Background *"Room for Debate" is a weekly feature of the* New York Times *newspaper. Each week, the* Times *poses a question to a group of knowledgeable outside contributors about a news event or other timely issue. The contributors each bring different perspectives to the question and often offer conflicting opinions. Readers are invited to comment on the topic as well.*

When Do Kids Become Adults?

Arguments from "Room for Debate" in the *New York Times*

What the Brain Says about Maturity by Laurence Steinberg

Leave the Voting Age Alone by Jenny Diamond Cheng

Better Training for New Drivers by Jamie Lincoln Kitman

A Parent's Role in the Path to Adulthood by Barbara Hofer

Mandatory Service to Become an Adult by Michael Thompson

SETTING A PURPOSE As you read, pay attention to the points each writer makes about when and how children mature into adults. Why do you think it is so hard to define when this happens?

Is it time to rethink the age of adulthood? Do the age requirements for certain rights need to be lowered or raised? Shouldn't they at least be consistent?

What the Brain Says about Maturity

By Laurence Steinberg

Neuroscientists[1] now know that brain maturation continues far later into development than had been believed previously. Significant changes in brain anatomy and activity are still taking place during young adulthood, especially in prefrontal regions that are important for planning ahead, anticipating the future consequences of one's decisions, controlling impulses, and comparing risk and reward. Indeed, some brain regions and systems do not reach full maturity until the early or mid-20s. Should this new knowledge prompt us to rethink where we draw legal boundaries between minors and adults?

Maybe, but it's not as straightforward as it seems, for at least two reasons. First, different brain regions and systems mature along different timetables. There is no single age at which the adolescent brain becomes an adult brain. Systems responsible for logical reasoning mature by the time people are 16, but those involved in self-regulation are still developing in young adulthood. This is why 16-year-olds are just as competent as adults when it comes to granting informed medical consent, but still immature in ways that diminish their criminal responsibility, as the Supreme Court has noted in several recent cases. Using different ages for different legal boundaries seems odd, but it would make neuroscientific sense if we did it rationally.

Second, science has never had much of an influence on these sorts of decisions. If it did, we wouldn't have ended up with a society that permits teenagers to drive before they can see R-rated movies on their own, or go to war before they can buy beer. Surely the maturity required to operate a car or face combat exceeds that required to handle sexy movies or drinking. Age boundaries are drawn for mainly political reasons, not scientific ones. It's unlikely that brain science will have much of an impact on these thresholds, no matter what the science says.

[1] **neuroscientists:** people who study the brain and nervous system.

Leave the Voting Age Alone

By Jenny Diamond Cheng

The 26th Amendment, ratified in 1971, establishes 18 as the minimum voting age for both state and federal elections. Like all lines that divide legal childhood from adulthood, the voting age is essentially **arbitrary**. Indeed, in modern America 18-year-old voting has become **unmoored** from one of its more important original justifications, which was matching the minimum age for draft eligibility (itself also an arbitrary line). Despite this, raising or lowering the voting age, as some groups have suggested, seems a waste of time at best.

arbitrary
(är´bĭ-trĕr´ē) *adj.* If something is *arbitrary,* it is determined by chance or whim.

unmoor
(ŭn-mo͝or´) *v.* If you *unmoor* something, you release it from a place.

The American colonies mostly set their voting ages at 21, reflecting British common law.[2] This requirement went largely unchallenged until World War II, when several members of Congress proposed amending the Constitution to lower the age to 18. Between 1942 and 1970 federal legislators introduced hundreds of such proposals, but the issue lacked momentum until the late 1960s, when a **confluence** of factors—including the escalating war in Vietnam[3]—pushed 18-year-old voting closer to the surface of the national political agenda. The 26th Amendment itself was the culmination of some creative political maneuvering by Congressional advocates, with a crucial assist from the Supreme Court in Oregon v. Mitchell.[4]

confluence
(kŏn´flo͞o-əns) *n.* A *confluence* is a gathering or joining together in one place.

As a historical matter, the significance of the soldier-voter link has been somewhat overstated. The amendment's passage was propelled by a small group of federal legislators whose motivations and rationales were considerably more complex than commonly thought. Still, the Vietnam-era slogan, "Old enough to fight, old enough to vote," was unquestionably a powerful claim, encompassing deeply embedded ideas about civic virtue, adulthood and fairness.

Tying voting to soldiering was always problematic, though, and it is even more so today. The contemporary U.S. military is an all-volunteer force and only a small fraction of Americans ever serve. Selective Service registration applies only to males and the possibility of an actual draft is remote.

[2] **British common law:** the laws of England.

