Any student athlete who dreams of playing at a Division I, II or III school should log onto FastWeb. It can custom-search a database of 1.3 million awards based on your individual qualifications. If you're hoping for a scholarship, this is the place to hunt it down. After registering, you can access info on job and internship programs and have an active matchmaking service: You create a free profile, and the site provides schools that you might suit you, Cappex offers a kind of college search, especially if you use the advanced search options. Build your list here, Chock-full of good basic information about colleges, this federal website is an excellent place for bound teens, but by far the best part of the site is the discussion boards, where students, parents, and admissions officers answer each other's questions and offer support. Register for the SATs. This nonprofit organization of more than 5,700 member schools provides a wealth of other information as well. Its website is a great starting point to gather—and compare—basic data on colleges, and parents, admissions officers, and students can learn about nearly 1,500 colleges listed, you can learn about everything from acceptance rates to students reviews of colleges and try out the "What Are My Chances" Calculator. (Just don't expect a head's up, too: The site's online course "Cut the Cost of College" gets rave reviews from students and recent grads. For each of the college visits, you'll get the lowdown on schools directly from students and recent grads. For each of the college visits, you'll get the lowdown on schools directly from students and recent grads. For each of the college visits, you'll get the lowdown on schools directly from students and recent grads. For each of the college visits, you'll get the lowdown on schools directly from students and recent grads. For each of the college visits, you'll get the lowdown on schools directly from students and recent grads. For each of the college visits, you'll get the lowdown on schools directly from students and recent grads. For each of the college visits, you'll get the lowdown on schools directly from students and recent grads.)
It’s All About the Prep – This has been our purpose since we launched Newsday’s College Prep Talk brand as a weekly column in 2009. Five editions later, our annual Guide has been transformed into a “flip” double book. On this side, we continue to update and improve our mainstay – the College Admissions Guide, a comprehensive digest of guidelines and digital resources on the college admissions process. Flip over the Guide, and you have a one-of-a-kind resource on everything you need to know about STEM (Science, Technology, Engineering, & Math), STEAM (“A” for Arts), and the incredible world of careers of the future.

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how to work with your school counselor

Lucky for you, school counselors are experts at helping students navigate these all-important years—and they don’t just help with academic work. Counselors facilitate the coordination of LD services, help students manage mental-health issues, offer resources to boost students’ success in the classroom, assist in the college search, guide athletes through the NCAA Clearinghouse requirements—and more.

But don’t wait for your counselor to reach out to you. As with almost everything in life, the more initiative you take, the better the results will be. So here’s what you need to know to make the most of your counselor-student relationship:

**Know what to expect.** Depending on the type of school you attend, your counselor could be working with only a few dozen students or as many as several hundred. Make an appointment early in the school year to introduce yourself (if you don’t already know your counselor pretty well) and to find out about the services available to students.

**Ask for help.** Counselors have access to a lot of information and tools that can help you succeed in high school and beyond, but you have to ask about what’s available. If you’re struggling with note-taking in class, for example, ask your counselor if she knows about a course you can take or if your school offers peer-to-peer tutoring in study skills. Maybe you’re feeling unsure about the right next step for you after high school. Your counselor probably has aptitude tests you can take; she might even review the results with you and brainstorm ideas about where to go from here. But start by asking what’s available.

**Be honest.** If you’re facing a serious challenge, your counselor can help—but only if he knows what’s going on. Are you unsure about whether to play sports in college? You’re feeling unraveled by stress or depression? You’re on the receiving end of a bully’s cruelty? Tell your counselor. Depending on the severity of your challenge, he might refer you to another professional, but he’s a good place to start your search for help.

**Don’t be bashful.** If you’re planning to head to college, your counselor will have to complete a portion of your applications. Some apps require counselor recommendations; others ask the counselor to complete information forms that give relative data about the rigor of your coursework and your class rank. (And here’s a secret: If a college admissions officer has a question about your candidacy, he’ll likely call your counselor.)

So it’s a good idea for your counselor to know you well. During your first meeting, provide him with a one-page resume that highlights your achievements, activities, interests and goals. Let him know what you’re interested in studying and why. Give him a sense of your creativity, values, passion, and dreams. His job is to help you get into the school that suits you best, but to do so, he needs as much compelling information as you can give him.

**Visit early, visit often.** Don’t camp out in the counselor’s office (nerd alert!), but the guidance office is a treasure trove of college-related info. For example, college admission reps spend weeks each fall visiting high schools, and the guidance office should have a list of these visits. Sign up ahead of time to attend these (usually) intimate sessions.

**Get NCAA help.** Chances are, one of the members of your school’s guidance staff is an expert on the NCAA Clearinghouse rules for college-bound athletes. If you’re thinking about playing competitive sports in college, make an appointment with this person as early as your freshman year—or as soon as possible. She can help make sure you meet all of the academic requirements and help you understand the NCAA rules.

**Say, “Thanks.”** Gratitude goes a long way toward fostering a great relationship. Counselors are essential to students’ success. Let them know you think so too.
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A college search is one very long conversation: It starts when a college sends you a brochure, or you attend a college fair and chat with an admissions counselor. It ends when you step foot on campus as a college freshman.

That means you could be interacting with your prospective colleges for 18 months, and we don’t mean to scare you, but every conversation counts. Every time you visit, call, or e-mail a college, you have a great opportunity to show the admissions officers how fabulous you are. Here are the rules of engagement:

**First impressions count.** Your first e-mail or phone call to an admissions counselor should be professional (but not stuffy). If your counselor is Bob Smith, call him Mr. Smith, unless he invites you to call him Bob.

If you’re meeting in person, have a question or two ready. Show the rep that you’ve done a little research.

Get a “grown up” e-mail account. Your friends think your e-mail address is hilarious, but your admissions counselor might not. E-mail accounts are free; create one that won’t embarrass your grandma.

Remember that you’re one of many. An admissions counselor can be helping hundreds or thousands of students. When you call, or if you have occasion to see a counselor in person after your initial meeting, be gracious and remind her who you are: “Ms. Jones, it’s good to see you again! I’m Suzy Scholar from Awesome High School on Long Island. We met in the fall at the college fair. How are you?”

**Don’t let your parents do the talking.** Parents have good intentions, but don’t let them control your communication with colleges. If you have a question about a particular program or the status of your application, you should call or e-mail your admissions counselor. The only exception to this rule is discussion about financial aid.

**Don’t “friend” professors or staff.** No matter how fabulous your conversation with the head of the French department and the dean of admission, resist the urge to add them to your list of Facebook friends. They probably won’t accept your invitation, but don’t give them reason to question your judgment.

Skip the text. If you obtain the cell phone number of a staff member or professor, it’s not okay to text, unless you’re replying. If invited to call someone’s cell number, go right ahead.

Write thank-you notes. Yes, on real paper. After you visit a college, write quick but thoughtful notes to the admissions counselor and any other staff or faculty members who spent time with you.

Be enthusiastic, but not fanatical. No matter how much you want to enroll at a college, keep your cool. For example, it’s fine to check on the status of your application, but take a break once you know your file is complete. Don’t call or e-mail every day to ask if the admissions committee has made a decision. And it’s great to express your interest, but skip the wild declarations of love for your top-choice school. Almost every admissions counselor has stories of students whose passion for the college bordered on obsession—and you don’t want to be that student.
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Getting into college can be very competitive and costly. But high school students can bolster their chances for admission and save thousands of dollars in tuition costs by taking advantage of Early College programs. (Hey parents, if you have a high schooler and middle school kid, be sure to check out these programs to get an early start for the younger sibling).

Smart Scholars. About three years ago, the New York State Education Department launched the Smart Scholars Early College High School program. Currently, there are more than two dozen Smart Scholars programs statewide, including several on Long Island. Advocates say students enrolled in Smart Scholars can reduce college tuition costs by 25% and earn up to two years of college credit by the time they graduate with a high school diploma. And, while other early college programs can focus on gifted students, Smart Scholars targets those with average potential, from groups that are underrepresented in college, or have low completion rates. For more information on Smart Scholars programs throughout New York State, go to highered.nysed.gov/kiap/SmartScholarsEarlyCollegeHighSchool.edu.

College in High School Programs. Many high schools offer the opportunity for academically talented students to take college courses at their high school for college credit or dual (high school and college) credit. For example, Farmingdale State College offers a University in the High School Program that enables high school juniors and seniors to earn college credit for approved courses in their own school. Earned credits can be used to pursue a degree at Farmingdale or a transcript can be sent to any other college a student wants to attend. To learn more, visit farmingdale.edu/academics/university-in-high-school.

High School, College, Business Partnerships. Under a new program called P-Tech (Pathways in Technology Early College High School), an aerospace parts manufacturer, SUNY Farmingdale State College, and a group of schools on Long Island, have created a partnership that would result in a college degree in mechanical engineering for the high school students, along with a chance for an internship and first crack at job openings with the aerospace company. New York is the first to establish a statewide P-Tech program. The first students will be enrolled in fall 2014, and will be drawn from the Uniondale, Wyandanch and Freeport school districts, as well as Nassau BOCES and Western Suffolk BOCES.

