in becomes. The more miles you drive, the worse the plug-in option becomes. <http://www.fueleconomy.gov/>
29. **DISAGREE**—Ford has the best-looking cars for 2014. Total opinion. They are selling great, though, and aesthetics are a part of sales. <http://www.autonet.ca/en/2014/01/21/the-10-best-looking-cars-of-2014-so-far>
30. **DISAGREE**—The government should not mandate the wearing of seatbelts. Contrary to #26, we have had the law for decades now, and it has saved lives. Keep it. <http://www.cdc.gov/Motorvehiclesafety/seatbelts/facts.html>