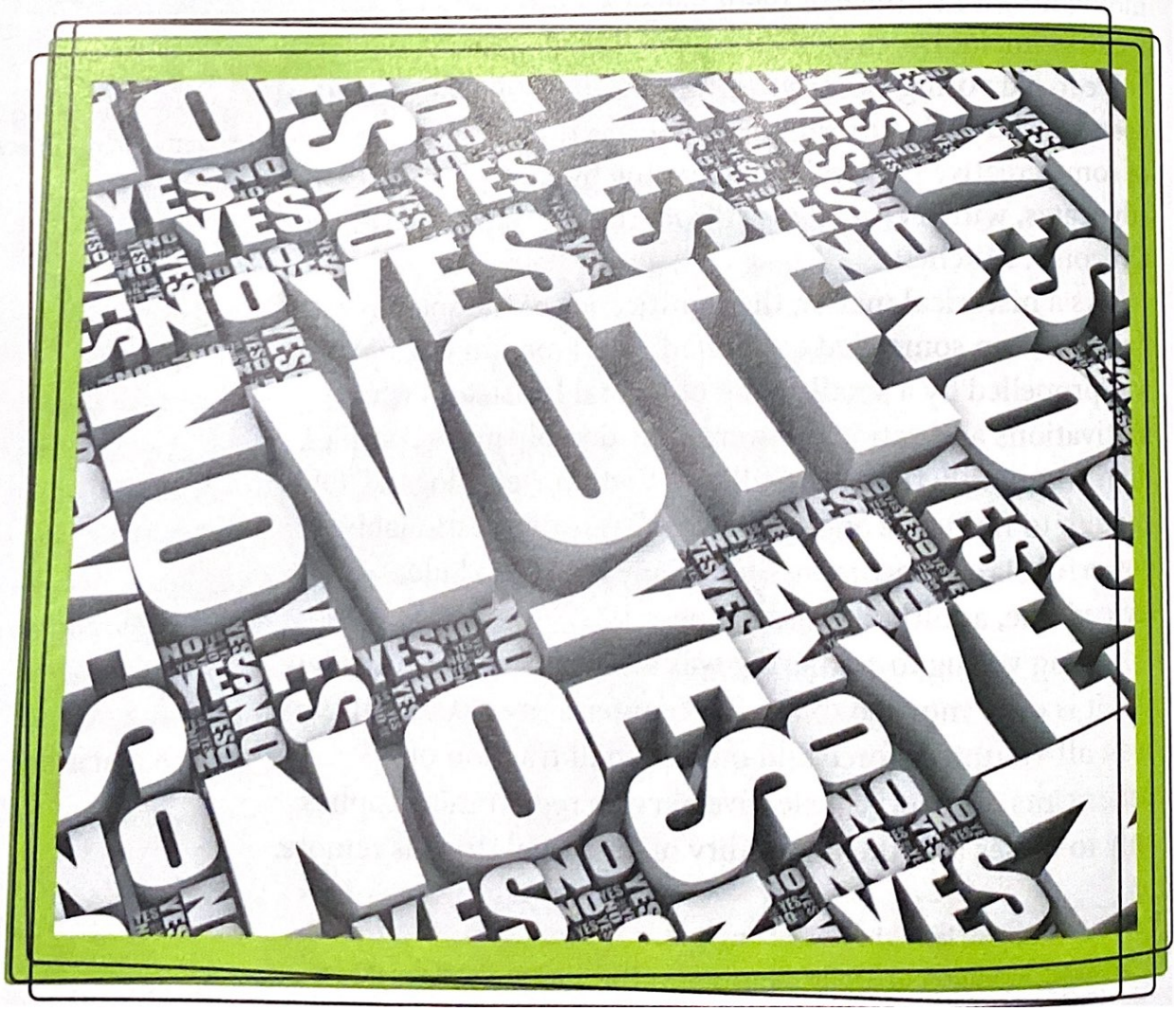
[3] **Vietnam:** a country in Southeast Asia where the United States fought a war in the 1960s and 1970s.

[4] **Supreme Court in Oregon v. Mitchell:** In this case, the Supreme Court decided that the U.S. Congress could set qualification rules for national elections.

Yet there is no life moment to which the voting age might be more obviously tethered, and any bright-line rule will inevitably seem unfair to some.

Interest in improving young adults' political participation would be better focused on attacking barriers like residency requirements that exclude college students and voter ID laws that disfavor young and mobile voters, sometimes **egregiously**. Tennessee's new law, for example, specifically disallows students, but not university employees, from using state university ID cards at the polls. More broadly, young Americans suffer from the same challenges to meaningful representation and governance that plague our democracy at all levels. The voting age is the least of their problems.

egregious (ĭ-grē´jəs) *adj.* If something is *egregious*, it is very bad or offensive.



Better Training for New Drivers

By Jamie Lincoln Kitman

Bright and early on the day I turned 17 you would have found me at the front of the line at the local New Jersey D.M.V. office, applying for a permit to drive. In due course, I got my full license and it wasn't long before I got my first ticket for speeding. And soon after that I got another for failing to observe a stop sign. After which failure, I'd turned without signaling and then traveled 40 mph in a 25 mph zone, a points cluster-bomb that resulted in the suspension of my license until I enrolled in a driver-training course. Which, I might add, like the driving instruction I'd received in school, was virtually useless.

Americans (with an assist from the automobile and oil industries) tend to treat driving like a right, rather than the privilege it most assuredly is. And now that I'm grown and I like to think a more responsible driver, two factors leave me convinced that the driving age shouldn't be lowered, indeed the right to drive should be doled out gradually to teens as it has been in New York since 2010.

The first problem is the utter **inadequacy** of our driver training. American states would do well to follow the example of European countries where licensing procedures require considerably more training and proven skill before new drivers are let loose on public roads. The second decider for me is the discovery by scientists that poor decision-making, the hallmark of many teenagers' existence, has its roots in biology.

inadequate (ĭn-ăd′ĭ-kwĭt) *adj.* If something is *inadequate*, it is insufficient or not enough.

So graduated licenses like we have in New York—where young drivers cannot drive past nightfall or with more than one unrelated person under the age of 21 in their car—make good sense.

Is it the case that many teenagers can and will drive responsibly, regardless the hour, number of young passengers or brain chemistry? Yes. Is there any inconsistency in the fact that a teen may work but not drive at night? Sure.

But, as every parent worth his or her salt[5] has reminded their child at least a hundred times, Sometimes, life isn't fair.

[5] **worth his or her salt:** good at his or her job.

A Parent's Role in the Path to Adulthood

By Barbara Hofer

The transition to adulthood can be either clear or **diffuse**, depending on whether a culture chooses to offer all the privileges and responsibilities at one distinct age or spread them across time. In some countries, the ability to vote, drink, enter into legal contracts and serve in the military all occur at once. In the United States, these rights are not only spread out, but often without clear rationale. Serving in the military before one is considered responsible enough to purchase alcohol is one of the glaring inconsistencies. Some cultures also mark the transition formally, as in Japan, where "Coming of Age Day" (Seijin Shiki) is a national holiday to celebrate all who reached adulthood in the current year.

diffuse (dĭ-fyo͞os´) *adj.* If something is *diffuse*, it is very spread out or scattered.