Advanced Placement (AP) courses. Run by the College Board, Advanced Placement (AP) courses are widely available at many middle and high schools. Formerly limited to gifted and talented students, AP courses now are open to wider participation. There are more than 30 college-level courses to choose from, and a passing grade on an AP exam can result in college credits, advancement into upper level college courses, an opportunity to pursue a double major or study abroad. Some of the AP courses offered include foreign languages, calculus and physics, government and world history and psychology. For more information talk to your counselor or visit collegeboard.com/student/testing/ap/subjects.

International Baccalaureate (IB) program. More high schools are looking at the IB program, established in 1968, and run by a non-profit educational foundation based in Geneva, Switzerland. To receive an IB diploma, a student is required to complete seven courses, write a 4,000-word essay and perform community service. Proponents claim the IB high school curriculum gives students a global perspective and is more rigorous than AP. The IB program is available to elementary, middle and high school students. For more information, visit www.ibo.org.
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How should you choose your college? Think about what really matters to you now, and you’re likely to find the fit that’s right for you. Your goal is to select a handful of schools that will best suit you. Use our side-by-side comparison worksheet on pg. C24 to help select the right college for you.

What should you think about? These tips should help you get started.

**Student, know thyself.** Regardless of a college’s reputation, if you can’t follow your true interest or your real passion, or at least be able to discover that passion once there, it’s not going to measure up in the long run. If you know what you want to do with your life, count yourself lucky and then choose a school that offers your major. If, like many entering freshmen, you aren’t so sure what you want to do, choose a school with plenty of options that are interesting to you.

**Where everybody knows your name, or “super-size” it?** Will you be more comfortable in a school with 1,000 students, or a 30,000-student university? You’ll need to think about your comfort zone. Do you like being a big fish in a small pond? Are you happy with the size of your high school class? Bigger doesn’t always mean better.

**Location, location, location.** Where are you comfortable? In the midst of a bustling urban center, or nestled between cow pastures and cornfields? Think about where you come from and how much of a change you want from that. Decide how far from home you want to be, and how much it will cost you to travel back and forth for visits. Also, keep in mind advantages of your local colleges.

**What’s your type?** Like their students, all colleges are not the same. Some are known for a broad-based liberal arts education, while others specialize in one specific area, like engineering or fine arts. Think about how you learn and what your interests are, and take it from there.

**Who are these people?** Contrary to what you’ve seen in movies, college students are not all the same. Sure, you have the jocks, the Greeks, the brains and the artists, but there’s more than that. You’ll want to consider how many students live on campus or commute, how old the average student is, and what drives the campus social life.

**It’s all about the Benjamins.** Cost is probably one of the first factors parents consider. Tuition, fees, and room and board vary from school to school, but the price tag isn’t always what you’ll end up paying. Different schools offer different types of financial aid, like grants for good grades or scholarships for specific talents. Colleges will let you know what programs exist if you ask. The bottom line? Don’t let cost be the only factor in your decision.

**How do you measure up?** Admissions officers say that acceptance is not an exact science because no two applicants are alike. They do want to see that you’ve taken and succeeded in the most challenging course of study available to you, and they do look at senior year. Remember, you will want to find schools that span the three Rs: Reach, Realistic and Reliable.

**Beyond the books.** Do you paint your face for football games, or do you prefer checking out art galleries? Some schools take pride in their athletic teams, while others may hardly seem spirited in that traditional “rah-rah” way. Perhaps you enjoy live music instead. Do they bring in acts you’d like? Check out the listing of clubs and organizations. Ask how influential fraternities are in the social scheme of things. Are you an adventurer who wants to explore other countries? Look for study abroad opportunities. Remember, you have to spend the next four years here, so make sure your personal goals are met as well as your academic goals.

**Go with your gut.** Remember not to lose yourself in this process. If you don’t feel right about a school, no matter how awesome it seems to be or who graduated from there before you, it’s probably not the place for you. Ask yourself, would I be happy living and learning with these students and professors in this environment, for the next four years?
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tips for managing your online image

Let’s get one thing straight: College admissions committees are not trolling the Internet to dig up dirt on every one of their applicants.

That said, research shows that admissions committees are increasingly interested in students’ online personas. There’s nothing to stop an admissions counselor from Googling your name to see what pops up, and if you’re a borderline applicant or if you’re up for a scholarship, he might go online to learn more about you.

So take our advice and make sure your online persona is an honest reflection of who you are and who you want to be.

Remember: There is no such thing as privacy online. The Internet is a public sphere, and anything you say or do online can be replicated and archived for a very long time. The easiest way to manage your online reputation is to imagine college admissions committees Googling your name. Don’t post anything you don’t want them to see.

Put your best Face(book) forward. Tighten your privacy settings so that all of your information is available only to friends. Then check out your list of friends. Un-friend anyone you don’t know or trust. And finally, remove any pictures or posts that are, ahem, questionable.

Follow your web. Even when you think you’re anonymous online, a few clicks can reveal your real name or e-mail address. Spend some time following your links to see what kind of image you’re building. For example, when you post a YouTube video, you must create a user name that appears as a link under your video. If a counselor clicks on your link, will she find other videos that reinforce the image you’re trying to convey?

Create a Google Profile. This free service allows you to create a public profile that pops up first in the list of search results when someone Googles your name. It can be a helpful way to establish your online persona and tell interested people a little more about yourself.

Start a blog. Do not, under any circumstances, launch a blog for the sake of wooing college admissions counselors. It won’t work, and you’ll probably end up sounding like a stuffy, pseudo-intellectual. Trust us. But if you have a real passion for something and if you want to write about it, a blog can be an excellent way to boost your online presence.

Keep your passwords to yourself. Your BFF does not need your Facebook or Twitter password, no matter how awesome she is. Keep this info to yourself, and eliminate any potential disasters.

Use common sense. It’s a pretty bad idea to post a rant about a college that waitlisted you or to bash the tour guide on your recent college visit. And remember that humor and sarcasm are hard to decipher online, so keep your stand-up routine for live audiences only. It’s like your mom always says: If you can’t say something nice, don’t Tweet at all.

Use These Sites to Fuel Your Search.
Cappex.com and CollegeConfidential.com: (see Top 10 websites pullout)

Zinch.com: Like Cappex, students create profiles and then colleges pay fees to search for prospective students who meet their standards. But what’s cool at Zinch is the ability to chat with current students, other prospective students, and admissions pros.

For Parents-LinkedIn.com: You probably already have an account; if not, it’s free to register, then join groups, such as, “Parents of College-Bound Teens.”
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THE NEW SCHOOL
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If you’re just beginning your college search, attending a fair is the most efficient way to scout out a wide variety of schools in a short amount of time. And if you’ve already narrowed down your list, you’ll have the opportunity to really hone in on your top choices. “Unlike what you’ll find on websites and in brochures, you can be sure that you’ll be getting the most up-to-date and accurate information, coming from someone authorized to speak for the school,” says Andrew Sison, chair of the college fair committee of the National Association for College Admissions Counseling.

But with so many institutions represented at the typical fair, it can be easy to wander the aisles in a fog and come away with a pile of brochures and a debilitating case of information overload. These tips will help you make the most of the day:

Know before you go. Think in advance about what you hope to accomplish. Perhaps you’re uncertain about what kind of school is best for you: A 2-year or 4-year college? Big or small? Close to home or far away? (Investigating a bunch of each will help you figure it out.) Or maybe you’re further along in your search and have several options in mind. Either way, find out what schools will be at the fair and make a list, in order of priority, of those you want to visit. But be sure to leave a little time to stop by some random booths that catch your eye. Who knows? You might actually discover a perfect school that isn’t even on your radar.

Bring a small notepad. Come armed with a list of questions for school representatives. Don’t bother with ones that can be easily answered on a website, such as the number of students or the course offerings. Instead, dig deeper with queries like: What makes your school different from other colleges? How would you describe the type of students who do best there? What’s the school’s teaching philosophy? Also get specifics about programs or activities that especially interest you. Make sure to take notes to refer to later on in case you’re overwhelmed by too much information.

Get up-close and personal. If you already know your top schools, try to meet their representatives. Ideally, you should talk to someone on the school staff, rather than a student or an alumni representative. Introduce yourself and ask what you can do to maximize your chances of admission. If you make a good impression, this person may remember you when your application comes in. (A quick aside about putting your best foot forward: Dress nicely! No need for heels and panty hose or a jacket and tie, but definitely lose the shorts, ripped jeans, and the KISS t-shirt.)

Divide and conquer. Parents should attend the fair along with you and take advantage of workshop sessions on financial aid, admissions requirements, and so on. They should also check out schools, but it’s a good idea for families to split up.

Follow up. Afterwards, don’t just toss those brochures in a corner of your room. Sort through them and review your notes. Re-assess your impressions about various colleges, and then go back to the colleges’ website for a closer look.
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You hear it all the time: You absolutely must visit colleges during your search. Visits are the only way to get a feel for each place, talk to students (who aren’t working for the admissions office), chow down in the cafeteria and determine whether the campus is a place you’d like to spend four or five years of your life.

Visits can be tricky: You want to gather as much information as you possibly can in a relatively short amount of time. So how do you get the most from your visits? Follow these tips:

1. **Plan ahead.** Spend some time on the college’s website to see what’s most interesting to you. Maybe you want to see a chemistry lab; maybe you’re curious about intramural sports and student government. When you call the admissions office to arrange your visit, politely explain your interests to the counselor. Chances are very good that he or she will be able to schedule your visit so that you can experience the classes and activities that are most important to you, as long as you visit while class is in session which is the best time to see a campus.

2. **Be prepared.** While you’re perusing the college’s website and brochures, jot down questions that pop to mind. Then prioritize your list, so you can focus on getting answers to your most important questions. **Added bonus:** The admissions counselor will be impressed that you spent time preparing.

3. **Ask for an interview.** Most colleges don’t require an interview, but sitting down to chat with an admissions counselor is an excellent way to spend 30 minutes on campus. You get a chance to make a good impression, and you have a counselor’s undivided attention, so be sure to ask your questions. (Remember to send the counselor a handwritten thank-you note when you get home.)

4. **Take the tour.** It’s the best way to see the campus and learn about student life, campus history and quirky traditions. The student leading the tour will be enthusiastic about the college (he or she works for the admissions office, after all), but they are also a great source of info. Ask what they like least, what surprised them about the college when they first arrived and what they wish they had known before they enrolled.

5. **Soak it all in.** Pick up copies of the campus newspaper and literary magazine. What issues seem to get students fired up? Check out the posters that hang in the student union. Are there events that interest you? Eat a meal in the cafeteria, and spend some time watching students interact on the quad. Do they seem like people you’d like to know? Paying attention to your surroundings will help you determine if this is a place you want to live for the next few years. **Here’s another tip:** Write down your impressions on the College Comparison/Visit worksheet (see pg. C24). After a few visits, you might have a hard time remembering just how you felt on each campus.

6. **Spend the night.** Many colleges offer overnight stays for high school seniors. You stay with a current student in the dorms, and you get a much more in-depth view of campus life. Overnights are a perfect chance to talk to current students about their experiences. **(Another tip:** Some colleges provide small stipends to admitted students who haven’t visited the campus because they can’t afford to travel there. If you need this kind of help, it’s perfectly all right to call the school and ask if the admissions office has this kind of program.)

7. **Trust your gut.** If you’ve been through an entire visit and leave knowing that you wouldn’t be happy at that school, cross it off your list—unless you have a wildly compelling reason to reconsider (like a full-ride scholarship). Even then, you should arrange a second visit before enrolling. Your instincts are good. Trust them. You’ll need them often in the next four or five years.
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SAT or ACT?

Sure, standardized college entrance exams aren’t the most fun way to spend a Saturday morning but these tests are a part of applying to college. So you might as well face them with as much good info as you can get. We’ve whipped up some details on exactly what you need to know to choose a test, prepare for it, and do the best you can.

ACT or SAT? Most colleges accept either one, but you should double-check to find out if your schools have preferences. If they don’t, it’s up to you to find the one that suits you best.

You might have heard about the recently announced changes to the SAT. By 2016, the test will try to capture more of what students learn in the classroom rather than test “aptitude.” Gone will be the obscure vocabulary section, replaced by more pragmatic words that students are more likely to see in college. The math questions will focus on linear equations, proportional thinking, and functions—and unlike the current version of the test, a portion of math questions will not allow for a calculator. But for students who are strong in math, there’s good news: Math will represent half of the questions on the new exam, instead of the current third of questions. The reading and writing portions will ask students to cite evidence for their answers—an attempt at testing critical-thinking skills. What’s more, the essay will become optional, so scoring will revert to the old 1,600-point scale.

If you have to sit for the SAT before 2016, you should know that the SAT’s hefty vocab session requires some practice, and you’ll encounter math questions for which you must fill out a numerical response in a grid. And until the new test’s release, you’ll be penalized slightly for a wrong answer.

On the other hand, the ACT tests your knowledge in four areas: English, math (including everyone’s favorite: trigonometry!), reading, and science. The English section emphasizes grammar over vocab, the writing section is optional, and there’s no penalty for guessing.

Time to do a little soul-searching. If you’ve had a strong high-school curriculum, but you get test anxiety, you might do better on the ACT. If you’re a good test-taker who hasn’t taken the toughest courses in school, maybe the SAT is the right choice.

Or you could take both. Many students do, and the advantage is that you’ll know where to focus your energy if you want to retake one to boost your score.

About those scores… Many students want to know if their scores will get them into their top-choice colleges. See how your scores compare to last year’s admitted students by checking out the freshmen class profiles, which colleges publish each year. There you’ll find the range of scores that the middle 50 percent of admitted students earned on the SAT and ACT. If your score falls in that range, you know you have a shot. If they’re lower, don’t panic. Remember that 25 percent of last year’s admitted students scored below that range, too.

Practice. The ACT and SAT are unlike any test you’ve ever taken, so you have to prepare. You can find practice exams online at educationplanner.org, sat.collegeboard.com and princetonreview.com.

Test Optional. A growing number of colleges – more than 850 at last count – don’t require standardized test scores at all. These schools are called “test optional” and you can find the whole list at fairtest.org.
“I started a performing arts club to pursue my passion for theater.”

Ryan started a performing arts club while still a freshman. Now with more than 40 members, the club has earned rave reviews for their recent productions of “Les Mis” and “Grease.”

Go ahead. Start something.

Ryan Lane, Class of 2014
President of Student Government
FAFSA. Financial aid gurus refer to the Free Application for Federal Student Aid by its acronym. You’ll need to complete it in order to get need-based aid from almost any college. File it online at fafsa.ed.gov in January of your senior year.

Estimated Family Contribution (EFC). The Department of Education takes your FAFSA info and calculates an EFC, the amount of money your family is expected to pay toward your college education.

Student Aid Report (SAR). Based on your FAFSA, your SAR gives details about your EFC and your eligibility for a Pell Grant. The Department of Education will send a copy of the SAR to every school you indicate on your FAFSA. The financial aid office at each school will base your aid offers on the info in the SAR, so double-check your copy.

Demonstrated need. The difference between the cost of attending a particular school and your EFC is your demonstrated need. In a perfect world, your financial aid package would cover all of it, but many schools can’t meet every student’s need, a practice called “gapping.”

Subsidized loan. If you have to take out a loan, these are the best kind because the government pays the interest while you’re in school and during the six-month grace period after graduation. Examples are the Perkins and subsidized Stafford loans. (Staffords can also be unsubsidized, so pay attention to which ones you’re getting and in what amounts. One aid award could include both types.)

Federal Work Study. A job! Part of your need-based aid, this part-time job on campus helps you earn money toward college expenses. (The government pays part of your hourly rate, which is why it’s a federal program. Some campuses also have jobs on campus paid by the school.)

Pell Grant. This federal grant goes to students from low-income families. The best part? It doesn’t have to be repaid.

Federal Supplemental Education Opportunity Grant (FSEOG). If you qualify for a Pell Grant, you might also get a FSEOG, a grant for students with very high need. Like the Pell, it doesn’t have to be repaid.

Parent Loan for Undergraduate Students (PLUS). Your parents can apply for this federal loan to pay for your educational expenses. If they pass the credit check, they can borrow enough to pay the difference between the cost of attendance and any financial aid you get. But the loan is not subsidized, so parents should borrow only as much as they really need.

Private loans. If your family can’t swing the cost of attendance after financial aid (a common problem), you might consider private loans. Borrowing this way should be a last resort because interest rates can be high.

Professional Judgment. Let’s say your EFC doesn’t reflect the reality of your family’s finances because one of your parents just lost a job or got sick. You can appeal to the college for more financial aid, and a financial aid administrator can use Professional Judgment (authority bestowed by the federal government) to base your aid award on your family’s new financial situation, rather than on the info provided by the FAFSA. You’ll probably need documentation to prove your family’s circumstances.

Tips for Reading Your Aid Award.
Take into consideration travel costs, books, supplies, and personal expenses when you’re looking at aid awards. These expenses can add up to a few thousand dollars a year—and bust your budget.

Front-load Financial Aid. Colleges can reduce the amount of grant aid they award after a student’s freshman year, increasing the loan amount in exchange. If they do front-load, your prospective colleges can give you an idea of how much grants could change each year.
Your Community Credit Union!
Open an account today to take advantage of our great rates and full range of financial products and services, including free checking and online banking.