Becoming an adult is also a subjective experience, of course, and there is little doubt from recent research that individuals are taking longer to recognize themselves as adults. The age of first marriage and birth of a first child, often perceived by individuals as adult markers, are now occurring later than at any time in history in the U.S. (and greater numbers of individuals are also choosing to forge lives without either of these traditional markers). With increased numbers of individuals attending college and with the tremendous rise in the cost of education and the loans necessary for many, young people are also remaining dependent on parents financially far longer, often leaving them less likely to perceive themselves as adults.

Another psychological aspect of being an adult is feeling **autonomous**, and individuals whose autonomy is supported—at any age—are more personally motivated. As a college professor who studies adolescents and emerging adults, I am particularly concerned that college students are not getting the opportunities they need to grow into autonomous, healthily connected adults when parents are still hyper-involved in their lives. "Emerging adults"—whom Jeffrey Arnett[6] defines as individuals between 18 and 25—need opportunities to make their own choices, whether that's about their major, what courses to take, their social lives or summer plans, and

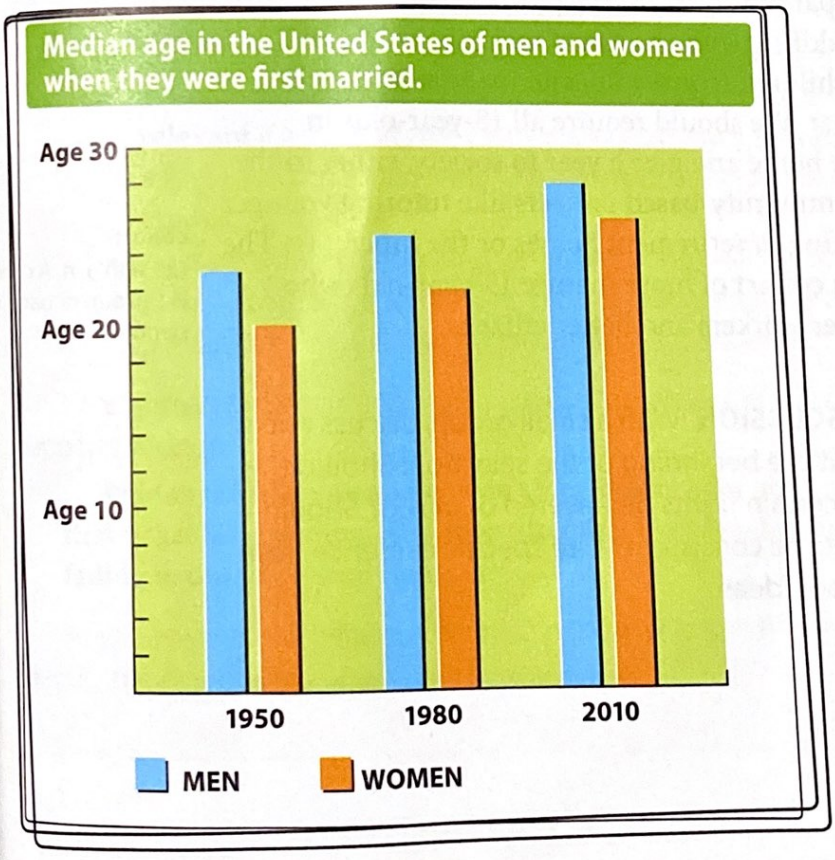
autonomous (ô-tôn´ə-məs) *adj.* If someone is *autonomous*, the person is independent and not controlled by outside forces.

[6] **Jeffrey Arnett:** a doctor who studies emerging adulthood.

they need practice in making mistakes and recovering, and in owning the outcomes of their choices. They don't arrive in college fully formed as adults, but we hope they will use these years to make significant progress toward adult behavior, with all the support and safety nets that college can offer.

Yet my research with Abigail Sullivan Moore, reported in our book, shows that many college students are in frequent contact with their parents—nearly twice daily, on average—and that frequency of contact is related to lower autonomy. Parents who are using technology (calls, Skype, texting, e-mail, Facebook, etc.) to micromanage lives from afar may be thwarting the timely passage to adulthood. Not surprisingly, these college students are also not likely to see themselves as adults, nor fully prepared to take the responsibilities of their actions, nor even getting the benefits of college that they and their parents are paying for. One in five students in our study report parents are editing and proofing their papers, for example. College parents can help with the transition by serving as a sounding board rather than being directive, by steering their college-age kids to campus resources for help, by considering long-range goals rather than short-term ones and by giving their "kids" space to grow up.

thwart
(thwôrt) *v.* If you *thwart* something, you stop it from happening.



Mandatory Service to Become an Adult

By Michael Thompson

Children are so variable in their growth and the ways in which cultures understand child development are so different, it is futile to attempt to pin down the "right" age of majority. The Dutch, for example, allow children to drink at the age of 16 but not to drive until they are 19. Even if I thought it was a good idea to lower the drinking age and raise the driving age—and I do—I recognize that the U.S. would never embrace it.

I am more concerned with the issue of maturity than I am with the technical age of majority. Researchers and observers have noted that while our children are getting brighter (I.Q. scores have been going up for the last two decades), they are relatively immature for their ages in comparison to earlier generations. Over-protected by their parents and spending vast amounts of time in front of TV, computers and cellphones (over 50 hours a week by middle adolescence, according to the Kaiser Family Foundation), they are less skilled in the world, less able to build friendships and function in groups, and more reliant on their parents.

Instead of fiddling with the age of majority, we should encourage our children to grow up, and mandatory service would do just that. We should require all 18-year-olds in America to leave home and give a year to society, either in the military or in community-based projects like tutoring younger children or working in retirement homes or the inner city. The result would be a **cohort** of more mature 19-year-olds who would make better workers and better citizens.

cohort (kō´hôrt´) *n.* A *cohort* is a group or band of people.

COLLABORATIVE DISCUSSION With a small group, discuss two of the questions posed at the beginning of the selection: Should the age requirements for certain rights be lowered or raised? Should these age requirements be consistent? Cite specific evidence from the texts to support your ideas.

Trace and Evaluate an Argument

8.RI.2.5, 8.RI.2.6, 8.RI.3.8

Each writer who responded to the question "When Do Kids Become Adults?" presents an **argument,** or a claim supported with reasons and evidence. A **claim** is the writer's position on an issue or problem. There is usually one main claim in a text, but sometimes a writer may make multiple claims in a single piece of writing. **Evidence** is any information that helps prove a claim. Facts, quotations, examples, anecdotes, and statistics can all be used as evidence.

Look at this example of a claim made by Jamie Lincoln Kitman in "Better Training for New Drivers." The claim states the author's opinion:

> **. . . the driving age shouldn't be lowered, indeed the right to drive should be doled out gradually to teens as it has been in New York since 2010.**

To **trace,** or follow, the reasoning in an argument, you should

- Identify the claims that the author states directly or indirectly.
- Locate evidence that supports the claims.
- Identify **counterarguments,** statements that address opposing viewpoints. A good argument anticipates opposing views and provides counterarguments to disprove them.

Once you trace an author's argument, it's important to **evaluate** it by examining the support and deciding if it is valid and convincing.

- Consider whether the evidence is accurate and sufficient.
- Evaluate the evidence to determine if it is relevant. Evidence is **relevant** if it supports the claim in a logical way. It is **irrelevant** if it isn't based on sound reasoning or isn't clearly connected to the claim.
- Consider whether opposing viewpoints have been addressed.
- Identify persuasive techniques, such as exaggeration or appeals to a reader's emotions, that might distort a reader's views.

Here, Kitman presents personal experiences as relevant evidence to support his claim:

> **. . . I got my full license and it wasn't long before I got my first ticket for speeding. And soon after that I got another for failing to observe a stop sign.**

As you review each writer's argument in "When Do Kids Become Adults?" identify the main claim and prepare to evaluate it.

Analyzing the Text

8.RI.1.1, 8.RI 8.RI.2.4, 8.RI 8.RI.3.8, 8.RI 8.W.3.7, 8.SL 8.SL.2.4, 8.SL.2.5, 8.S

Cite Text Evidence Support your responses with evidence from the text.

1. **Evaluate** In "What the Brain Says about Maturity," what is the main reason the author gives to support his claim?
2. **Analyze** In "Leave the Voting Age Alone," what counterargument does the author make to respond to people who want to lower the voting age in order to increase teenagers' participation in the political process?
3. **Evaluate** Evaluate the argument made in "Better Training for New Drivers." Does the author provide sufficient relevant evidence to support his claim? Explain why or why not.
4. **Cite Evidence** The author of "A Parent's Role in the Path to Adulthood" says people are "taking longer to recognize themselves as adults." What trends does she note to support this claim?
5. **Analyze** According to "A Parent's Role in the Path to Adulthood," how could parents promote autonomy in college-age students, and how do they limit autonomy? Record your answer in a chart.

Ways Parents Promote Autonomy	Ways Parents Thwart Autonomy

6. **Synthesize** The title of this selection asks, "When Do Kids Become Adults?" Based on what you have read, how would you answer this question?

PERFORMANCE TASK

my WriteSmart

Speaking Activity: Debate When are kids ready to assume adult responsibilities? Working with a group, choose one issue presented in the selection and have a debate.

- Assign one position on the issue to one half of your group, and assign the other position to the other half.
- Research the issue. Find answers to any questions you have.
- Decide on a claim. Prepare to support your claim with evidence from the selections as well as from your own research. Consider displaying your evidence in visuals, such as charts or graphs.
- When you debate, be sure to address counterarguments.
- As you listen to other groups, carefully evaluate each speaker's reasoning and evidence.

Critical Vocabulary

8.L.3.4b, 8.L.3.4d

arbitrary **unmoor** **confluence** **egregious** **inadequate**
diffuse **autonomous** **thwart** **cohort**

Practice and Apply Use your understanding of the Vocabulary words to answer each question.

1. What have you done that made you feel **autonomous**?
2. Have you ever disagreed with a decision that seemed **arbitrary**? Explain.
3. When did a **confluence** of events cause a change in your life?
4. When has something happened to **thwart** your progress? Explain.
5. When have you seen someone treated in an **egregious** way?
6. What trends in your school appear to be **diffuse**?
7. When have you felt **inadequate** to complete an assignment?
8. What is something you accomplished as part of a **cohort**?
9. When is a good time to **unmoor** from your family or classmates? Explain.

Vocabulary Strategy: Greek Roots

A word **root** is a word part that forms the basis of a word's meaning. A root is combined with other word parts, such as a prefix or a suffix, to make a word. Many English words have a root that comes from Greek. Look at this sentence from "When Do Kids Become Adults?":

> **. . . Young Americans suffer from the same challenges . . . that plague our democracy at all levels.**

The word *democracy* includes the Greek root *dem*, which means "people." The meaning of the root *dem* is a clue that can help you figure out that *democracy* means "a government by the people."

Practice and Apply Find the word in each sentence that includes the Greek root *dem*. Use the meaning of the root to help you write a definition of the word. Then check each definition you write against the dictionary definition.

1. In some areas, dropping out of school has reached epidemic levels.
2. Researchers feared the pandemic would spread rapidly among teenagers.
3. Certain cars are most popular with a younger demographic.
4. The demagogue convinced many that the voting age should be raised.
5. Is spending vast amounts of time texting endemic among adolescents?

Language Conventions: Shifts in Voice and Mood

8.L.1.1d

Verbs have different voices and moods. The **voice of a verb** tells whether its subject performs or receives the action. A verb is in the **active voice** when the subject performs the action of the verb. A verb is in the **passive voice** when the subject receives the action of the verb.

Active Voice Neuroscientists **study** the brain.

Passive Voice The brain **is studied** by neuroscientists.

To change a verb from active to passive voice, use a form of the verb *be* with the past participle of the verb.