College-bound? Take us with you!
Thousands of surcharge-free ATMs and locations across the country.

Check out Youth Services, including our Scholarship Program at NassauFinancial.org

Go Mobile... Mobile-24 Banking to your smart phone or mobile device!

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Follow Us! Twitter
Sign Up! Email Alerts
NassauFinancial.org

Federally Insured by NCUA
First, a word of warning. Borrow only as much as you need and pay attention to what kinds of loans you’re taking out. Remember that with few exceptions (such as the PLUS loan), loans are in your name and will therefore affect your credit score as you begin to repay them after graduation. So it pays to know what’s available so you can make smart choices.

Federal student loans. Since the government started subsidizing college loans nearly five decades ago, federal loans have been the top choice for student borrowers—and with good reason: They typically offer the lowest interest rates and most favorable repayment terms. You apply for federal loans by completing the Free Application for Federal Student Aid (FAFSA) as early as January 1 of the year you’re planning to enroll in school.

These loans fall into two categories: subsidized and unsubsidized. If you qualify for subsidized loans, the government—which is the lender for all loans except the Perkins, a school-based loan program—pays the interest on the loan while you’re in school. You can probably guess what unsubsidized means: You’re accruing interest on the loan even while you’re in school, though you don’t have to make payments on the loan until six months after graduation.

What about the interest rates? Good question. The good news is that repayment of money borrowed after 2014 will be limited to 10 percent of a graduate’s annual income, with any remaining balance forgiven after 20 years. (Not such good news: The forgiven amount is taxed as income.) Graduates who work in public service professions or in the military can have their loans forgiven after 10 years.

Federal parent loans. Your parents can take out money in the form of federal Direct PLUS loans, which are made directly through the government and carry a 6.41% interest rate this year. Like other federal loans, the rate is tied to the 10-year Treasury note. PLUS loans are available to families regardless of financial need, and the annual limit is equal to the difference between your total cost of attending college and the other financial aid you receive.

Private loans. After you’ve exhausted all government options, you might need to consider a private loan from a bank or a college. Many schools supply a “preferred lender” list, but investigate thoroughly to make sure you’re getting the best deal. You are under no obligation to use the lenders the school recommends. For help comparing options, go to finaid.org or simpletuition.com.

Home equity loans. In a booming housing market, some experts said that parents should borrow against their home to defray their teen’s college costs. Today? Not so much. Rules have changed regarding tax deductions for interest payments, and housing values have declined, making it a risky proposition for many families. If you’ve tried all of the above options, you might be better off enrolling in a less expensive college for a year while you and your parents save some extra money.

P2P loans. Peer-to-peer (or social lending) is a growing marketplace—and a good option for college-bound teens. Using a P2P website, a borrower arranges a loan from an individual or a group of people, with terms worked out on a case-by-case basis. Depending on the site, the lenders are either friends and family members, or even strangers who are willing to make an investment in someone’s education. The most established social lending sites include Green Note (greenote.com) and Lending Club (lendingclub.com).
Nassau Community College

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✓ Financial Aid
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admissions@ncc.edu
**Calculate your costs**

Copy this simple chart for each school that offers an aid award. Then, compare across categories to see 1) how much your family will actually have to contribute and 2) how significant a role loans play in each package.

### SCHOOL: [Blank]

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Tuition</td>
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<tr>
<td>Room &amp; Board: Fees (Books, Lab Fees, Etc.)</td>
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</tr>
<tr>
<td>Personal Expenses (Transportation, Off-Campus Meals, Clothing, Etc.)</td>
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</tr>
</tbody>
</table>

**Total for the Year:** $

---

**Tip:** New York State’s 529 College Savings Program ([ny529savings.com](http://ny529savings.com)) offers a convenient, low-cost, and tax-advantaged way to save for higher education. Families should make savings a key component of preparing for college finances, starting as early as possible.

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### Student Resources

<table>
<thead>
<tr>
<th>Category</th>
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<td>Loans</td>
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<td>Grants</td>
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<td>Savings</td>
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**Total for the Year:** $

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### Family Contribution

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</thead>
<tbody>
<tr>
<td>Total from B</td>
<td>$</td>
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</tbody>
</table>

**Total for the Year:** $

---

**Tip:** Calculate how you plan to pay for the total in column C. Break out how much money will come from additional loans, your parents’ savings, your own savings and other resources.
Paying for College
Make Your College Dreams a Reality

Must-have information for college and career planning.

- TAP – your state grant
- New York’s 529 College Savings Program
- Scholarships
- High School Calendar
- How to Apply for Aid
- Smart Borrowing

HESC.ny.gov

A website to help high school students get to college.

- Use the step-by-step High School Calendar
- Discover your interests
- Explore careers
- Prepare for the SAT and ACT
- Access tools & resources
- Find the right college
- Learn the college application & financial aid processes
- See inspiring stories about students like you

GoCollegeNY.org
**College Comparison/Visit Worksheet**

**TIP:** Photocopy this worksheet for additional colleges. Use at college fairs and college visits.

<table>
<thead>
<tr>
<th>NAME OF COLLEGE</th>
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<th>college 2</th>
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<tr>
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<td>Suburban</td>
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<td>2 Year</td>
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<td>Medium (2000-6000)</td>
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<tr>
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<td>Large (6000+)</td>
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<td>Dorms</td>
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<td>Off Campus</td>
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</tr>
<tr>
<td></td>
<td>Apartments</td>
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<tr>
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<td>Early Action</td>
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<tr>
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<td>Other</td>
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<td><strong>Financial Aid</strong></td>
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<tr>
<td></td>
<td>Freshman Class GPA</td>
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</tr>
</tbody>
</table>
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Home of Career Architecture℠
## ADMISSIONS GUIDE

### TIP:
Photocopy this worksheet for additional colleges. Use actual dates.

<table>
<thead>
<tr>
<th>Name of College</th>
<th>college 1</th>
<th>college 2</th>
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<tbody>
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<td>Info. Session Scheduled at</td>
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<td>Required?</td>
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<tr>
<td>mailed on</td>
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</table>

**Important Application Terms:**
- Early Action (EA): Your admission is not binding; you can change your mind.
- Early Decision (ED): Think this one through. Your decision is binding; get financial aid estimates before committing.

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Staff Accountant
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Start searching. Use free sites including Fastweb.com, Scholarships.com, Petersons.com, CollegeBoard.org, Zinch.com, and NextStudent.com. Some of these sites require you to set up profiles, well worth the time; the sites then match you with scholarships that fit your academic and extracurricular interests.

Do your homework at school. Your school counselor should have a list of scholarships available in your community from local organizations. Even though these awards are probably smaller than national scholarships, apply for them, since the smaller pool of applicants boosts your chances of winning.

Find out what the college offers. Many students and parents assume that scholarships are only for academic or athletic talent, but colleges offer a wide range of awards. Many schools provide money for legacies (students who are children of alumni), applicants who have strong records of community service, and teens with artistic or musical talent.

Be sure to find out about departmental awards, too that is, money from the math department to attract women students or the arts department to attract budding film producers.

Ask your parents. Religious organizations, unions, clubs, and businesses offer scholarship programs. Ask your mom and dad to check with their human resources departments at work and with leaders of any organizations to which they belong.

Make a plan. You have to organize your scholarship hunt the same way you organize a college search. Pay attention to details. Write deadlines on your calendar. And aim to submit two scholarship applications a week.

If you have to prioritize, apply first for awards that are renewable, local, or offered through organizations to which you or your parents belong.

Ask nicely. Many colleges now include information about scholarships with the acceptance letter in hopes of getting you excited about enrolling. But wait until you get your financial aid award in the spring to assess how much a particular college will cost. Only after you have all this info should you call the admissions office to ask if you could be eligible for any additional scholarship money and ask only of your top one or two schools. Colleges aren’t likely to “compete” for your enrollment deposit by one-upping each other with more scholarship dough.

Never stop looking. There are a surprising number of awards for current college students, so don’t give up the hunt for money once you enroll. Your school’s financial aid office probably has a list of scholarships available through the college and other organizations. You should also ask about fellowships and other opportunities to earn money by helping a professor with research or working in an administrative office on campus. The amounts might not be huge, but you’ll be surprised by how quickly they can add up.

Use digital to earn cash.

ScholarshipPoints.com: You create an account and then earn points for completing online activities, like taking opinion surveys or reading blogs. Your points qualify you for entries into drawings for scholarships. (Don’t spend too much time here, but it’s a good spot if you need a short break from the more traditional scholarship apps.)

Zinch.com: Tired of writing 500-word essays? Try your hand at this site’s $1,000 weekly essay contest, where you can only write 280-characters. (That’s two Tweets!)