Active Voice Politicians **write** laws about age.

Passive Voice Laws **are written** about age.

The **mood of a verb** expresses a writer's judgment or attitude about a statement. The **indicative mood** is used when making a statement. The **imperative mood** is used in a request or a command.

Indicative Mood Her teenage daughter **drives** responsibly.

Imperative Mood Always **drive** responsibly!

A shift, or change, in verb voice or mood can make meaning unclear. It is usually correct to make the voice and mood in a sentence consistent.

Shift	Correct
From active to passive: They took driver training but very little was learned.	They took driver training but learned very little.
From imperative to indicative: Enroll in a good class, and it is helpful to learn traffic safety rules.	Enroll in a good class, and learn traffic safety rules.

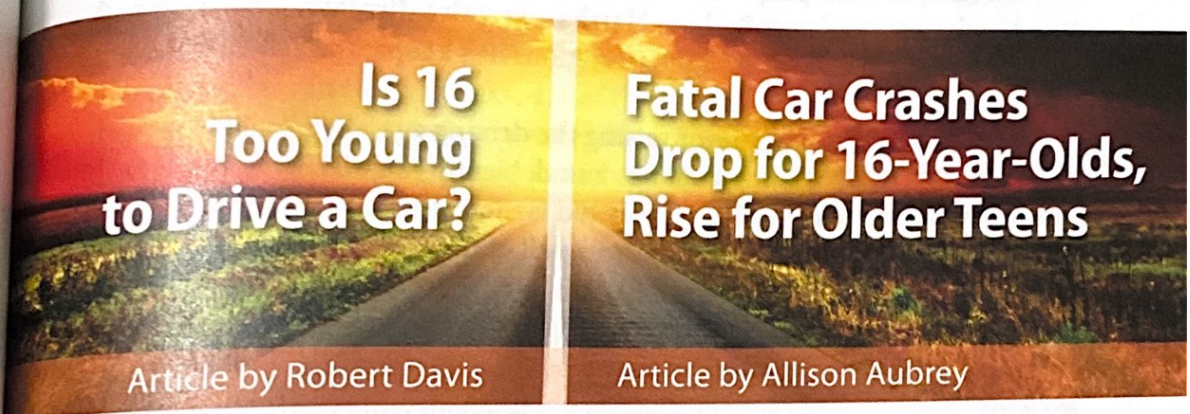
Practice and Apply Write each item correctly by fixing the inappropriate shift in verb voice or mood.

1. When Liam turned 18, a voter registration form was filled out by him.
2. Classes were chosen by Lil after her mom made some suggestions.
3. Watch less TV and you should be tutoring young children instead.
4. Niki volunteers at a retirement home. Learn many valuable skills.

RL.1.1c

COMPARE TEXTS

Background *Although driver's licenses were required by some states by the early 1900s, age restrictions on drivers did not begin until later. These restrictions were motivated by the need to protect the public from young drivers, who were increasingly viewed as a problem on the highways. Some states selected 16 as the age at which people could drive, while others chose 18. Eventually, 16 became the recommended legal age for drivers. Although there are a few exceptions today, most states now allow teenagers to get a driver's license at the age of 16.*



SETTING A PURPOSE As you read, think about the points each writer makes regarding the age requirements for drivers. Look for evidence that supports each point.

Raise the driving age. That radical idea is gaining momentum in the fight to save the lives of teenage drivers—the most dangerous on the USA's roads—and their passengers.

Brain and auto safety experts fear that 16-year-olds, the youngest drivers licensed in most states, are too immature to handle today's cars and roadway risks.

New findings from brain researchers at the National Institutes of Health explain for the first time why efforts to protect the youngest drivers usually fail. The weak link: what's called "the executive branch" of the teen brain—the part that weighs risks, makes judgments and controls impulsive behavior.

Scientists at the NIH campus in Bethesda, Md., have found that this vital area develops through the teenage years

and isn't fully mature until age 25. One 16-year-old's brain might be more developed than another 18-year-old's, just as a younger teen might be taller than an older one. But evidence is mounting that a 16-year-old's brain is generally far less developed than those of teens just a little older.

The research seems to help explain why 16-year-old drivers crash at far higher rates than older teens. The studies have convinced a growing number of safety experts that 16-year-olds are too young to drive safely without supervision.

"Privately, a lot of people in safety think it's a good idea to raise the driving age," says Barbara Harsha, executive director of the Governors Highway Safety Association. "It's a topic that is emerging."

Americans increasingly favor raising the driving age, a USA TODAY/CNN/Gallup Poll[1] has found. Nearly two-thirds—61%—say they think a 16-year-old is too young to have a driver's license. Only 37% of those polled thought it was OK to license 16-year-olds, compared with 50% who thought so in 1995.

A slight majority, 53%, think teens should be at least 18 to get a license.

The poll of 1,002 adults, conducted Dec. 17–19, 2004, has an error margin of +/–3 percentage points.

Many states have begun to raise the age by imposing restrictions on 16-year-old drivers. Examples: limiting the number of passengers they can carry or barring late-night driving. But the idea of flatly forbidding 16-year-olds to drive without parental supervision—as New Jersey does—has run into resistance from many lawmakers and parents around the country.

Irving Slosberg, a Florida state representative who lost his 14-year-old daughter in a 1995 crash, says that when he proposed a law to raise the driving age, other lawmakers "laughed at me."

Bill Van Tassel, AAA's[2] national manager of driving training programs, hears both sides of the argument. "We have parents who are pretty much tired of chauffeuring their

[1] **Gallup Poll:** a survey done by the Gallup company to measure people's opinions.

[2] **AAA:** the American Automobile Association, an organization that provides benefits and information to drivers.

kids around, and they want their children to be able to drive," he says. "Driving is a very emotional issue."

But safety experts fear inaction could lead to more young lives lost. Some sound a note of urgency about changing course. The reason: A record number of American teenagers will soon be behind the wheel as the peak of the "baby boomlet" hits driving age.

Already, on average, two people die every day across the USA in vehicles driven by 16-year-old drivers. One in five 16-year-olds will have a reportable car crash within the first year.

In 2003, there were 937 drivers age 16 who were involved in fatal crashes. In those wrecks, 411 of the 16-year-old drivers died and 352 of their passengers were killed. Sixteen-year-old drivers are involved in fatal crashes at a rate nearly five times the rate of drivers 20 or older.

Gayle Bell, whose 16-year-old daughter, Jessie, rolled her small car into a Missouri ditch and died in July 2003, says she used to happily be Jessie's "ride." She would give anything for the chance to drive Jessie again.

"We were always together, but not as much after she got her license," Bell says. "If I could bring her back, I'd lasso the moon."

Most states have focused their fixes on giving teens more driving experience before granting them unrestricted licenses. But the new brain research suggests that a separate factor is just as crucial: maturity. A new 17- or 18-year-old driver is considered safer than a new 16-year-old driver.

Even some teens are acknowledging that 16-year-olds are generally not ready to face the life-threatening risks that drivers can encounter behind the wheel.

"Raising the driving age from 16 to 17 would benefit society as a whole," says Liza Darwin, 17, of Nashville. Though many parents would be inconvenienced and teens would be frustrated, she says, "It makes sense to raise the driving age to save more lives."

Focus on lawmakers

But those in a position to raise the driving age—legislators in states throughout the USA—have mostly refused to do so.

Adrienne Mandel, a Maryland state legislator, has tried since 1997 to pass tougher teen driving laws. Even lawmakers

who recognize that a higher driving age could save lives, Mandel notes, resist the **notion** of having to drive their 16-year-olds to after-school activities that the teens could drive to themselves.

"Other delegates said, 'What are you doing? You're going to make me drive my kid to the movies on Friday night for another six months?' " Mandel says. "Parents are talking about inconvenience, and I'm talking about saving lives."

Yet the USA TODAY poll found that among the general public, majorities in both suburbs (65%) and urban areas (60%) favor licensing ages above 16.

While a smaller percentage in rural areas (54%) favor raising the driving age, experts say it's striking that majority support exists even there, considering that teens on farms often start driving very young to help with workloads.

For those who oppose raising the minimum age, their argument is often this: Responsible teen drivers shouldn't be punished for the mistakes of the small fraction who cause deadly crashes.

The debate stirs images of reckless teens drag-racing or driving drunk. But such flagrant misdeeds account for only a small portion of the fatal actions of 16-year-old drivers. Only about 10% of the 16-year-old drivers killed in 2003 had blood-alcohol concentrations of 0.10 or higher, compared with 43% of 20- to 49-year-old drivers killed, according to the Insurance Institute for Highway Safety.

Instead, most fatal crashes with 16-year-old drivers (77%) involved driver errors, especially the kind most common among **novices**. Examples: speeding, overcorrecting after veering off the road, and losing control when facing a roadway obstacle that a more mature driver would be more likely to handle safely. That's the highest percentage of error for any age group.

For years, researchers suspected that inexperience—the **bane** of any new driver—was mostly to blame for deadly crashes involving teens. When trouble arose, the theory went, the young driver simply made the wrong move. But in recent years, safety researchers have noticed a pattern emerge—one that seems to stem more from immaturity than from inexperience.

notion
(nō´shən) *n.* A *notion* is a belief or opinion.

novice
(nŏv´ĭs) *n.* A *novice* is a beginner.

bane
(bān) *n.* A *bane* is a cause of death, destruction, or ruin.

"Skills are a minor factor in most cases," says Allan Williams, former chief scientist at the insurance institute. "It's really attitudes and emotions."

A peek inside the brain

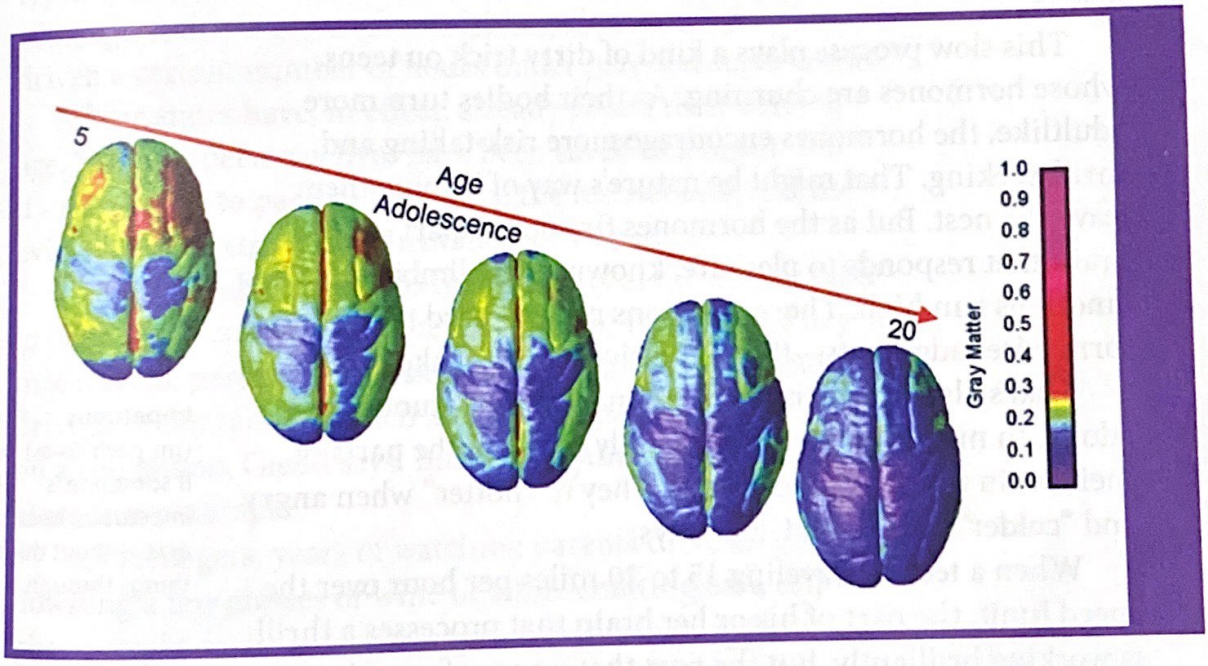
The NIH brain research suggests that the problem is human biology. A crucial part of the teen's brain—the area that peers ahead and considers consequences—remains undeveloped. That means careless attitudes and rash emotions often drive teen decisions, says Jay Giedd, chief of brain imaging in the child psychiatric unit at the National Institute of Mental Health, who's leading the study.