GreenNote.com: For an initial fee, create a profile and then ask your social network to contribute (to your PayPal account). Imagine if each of your Facebook friends gave $5!
ISLAND COLLEGE SCHOLARSHIP

• Island will award $50,000 in Scholarships to Long Island high school seniors in Spring 2015.

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That’s Island-easy!
Once a day for a week, read the prompt closely. Sounds crazy, right? But this strategy gives your brain time to mull over the prompt—while you’re mastering Candy Crush. Even if you’re not concentrating on the topic, your brain is kicking it around.

Start listing. Jot down ideas. You want a lot of them, 30 or more. Few students will dream up the perfect essay topic right away. Most writers need to spend time brainstorming. Then ignore your list for at least 24 hours; you’ll get perspective on what’s really interesting and what seems clichéd.

Find your topic. Cross off any topics that don’t meet these criteria:

» You can cover it in about 500 words. Complex issues, such as America’s dependence on foreign oil, are bad ideas. The best essays are narrow and deep, not wide and shallow. You can write a killer essay about the red running shoes your mom bought you for your first cross-country meet or how a Shakespearean sonnet inspired you to write a rock opera.

» You can tell the story better than anyone else. That is, there’s something unique to your point of view.

» You want to write about it. If you’re left with a few topics, talk to a parent or your best friend about your ideas. Most people feel more comfortable talking than writing, so use those well-honed storytelling skills to see how your ideas develop. And one other note: Don’t ever choose a topic because you think it’s the most impressive, or because you think admissions committees want to hear it. Choose the one that best reflects who you are.

Start writing. For many students, the toughest part is starting. Try these tips:

» Begin with an anecdote. Everyone loves a good story, and because stories are more concrete, they help you convey ideas easily.

Start with a bold sentence.

Consider these examples:

**DULL:** “Despite the fact that I don’t consider myself to be a nervous person, I was shocked.”

**BETTER:** “I was shocked.” (Short sentences have power!)

**DULL:** “Although I had originally planned to eat lunch on my way to the museum, I had lost track of time and I felt hungry.”

**BETTER:** “My stomach grumbled as I wandered the streets of Florence.”

» Do not begin with a quote from someone else—i.e., “Thomas Edison once said…”—or with a definition of a word from the dictionary—i.e. “Merriam-Webster defines ‘authenticity’ as…” You’ll make admissions reps cry in pain.

» Just write. Start somewhere. Nobody is going to see this draft, so it doesn’t matter where you begin. You can’t fine-tune your essay until you have something written.

Revise. When you sit down to revise, think about big ideas. Ask yourself these questions:

» Did I answer the prompt?

» Does my essay develop, or do I restate the same ideas?

» What does this essay tell people about me?

» Did I tie the intro and ending together somehow?

Read it out loud. How does it flow? If anything sounds strange to your ear, revise it.

Once you have revised it, it’s okay to ask a teacher or parent to take a look. Listen to his or her feedback, and revise again. Once your essay feels organized and well developed, then proof it for grammatical and spelling mistakes.

The Clincher. Your essay should reveal something about you that the rest of your application doesn’t. Don’t restate your resume. Focus on one topic and dive deep!
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Coupled with the essay, letters of recommendation tell committees things that your SAT or ACT score and high school transcript can’t—what you’re like in class, what motivates you, and what you’ll bring to a college campus (along with your mad calculus skills).

So it’s important to get the very best letters you can. Lucky for you, we’ve created a foolproof plan for scoring awesome letters.

**Limit the number.** Don’t send a dozen recommendation letters. Three is a happy balance: Two from teachers, one from someone who knows you outside school, maybe your karate instructor.

**Pick the right people.** Choose teachers from core academic areas. (If you’re applying to a fine arts college, that rule should be bent; you might want to ask a theatre or ceramics teacher, for example.) Consider teachers whose classes you’ve enjoyed, since you probably participated most in these classes. That doesn’t mean you should ask the teacher in whose course you earned the highest grade; instead, think about who might be able to tell an interesting story about you or write about your growth or special skills.

**Here’s another idea.** Ask for a letter from a teacher who saw you struggle in class. It’s risky to highlight this less-than-awesome grade, but if the teacher knows you well and can talk about your passion for learning, even when the class got tough, it might be worth the risk.

**Ask in person.** Mention to your teachers that you’d like to talk to them before or after class or during lunch, if that’s convenient for them. You want to make sure you have time to have a conversation, not squeeze in your request in the 20 seconds before class starts.

At your meeting, look your teacher in the eye and say something like, “I am applying to colleges this fall, and I wonder if you’d be willing to write a letter of recommendation for me.

I think you’d be able to illustrate how I perform in class and what motivates me academically.”

Your teachers will probably want to know where you’re applying and why, and what the deadline is. Be ready to answer their questions thoughtfully, and then tell them you’ll deliver the forms to them by the end of the week.

**Time it right.** Give your teachers at least a month to write your letters of recommendation. Don’t ask right after midterms or finals, when your teachers will be grading a lot of tests or prepping report cards.

**Waive your right to see the letters.** If you’ve chosen your teachers wisely, there’s nothing to worry about. Plus, admissions committees might take the letters more seriously if they know your teachers aren’t holding back for your benefit.

**Compile all the right info.** Each letter-writer should get a single packet with all of the necessary information:

- Your resume
- A short explanation of why you’re applying to each college. What appeals to you? What do you hope to study? Is there a special program in which you plan to participate? Keep the focus here on the academic.
- Forms the teacher must complete for each school and a list of deadlines.
- Addressed and stamped envelopes. (Note that at some schools, the school counselor’s office oversees sending in letters; other places, your teacher will mail them directly to the colleges.)

**Check in.** A week before your letters are due, politely remind your teachers that your deadline is looming. Say something like, “I really appreciate you writing my letter of recommendation. I’m finishing my application, and I’m hoping to have all of the parts in by next week. Do you need anything else from me?”

**Say thank you.** It’s important and appreciated.
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make a smooth transition

But you have to do some legwork now. Finding the right college is a lot of work for any student, and if you have a learning disability, you have to plan and research even more to make sure you find a school that’s a good fit for you.

Here’s why: Just because you have an IEP or a 504 Plan doesn’t mean that you’ll get the same accommodations in college. In fact, every college has different levels of support.

Get your paperwork in order.

Every college gets to decide what types of documentation it will require. Call the College’s Office of Disability Services to ask for a copy of what documentation is required. Most colleges want documentation no older than three years. If your documentation is dated or incomplete, your school district is not responsible for making sure you have the right documentation or the proper tests for college accommodations.

Plan for standardized tests.

In your sophomore year of high school, meet with your school counselor to discuss when you’ll take your tests, SAT or ACT. If you plan to apply for accommodations, start early: It can take months for the College Board (owner of the SAT) or the ACT Program to grant your request.

Educate yourself about the levels of support.

Colleges offer different levels of support for students with learning disabilities. Tier-one support is the minimum required by law. These colleges offer basic accommodations such as extended time on tests and some technological resources. Schools at the second tier offer services, such as free peer tutoring and note-taking help. And at the top of the heap, colleges with third tier support have special programs designed to help students with attention disorders or learning disabilities.

These programs often require separate applications. Your district’s director of special education should have a list of these schools.

Plan a smart visit.

Nearly every campus in the country has someone coordinating support for students with learning disabilities. Before you visit, contact the director of this office—probably called something like Office of Disability Support Services—and schedule an appointment. You’ll want to take your documentation with you, and find out what level of support you could reasonably expect from the campus.

Explain your disability in your application.

If you think that disclosing your LD will help explain part of your application, go for it. Maybe you were diagnosed after freshman year, so your first-year grades are poor. Maybe you had a bad semester because your medication wasn’t quite right. Explain these things briefly in your app. Colleges can’t hold your disability against you, and it’s better to address a possible question than leave the admissions officer scratching his head.

After you’ve enrolled, send in your paperwork.

You should submit the required documentation early in the summer—in plenty of time to have conversations with the disabilities services director about your accommodations.

Some teenagers want to start fresh in college, so they don’t reveal their disability to anyone. That’s a bad idea. College is a big (and awesome) change from high school, and many students discover after the first few tests that they do need help.

The best idea is to make sure you can have accommodations if you need them. If you find that college is a breeze, you can always skip them later. For now, give yourself every chance to succeed.
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However, for foster youth, the path to college access and career success presents unique challenges, particularly the lack of traditional family support and financial assistance. Youth in foster care also face tough decisions concerning college application fees, housing, daily expenses, and transportation.

For the most part, this College Admissions Guide can help foster youth and their mentors better understand and navigate the college application process.

Your high school counselor (see page C2) is a very important part of your college prep “team.” With your counselor’s guidance, you will be able to choose the right classes and extracurricular activities. Your counselor can review your transcript to be sure you have taken the required courses to graduate and to apply to the colleges that fit your interests. Ask your caseworker, foster parents, teachers, and adult mentors for their advice on college admissions.

**Where to Turn For Additional Help.** The New York State Higher Education Corp. (HESC) provides a wide array of resources on its GoCollegeNY website. Click on the “Youth in Care” icon to find videos and podcasts, as well as great information on financial aid.

**Application Fees.** College-bound foster youth may be eligible for college application fee waivers. Ask the college admissions office or your high school guidance counselor to assist you. The National Association for College Admissions Counseling (NACAC) has an application fee waiver form that you can download from their website [nacacnet.org/studentinfo/feewaiver/Pages/default.aspx](http://nacacnet.org/studentinfo/feewaiver/Pages/default.aspx).

**College Entrance Exams.** The College Board and the American College Test (ACT) accept fee waivers from eligible students who took the SAT or ACT. For forms and eligibility requirements, visit [collegeboard.org](http://collegeboard.org) or [actstudent.org](http://actstudent.org).

**Housing.** On campus room and board is one of the largest expenses for college. Foster youth should work with their case worker, foster care provider, and youth care worker to determine if the state agency will pay to the college what it would have paid to the foster parent or group home for housing.

**Financial Aid.** You must complete and submit a Free Application for Federal Student Aid (FAFSA) packet (see pp. C18, C22). However, as a youth in care, or a former youth in care, you may be eligible to claim Independent Student Status. If a person is declared Independent, this means that his or her custodial parents’ financial information is not considered when determining the student’s financial aid, and therefore is not required on the FAFSA. Make sure you check the “Ward/dependency of the state or courts” box on your FAFSA form so you can receive all of the aid you’re eligible for. If you need proof of your independent status, ask your caseworker.

**TAP and Vouchers.** In addition to federal Pell Grants, foster youth in New York also have two other financial aid sources: TAP (Tuition Assistance Program), the state’s largest grant program, and ETV (Education Training Voucher), which can provide financial support of up to $5,000 per year for foster youth. Voucher grants which are renewable each year, can be used for tuition, housing, meal plans, and books. For more information on voucher grants, go to [youthincare.org/paying-for-higher-ed](http://youthincare.org/paying-for-higher-ed).

**Scholarships.** See page C28 and also check out these resources:

- **National Foster Parent Association Youth Scholarship:** [nfpaline.org/nfpascholarship](http://nfpaline.org/nfpascholarship)
- **Horatio Alger Scholarship:** [horatioalger.org/scholarships/program.cfm](http://horatioalger.org/scholarships/program.cfm)
- **Darko Rapotez Memorial College Scholarship Fund for Aged Out Foster Youth,** administered by Love Our Children USA. Call 212-629-2099 or toll-free (888-347-5437).
- **Foster Care to Success.** This website ([fc2success.org](http://fc2success.org)) bills itself as “America’s College Fund for Foster Youth.” Look for the annual Casey Family Scholarships on the site.

Special thanks to Risa Stein and Dr. Veronica Henry at Farmingdale State College for their assistance with this article.
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Community Colleges. Community colleges are a good option for students looking to save money, stay close to home, work while in school, try out a few courses before committing full-time, earn a specialized program certificate, or any combination of these reasons. But just because community colleges are financial bargains doesn’t mean you should pick just any school. Ask your school counselor for input about each school’s strengths. Better yet, schedule visits everywhere you’re considering, and speak with professors and current students. If you’re planning to transfer to a four-year college after earning your associate’s degree, ask about how the school advises students in your situation. If you’re looking for a skills-based program—radiology, nursing, graphic design, for example—ask your school counselor for a list of recommended programs.

Career/Trade Schools. These schools train for specific skilled careers, such as paralegal, automotive technician, aesthetician, computer programmer, and medical assistant. They come in all types: public, private, for-profit, and non-for-profit. The good ones provide a combination of classroom (or online) learning and hands-on experience; they help students get the credentials and licensing they need to find jobs in their chosen fields.

If you’re leaning toward vocational school for your post-secondary education, research each option thoroughly. Ask for a list of the school’s licensing and accrediting organizations, and then call these organizations to make sure the school is in good standing. Review the enrollment “contract” before registering, and as with all educational options, make sure you understand your financial commitment before you sign on the dotted line. Certificate programs can be general, but many focus on particular areas of business and leadership: entrepreneurship, e-commerce, non-profit management, marketing, or human resources, for example. Your school counselor might be able to refer you to programs that suit your interest; you’ll probably also have to spend some time researching on your own. Be sure you ask to speak with current and former students about their experiences.

Business Certificate Programs. You should also ask working professionals in your field if earning a certificate is worth your time and money. Some industries and businesses value these certificates; others would rather see you earn an associate’s or bachelor’s degree and go back later for a certificate, once you’ve spent some time refining your skills on the job.

Find a list of accredited schools and programs at ope.ed.gov/accreditation. (You can’t get federal financial aid if your program isn’t accredited!)

Check out 2-year Degree/Certificate Programs, pg. S30
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Left to right: Genny Haughhey, Half Hollow Hills East H.S.
Terrance Ruiz, Bay Shore H.S.
Corinne Aranea, Mattituck-Cutchogue H.S.
Eric Luna, William Floyd H.S.
Nicole Moosbrugger, Miller Place H.S.
the last step in your college search

You’re down to about a month before the May 1 enrollment deadline, and if you’ve conducted a smart college search (like we know you have), you have a new challenge on your hands: choosing where to enroll.

To help you make a good choice, we gathered advice from college students, school counselors, and admissions pros:

Visit. It’s our favorite piece of advice because it’s so important: A visit reveals a lot about the college that the brochure, website, and even the admissions counselor can’t describe in detail. Ideally, you’ll visit while classes are in session, but any visit is better than none, so even if you can only make it on a weekend, go!

Talk to professors and students. Admissions counselors can arrange these interviews. Prep your questions ahead of time, and be a hard-nosed (but polite) investigator.

Examine the cost. No doubt you’ve been over the numbers with your family, but if you have put off the money talk, now’s the time. You must have a complete understanding of how much your education will cost, not just over the next four years, but also after you graduate, if you’re planning to take out loans. Look online for loan payment calculators (finaid.org has a great one), which will compute your monthly payments after graduation.

Check the stats. College students are taking longer and longer to earn their degrees. Check out your prospective colleges’ rates—either on the schools’ websites or by asking the admissions counselors—and then find out the four-year graduation rates for students in the majors you’re considering. Low four-year rates might mean that students can’t always get the classes they need or that advising is weak (unless, of course, the program you intend to follow is clearly designed to take five years). Not only will your college costs increase by 20 percent for that fifth year, but you’ll also miss a year of a full-time salary.

Imagine the moment your mom and dad drive away. This is the “gut test.” Where will you feel most comfortable? You can examine numbers all day long, but if you’re not happy and at ease, you’re less likely to do well in your classes and participate in on-campus activities.

Don’t miss the May 1 deadline. A college doesn’t have to hold your spot after that date, so don’t let all of this hard work go to waste. Make sure you submit your deposit on or before May 1. No excuses.

Break up with the other colleges. Once you’ve decided which school to attend, let the other colleges know with a simple e-mail to the admissions counselor. It might mean that someone from the waitlist gets your spot—and a shot at his or her dream school.

Waitlist. Don’t despair. You’re not in, but you’re not out either. If not enough accepted students enroll, the Admissions office turns to its waitlist to fill the freshmen class. Students are often marked on the waitlist and it’s okay to call and ask where you rank.

3 Reasons NOT to Choose a School:

» Your significant other is going.

» Your parents are crazy about it. It’s important for your parents to be on board with your choice, but they won’t be living on campus for four years.

» The football team rocks. Football season lasts only a few months. You can always buy tickets to a college football game, but you can’t buy tickets to a great overall college experience.
To give you a head start, we rounded up several dozen rising college sophomores and asked them to share their hard-won wisdom.

**Get help.** It’s the mantra of college sophomores everywhere, and here’s why: College classes often cover material quickly. Assignments tend to emphasize analysis, not just memorization. “If you’re confused on day one, go to your professor’s or TA’s office hours on day one,” a student suggests. “If you wait until the first test, which probably counts for a third of your grade, you’re going to hate yourself.” Your college might also offer free tutoring at a resource center; ask your professor what’s available.

**Live on campus.** Most colleges require that freshmen live on campus, but if your school doesn’t, choose the dorm anyway. Freshmen who live on campus report higher rates of satisfaction with college. “It’s the best way to meet other students,” one student said. “You get the total college experience.”

**Visit the gym.** Most colleges have workout facilities that rival the swankiest athletic clubs. Use them. Students say that working out relieved stress and helped them focus on their studies. If you hate the gym atmosphere, join an intramural or club team.

**Go to all of the on-campus events you can.** Students admit that they had no idea how many guest speakers, concerts, plays, and special events colleges host. “Some of my best experiences came from going to concerts a little student-produced plays,” a student says. “I think that doing something out of the usual makes you happier and sparks creativity.”