"It all comes down to impulse control," Giedd says. "The brain is changing a lot longer than we used to think. And that part of the brain involved in decision-making and controlling impulses is among the latest to come on board."

The teen brain is a **paradox**. Some areas—those that control senses, reactions and physical abilities—are fully developed in teenagers. "Physically, they should be ruling the world," Giedd says. "But (adolescence) is not that great of a time emotionally."

paradox
(păr´ə-dŏks´) *n.* A *paradox* is a true statement that seems like it would not be true.

Giedd and an international research team have analyzed 4,000 brain scans from 2,000 volunteers to document how brains evolve as children mature.



The human brain continues to develop throughout adolescence. As the brain prunes cells, there is an increase in reasoning skills.

In his office at the NIH, Giedd points to an image of a brain on his computer screen that illustrates brain development from childhood to adulthood. As he sets the time lapse in motion, the brain turns blue rapidly in some areas and more slowly in others. One area that's slow to turn blue—which represents development over time—is the right side just over the temple. It's the spot on the head where a parent might tap a frustrated finger while asking his teen, "What were you thinking?"

This underdeveloped area is called the dorsal lateral prefrontal cortex. The underdeveloped blue on Giedd's screen is where thoughts of long-term consequences spring to consciousness. And in teen after teen, the research team found, it's not fully mature.

"This is the top rung," Giedd says. "This is the part of the brain that, in a sense, associates everything. All of our hopes and dreams for the future. All of our memories of the past. Our values. Everything going on in our environment. Everything to make a decision."

When a smart, talented and very mature teen does something a parent might call "stupid," Giedd says, it's this underdeveloped part of the brain that has most likely failed.

"That's the part of the brain that helps look farther ahead," he says. "In a sense, increasing the time between impulse and decisions. It seems not to get as good as it's going to get until age 25."

This slow process plays a kind of dirty trick on teens, whose hormones are churning. As their bodies turn more adultlike, the hormones encourage more risk-taking and thrill-seeking. That might be nature's way of helping them leave the nest. But as the hormones fire up the part of the brain that responds to pleasure, known as the limbic system, emotions run high. Those emotions make it hard to quickly form wise judgments—the kind drivers must make every day.

That's also why teens often seem more **impetuous** than adults. In making decisions, they rely more on the parts of their brain that control emotion. They're "hotter" when angry and "colder" when sad, Giedd says.

When a teen is traveling 15 to 20 miles per hour over the speed limit, the part of his or her brain that processes a thrill is working brilliantly. But the part that warns of negative consequences? It's all but useless.

impetuous
(ĭm-pĕch´ōō-əs) *adj.* If someone is *impetuous*, he or she acts without thinking things through.

"It may not seem that fast to them," Giedd says, because they're not weighing the same factors an adult might. They're not asking themselves, he says, " 'Should I go fast or not?' And dying is not really part of the equation."

Precisely how brain development plays out on the roads has yet to be studied. Giedd says brain scans of teens in driving simulations might tell researchers exactly what's going on in their heads. That could lead to better training and a clearer understanding of which teens are ready to make critical driving decisions.

In theory, a teen's brain could eventually be scanned to determine whether he or she was neurologically fit to drive. But Giedd says that ethical crossroad is too radical to seriously consider today. "We are just at the threshold of this," he says.

Finding explanations

The new insights into the teen brain might help explain why efforts to protect young drivers, ranging from driver education to laws that restrict teen driving, have had only modest success. With the judgment center of the teen brain not fully developed, parents and states must struggle to instill decision-making skills in still-immature drivers.

In nearly every state, 16-year-old drivers face limits known as "graduated licensing" rules. These restrictions vary. But typically, they bar 16-year-olds from carrying other teen passengers, driving at night or driving alone until they have driven a certain number of hours under parental supervision.

These states have, in effect, already raised their driving age. Safety experts say lives have been saved as a result. But it's mostly left to parents to enforce the restrictions, and the evidence suggests enforcement has been weak.

Teens probably appear to their parents at the dinner table to be more in control than they are behind the wheel. They might recite perfectly the risks of speeding, drinking and driving or distractions, such as carrying passengers or talking on a cell phone, Giedd says. But their brains are built to learn more from example.

For teenagers, years of watching parents drive after downing a few glasses of wine or while chatting on a cell phone might make a deeper imprint than a lecture from a driver education teacher.

The brain research raises this question: How well can teen brains respond to the stresses of driving?

More research on teen driving decisions is needed, safety advocates say, before definitive conclusions can be drawn. And more public support is probably needed before politicians would seriously consider raising the driving age.

In the 1980s, Congress pressured states to raise their legal age to buy alcohol to 21. The goal was to stop teens from crossing borders to buy alcohol, after reports of drunken teens dying in auto crashes. Fueled by groups such as Mothers Against Drunk Driving, public support for stricter laws grew until Congress forced a rise in the drinking age.

Those laws have saved an estimated 20,000 lives in the past 20 years. Yet safety advocates say politicians remain generally unwilling to raise the driving age.

"If this were forced on the states, it would not be accepted very well," Harsha says. "What it usually takes for politicians to change their minds is a series of crashes involving young people. When enough of those kind of things happen, then politicians are more likely to be open to other suggestions."

eBook *Annotate It!*

8.RI.1.1, 8.RI.1.3,

Determine Central Idea and Details

The **central idea** of a piece of writing is the main concept about a topic that a writer conveys. Entire pieces of writing can be based around a central idea, and so can individual paragraphs.