**Do one thing that scares you.** We’re not talking about rappelling off of the student center at 2 a.m. Instead, try something new: Audition for the a capella group or try out for the Mock Trial team. Start a club. Be bold and risk failure. It’s the only way you’ll know what you’re capable of accomplishing - and isn’t that what college is all about?

**You don’t have to be your roommate’s best friend.** Sure some people stay in touch with their freshman-year roommates until they’re both too old to remember where they went to school, but don’t expect so much. It’s better just to focus on living well together: Be respectful of his or her stuff and sleep; set ground rules for cleaning and having people over; share pet peeves up front. You’ll find plenty of friends as the semester rolls on. It’s okay if you and your roomie aren’t bonded for life.

**Avoid the freshman 15 (lbs. that is).** Remember the “most important” meal is a healthy breakfast. Watch out for mindless munching and stock up on healthy snacks. Having provision on hand will reduce the urge to order a pizza at the end of the evening. And just because a meal plan allows for “all you can eat,” you don’t have to take full advantage.

**Use these strategies for academic success.** If you have to take a tough class, balance it out with a course that’s known to be easier. Break up your homework into manageable chunks. Instead of trying to read 50 pages of material the night before class, read 10 pages at five different times. And get a (smart) study buddy. Just like in high school, you’ll know which of your classmates are achievers. Who knows? You might even make a friend.

**On move-in day, don’t sleep late.** Uploading your car (even the SUV) takes longer than you expect. Plus, if you’re the first one into your room, you get dibs on the best half.

**College is your time.** Enjoy it. There’s no better time to try new things, learn new skills, meet new people and challenge yourself. It sounds hokey but if you’re curious about a course or activity, try it. You might discover that you love philosophy or lacrosse or designing lighting for the theater. There will never be such a perfect time to pursue the things that appeal to you, so go for it.
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Any student athlete who dreams of playing at a Division I, II or III school should log onto electronica.ty and download the National Collegiate Athletic Association’s guide. This is also where athlete applicants submit a “clearinghouse form” that is used by college coaches for this purpose.

If you’re hoping for a scholarship, this is the place to hunt it down. After registering, you can custom-search a database of 1.3 million awards based on your individual qualifications.

Administered by the U.S. Department of Education, it’s a user-friendly resource, and most importantly, it’s where you set up an account to apply for federal aid, including Pell grants, which are awarded based on need. FastWeb also supplies info on job and internship programs and has an active database that can custom-search a database of 1.3 million awards based on your individual qualifications.

College Navigator is another hot spot for finding schools that might suit you. It offers a kind of “matchmaking” service: You create a free profile, and the site provides schools that you might like. The site also matches you with relevant scholarships. While you’re here, read Lynn O’Shaughnessy’s blog, which covers the latest news related to college admissions.

Another hot spot for finding schools that might suit you, Cappex offers a kind of “matchmaking” service: You create a free profile, and the site provides schools that you might like. The site also matches you with relevant scholarships. While you’re here, read Lynn O’Shaughnessy’s blog, which covers the latest news related to college admissions.

Pretty much every high school senior is familiar with the so-called “Common App.” It provides online and print versions of application materials for almost 400 schools. Students can custom-search a database of 1.3 million awards based on your individual qualifications.

Chock-full of good basic information about colleges, this federal website is an excellent place to start your search, especially if you use the advanced search options. Build your list here, and tailor your search with info from other sites (and the all-important college visits).

You’ll need to create an account here so you can register for the SATs. This nonprofit organization of more than 5,700 member schools provides a wealth of other information as well. Its website is a great starting point to gather—and compare—basic data on colleges, parents, and admissions officers answer each other’s questions and offer support. Register to start your search, especially if you use the advanced search options. Build your list here, and tailor your search with info from other sites (and the all-important college visits).

This site has a helpful search function (dubbed “SuperMatch”) and good advice for college-assessments of the campus social life. You’ll get the lowdown on schools directly from students and recent grads. For each of 100 of the nation’s best universities, you can visit the site and read essays written by current students and recent graduates. In each essay, students and recent graduates assess the campus social life.

Another “matchmaker,” College Confidential, has a helpful search function (dubbed “SuperMatch”) and good advice for college-assessments of the campus social life. You’ll get the lowdown on schools directly from students and recent grads. For each of 100 of the nation’s best universities, you can visit the site and read essays written by current students and recent graduates. In each essay, students and recent graduates assess the campus social life.

On her blog, higher-ed journalist Lynn O’Shaughnessy covers the latest news related to college admissions. She writes about the latest developments in higher education, from admissions policies to campus life. Check out her blog for an up-to-date look at what’s happening in college admissions.

Bookmark these!
If you are a middle school, junior high school, or high school student, our STEM & STEAM Guide is about you and your future! This Guide will introduce you to careers in STEM (Science, Technology, Engineering & Math), showcase students and young professionals who are already involved in exciting projects, and give you the best websites and resources to discover your own passions. And, for parents and adult mentors, this Guide will give you guidelines to spark conversations and interests in STEM and STEAM (the “A” for Arts & Humanities).

FLIP IT! This is a “flip” double-issue Guide. The other side is the 5th annual College Admissions Guide. When you see this symbol flip over the Guide for more resources and ideas. No matter what side you use, you’ll find solid guidelines, easy-to-use worksheets, and your road map from high school to college success and career readiness.

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College PrepTalk

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Here are six reasons to consider pursuing a career in STEM areas.

You get to live (and work) on the cutting edge. In this category are aerospace engineers, computer scientists, physical therapists, astronomers, food scientists, chemists, science and math teachers, actuaries, geographers, and doctors, among many other professions. (How awesome would it be to introduce yourself as a robotics engineer at your first post-college cocktail party?) Experts predict that even traditionally “non-tech” industries will rely more heavily on professionals with STEM skills as technology becomes even more pervasive.

You can count on (slightly more) job security. Driven by growing demand, professionals who work in STEM fields are less likely to be unemployed than their non-STEM counterparts. This fact might make you feel a little better about taking out student loans for your degree in physics or information technology, right?

You learn “transferable skills.” Education experts say that studying these areas gives you skills you can easily apply to a wide range of fields. (Engineering might be a little more job-specific, but because it’s based on math and physics coursework, it still leaves room to pursue new opportunities that might interest you.) Employer surveys show that “hiring managers” are eager for employees who can problem-solve and think analytically, skills at the heart of STEM studies.

You don’t have to shirk your artistic side. Increasingly, STEM programs are interdisciplinary, (aka: STEAM), which means they combine math and science coursework with classes in the humanities. Employers seem especially interested in candidates with STEM degrees who can also communicate with colleagues and clients who don’t have backgrounds in science and math.

Lots of companies and organizations offer STEM scholarships. Cha-ching! If you’re serious about studying STEM, check out the Department of Defense’s SMART Scholarship at smart.asee.org, the AFCEA Education Foundation’s STEM Teacher Scholarships at afcea.org/education/scholarships, the UNCF/Merck Science Initiative awards at umsi.ucnf.org/sif, and the Davidson Institute Fellows awards at davidsongifted.org. A simple Google search will yield dozens more opportunities to earn money, as will any of the free scholarship sites such as fastweb.com or scholarships.com.

Chance to travel (for free). Those involved in STEM careers need to travel around the globe to present their findings to various scientific panels and organizations. This could be your opportunity to see the world on someone else’s dime!

Flip it! See center pull-out for more information and resources.
Whether placing in the Baja SAE automotive design competition, studying with world-renowned researchers at Brookhaven National Laboratory or working alongside top scientists on projects such as the Mars Rover missions, students in Stony Brook’s College of Engineering and Applied Sciences are preparing to be tomorrow’s innovation leaders.

And now, the New York State STEM Incentive Program is helping launch careers in science, technology, engineering or mathematics by giving qualified students the opportunity to attend Stony Brook tuition-free.

For more information, visit stonybrook.edu/est
While all science boils down to solving problems and creating new information, each discipline varies: Geologists spend a lot of time outdoors, whereas chemists spend more time in the lab. Microbiologists examine tiny organisms while astrophysicists consider the universe and all its contents. Start thinking about how and where you like to spend your time: Is the lab exciting for you, or would you prefer to be in the field? Do you like to build things or deconstruct them? Are you interested in the human body or in far-away galaxies?

**Which science?** In high school, you’ve probably followed a prescribed track of courses that includes biology, chemistry, and physics. But in college, you’ll have a mind-boggling array of science fields from which to choose: biochemistry, molecular biology, astrophysics, zoology, astronomy, genetics, meteorology, and more. It’s a science-lovers’ paradise.

When you visit campuses, ask to sit in on different types of science courses: a chem class at one place, an environmental studies class at another. You’ll start to get a feel for how the content varies.