A central idea is supported by **details**—facts, statistics, or quotations—that tell more about it. Note these details from "Is 16 Too Young to Drive a Car?"

Detail	What It Is	Example
fact	a statement that can be proved	Many states have begun to raise the age by imposing restrictions on 16-year-old drivers.
statistic	information that deals with numbers	Already, on average, two people die every day across the USA in vehicles driven by 16-year-old drivers.
quotation by experts	an expert's exact written or spoken words	"Skills are a minor factor in most cases," says Allan Williams, former chief scientist at the insurance institute. "It's really attitudes and emotions."

It's important to remember that although facts, quotations by experts, and especially statistics can seem undeniable, there are often multiple ways to interpret them, depending on the information or attitudes a reader already has. For example, the statistic in the chart can be interpreted to mean

- Every day, 16-year-old drivers are to blame for deaths.
- 16-year-olds are driving in only a small percentage of fatal accidents that occur each day.

Readers have to decide how—or if—a statistic helps to support a central idea. Study the supporting details carefully as you analyze "Is 16 Too Young to Drive a Car?"

Analyzing the Text

Cite Text Evidence Support your responses with evidence from the text.

1. **Draw Conclusions** What is the central idea of "Is 16 Too Young to Drive a Car?"
2. **Evaluate** Reread lines 101–125. Explain how the statistics the author provides support his central idea. Is there another way to interpret the statistics? Support your answer.
3. **Cause/Effect** Reread lines 155–173. Which details explain why teen drivers make poor decisions?

Fatal Car Crashes Drop for 16-Year-Olds, Rise for Older Teens

Article by Allison Aubrey

Terrified to see your teenager behind the wheel? You're not alone. But a new study finds tougher state licensing laws have led to a decrease in fatal accidents, at least among 16-year-olds. That's the good news.

But here's the rub. Some kids are waiting until they're 18-years-old to get their driver's licenses. At this point, they're considered adults, and they don't have to jump through the hoops required of younger teens. They can opt out of driver's ed. And they are not subject to nighttime driving restrictions or passenger restrictions.

"[Older teens] are saying, 'The heck with your more complicated process,'" says Justin McNaull, director of state relations for the American Automobile Association. At 18, teenagers can, in many cases, get their license in a matter of weeks.

It's one explanation for the latest findings published in the *Journal of the American Medical Association*. Researchers at the University of North Carolina and the California Department of Motor Vehicles analyzed more than 130,000 fatal teen crashes over 22 years.

They found that tougher licensing laws have led to 1,348 fewer fatal car crashes involving 16-year-old drivers. But during the same period, fatal crashes involving 18-year-old drivers increased. They were behind the wheel in 1,086 more fatal accidents.

States have made the licensing process more rigorous in many ways: longer permitting times, driver's ed requirements, and restrictions on nighttime driving and carrying fellow teenage passengers. Experts say all of these requirements help give teenagers the experience they need on the road. "In the last 15 years, we've made great strides in getting the licensing process to do a better job in helping teens get through it safely," says McNaull.

California has seen a big drop in 16-year-olds getting their driver's license. Back in 1986, 27 percent got licensed. By 2007, the figure dropped to 14 percent.

"We have more novices on the road at 18," says Scott Masten of the California DMV and an author of the study. And some of them may not have enough experience under their belts to face risky conditions. Masten says this may help explain the increase in fatal crashes.

It's not clear whether there are significantly fewer 16-year-olds behind the wheel in other states because there's no national database. But **anecdotally**, experts see this as a trend. "There's a belief that graduated licensing has led to a delay," says Anne McCart, a senior vice president at the Insurance Institute for Highway Safety.

anecdote (ăn´ĭk-dōt´) *n.* An *anecdote* is a short account of an incident.

A survey of teens conducted by the Allstate Foundation found that there are many reasons teens are delaying the process of getting a license. Some say they don't have a car or can't afford it. Others report that their parents are not available to help them, or that they're too busy with other activities.

But parents who do want to be more proactive can refer to the tips the AAA has compiled on how to keep teens behind the wheel safe. And they might also consider another recent study, which showed that starting the school day a little bit later seems to reduce the accident rate for teen drivers.

COLLABORATIVE DISCUSSION In your opinion, at what age should people begin driving? With a partner, discuss the reasons for your view. Cite specific evidence from the text to support your ideas.

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Analyze Text

8.RI.
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When you evaluate an author's conclusions, it's important to consider the **reasoning,** or logic, that links his or her ideas together. Two of the most commonly used methods of reasoning are deductive reasoning and inductive reasoning.

Deductive reasoning occurs when a person uses a general principle to form a conclusion about a particular situation or problem.

General principle	The situation being considered	Conclusion
To drive safely, new drivers must receive training.	High schools train students in many areas.	New drivers should get their license while in high school.

Inductive reasoning occurs when a person uses specific observations or examples to arrive at a general conclusion or statement.

Fact	Fact	Conclusion
Automobile accidents are more severe when cars are driven at high speeds.	Severe automobile accidents are more likely to occur on highways than on roads.	Lower speed limits on highways will save lives.

As you analyze "Fatal Car Crashes Drop for 16-Year-Olds, Rise for Older Teens," identify what kind of reasoning the author is using.

Analyzing the Text

8.RI.1.1, 8.RI.2.4, 8.RI.3.8

Cite Text Evidence Support your responses with evidence from the text.

1. **Draw Conclusions** What conclusions can you draw about why there are fewer laws designed to restrict 18-year-old drivers or force them to take driver's education?

2. **Interpret** Reread lines 26–33. What kind of reasoning does the author use? Explain your answer.

3. **Analyze** What is the effect of the use of the word *belief* in this statement from the selection: "There's a belief that graduated licensing has led to a delay"?