As you evaluate colleges, speak with students and professors about research opportunities: Are undergraduates frequently part of professors’ research programs? Is it relatively easy to get funding for your own research? How does the college help science majors find internships? What kinds of unique equipment could you access in the labs? (At some colleges, only professors get to use the high-quality stuff, so be sure you know if you’ll get real-life experience in the lab, or if you’ll be watching over your professor’s shoulder.)

Science majors have a much broader range of possibilities. You could be a forensic investigator, technical writer, geologist, pharmaceutical sales rep, marine biologist, veterinarian, nutritionist, or astronaut.

Or you could be none of these things. Scientific fields are changing so rapidly that you can look forward to discovering a career that you (or anyone else) never imagined. Keep in mind that majoring in science isn’t a path toward a single destination; instead, it’s an opportunity to develop skills and knowledge that you’ll hone your whole life.

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**Just a decade ago, who could have predicted the need for social-media managers, iPad and iPhone app designers, or sustainability consultants? And yet, these jobs are among the hottest in the country.**

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**Marcus Rosten**

SUNY College of Environmental Science and Forestry

Marcus is a senior, who always knew that he wanted to spend his life outdoors and not behind a desk or a lab table. Marcus is pursing a degree in environmental education and interpretation. He believes one of the best ways to conserve the natural environment is by having an informed and involved citizenry that will protect our natural resources. His latest venture was an internship with the U.S. Forest Service teaching conservation education in the Tongass National Forest in Juneau, AK.
Improving America’s STEM education has become a top priority across the nation. At Suffolk, approximately 1,500 students are currently enrolled in STEM majors and the College’s STEM program has been producing award-winning students while providing summer research internships at internationally-renowned facilities, including Brookhaven National Laboratory, NASA, and Oak Ridge National Laboratory, to name just a few.

Contact us at 631-451-4111 to find out why making Suffolk your first choice is a decision that’s second to none.
If these statements are true, you might consider turning your hobby into a full-fledged career in a tech-related area. As one of the four fast-growing STEM fields, technology is a good bet if you’re looking for a larger-than-average paycheck and more job security than most fields offer. What should I study?

It’s true that you can get a job in a tech field without a bachelor’s degree, but if you can swing a four-year degree (at least), you should. Research shows that employees with bachelor’s or graduate degrees out-earn and outlast their colleagues who have earned only certificates or two-year degrees.

Colleges offer plenty of programs. You might consider majoring in computer science, which generally emphasizes the mathematical and scientific bases for storing, accessing, and analyzing information; information technology, which delves into how to use computers and software to manage information; or computer engineering, which uses computer-based technology to solve real-life problems or create new products (think video games or biomedical devices).

The challenge for college-bound teens is figuring out how programs on various campuses differ. At some schools, you’ll major in math or a science and then earn a concentration or secondary degree in a computer-related field. Other places, the degree programs are more specific (database management or information technology management, for example). Check out the course catalog (available through the college’s website) to get a detailed description of the courses required to complete a degree, and what the program emphasizes. Experts say that you want to find a college that gives you a broad conceptual understanding and hands-on experience to prepare you for your first job.

What to expect. Computer science and its academic cousins are well known for being challenging. At a four-year college, you’ll probably study higher-order math, calculus and algorithms, programming languages, computer architecture, and database systems. Many schools also offer concentrations in specific areas of technology, such as bioinformatics.

So find out what kinds of academic support are available to students in programs you’re considering. Do professors hold office hours for students who need help? Does the college offer free tutoring from upperclassmen or grad students? You’ll definitely have to hone your study skills, but that’s a good thing: Well beyond college, you’ll have to keep learning. Because technology, by its nature, changes all the time.

why study technology?

staying ahead of the curve

You design your own websites. You spend every spare cent on new tech gadgets. You’re the person your parents’ colleagues call when they have a question about how to fix their computers or hook up their routers for WiFi.

Meghan Caiazzo

NYU/Polytechnic, School of Engineering

My mathematics background and computer science degree have enabled me to participate in the graduate Cyber Security degree program at NYU/Polytechnic and in related summer internships. Being a challenge lead for the Cyber Security Awareness Week Conference and assisting with the Women’s Symposium at NYU have shown me that I can make a difference this field.

OPEN HOUSES:
Sunday, October 19 - 10 a.m.
Old Westbury

Sunday, October 26 - 10 a.m.
Manhattan

NEW YORK INSTITUTE OF TECHNOLOGY

Photo courtesy of Intrepid Museum.
Solving real-life problems

If you like the idea of applying math and science principles to real-life problems, you might be an engineer-in-the-making.

Engineers are the professional link between scientific discoveries and daily life; they design, test, and maintain the products that meet societal needs.

Engineering is one of the four STEM fields characterized by their high demand for employees and good wages. College graduates with engineering or computer science degrees are in the highest demand of any college grads, according to the National Association of Colleges and Employers (NACE), which surveys employers across the country about who they’ll be hiring in the next few years.

Most engineers specialize, so here’s a look at five hot engineering fields and what you can expect from a career in each one:

Civil engineers. Did you play with Legos as a kid, covering your bedroom floor with cities, bridges, and roads? Civil engineering might be for you. This field is responsible for designing and supervising the construction and maintenance of the country’s infrastructure: roads, airports, bridges, buildings, tunnels, and other transportation networks.

Computer engineers. They integrate hardware and software to boost processing efficiency and develop new tools, like home automation and industrial robotics. You should expect to study both electrical engineering and computer science if you want to go this route.

Environmental engineers. These professionals apply biological and chemical principles to solve environmental problems. They design city water supply systems, hazardous-waste disposal programs, and recycling plants. And they advise companies on how to manage and reduce environmental impact.

Electrical engineers. They design, test, and maintain electrical equipment, such as GPS systems, massive power generators, and electric motors and machines. Big companies such as Boeing, Motorola, IBM, and GE all hire electrical engineers, as do smaller businesses that develop niche technology.

Biomedical engineers. If you like the idea of a career in healthcare but med school isn’t your idea of fun, consider biomedical engineering, dedicated to solving medical problems with innovative devices and procedures. You might grow artificial organs, improve prosthetic limbs, figure out a new tool to regulate biological systems, or develop clever ways to share health-related information.

Julien Braithwaite
University of Michigan

Julien is a junior majoring in Industrial Operations Engineering. He was the 2012 Valedictorian at Westbury High School, spent this past semester studying abroad at the University of Manchester in the United Kingdom and this summer, Julien interned at Chrysler Corp., in their Supplier Quality Engineering department. An avid sports fan, Julien’s goal is to earn a master’s degree in Biomedical Engineering, so he can combine his knowledge of business, ergonomics and biomechanics, to develop products that would reduce the frequency and severity of sports injuries.
For more than 160 years, Manhattan College has been delivering on the Lasallian Catholic promise of educating tomorrow’s leaders in arts, business, education and health, engineering and the sciences, all on a 22-acre residential campus only a subway ride on the 1 train away from midtown Manhattan. Our welcoming campus offers students an opportunity to integrate academic and extracurricular life and to build community as they nurture mind, body and spirit.

Visit us at manhattan.edu to learn more about our inspiring academic offerings.
College graduates with degrees in math are among the most sought-after (and well prepared) candidates for jobs. Why? Math is foundational; it’s the basis for computer systems, financial structures, scientific discoveries, and economic policy.

The need for mathematicians is growing. Companies are experiencing a massive surge in data, driven by their ability to collect information about consumer spending habits, social media, suppliers’ costs, web traffic the fruit of the information age. One study predicts that the U.S. needs as many as 190,000 more people with deep analytical skills to use this data to its fullest capacity and about 1.5 million data-literate managers, professionals who can examine vast amounts of data and make smart business decisions.

Sounds like the perfect job for a math major.

College professors want you to understand not just how to solve a problem with a particular formula; they want you to learn the logic behind the formulas.

Math generally falls into two categories: math) and applied mathematics. If you choose the latter, you’ll use mathematical modeling and computational techniques to solve real-world problems, such as the cost-effectiveness of a new manufacturing process or the best ways to decode encryption systems used in military work or law enforcement.

Math is a natural complement to a lot of other fields: chemistry, biology, physics, computer science, engineering, finance, and business, just to name a few. Some of your core requirements for these majors might overlap, which means you can earn a second major without having to take twice the coursework.

You’ll be prepared for whatever comes next. Math professors say that their students know how to problem-solve and analyze, therefore achieving success beyond college.

Need Inspiration? Spend a day at the National Museum of Mathematics (MoMath). Innovative exhibits and programs will engage everyone from 5 years old to 100 years old, with special emphasis on activities for 4th through 8th graders. MoMath is located at 11 East 26th Street in Manhattan, NY. For hours, exhibits, and special programs, visit momath.org.

For fun math games and lessons, go to coolmath.com for “an amusement park of math.” Try your hand at running a coffee shop or pastaria, while learning counting and time management. The website includes tips for parents to stimulate kids’ interest in math from preschool to pre-calculus.

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**Rachael Millings**
Math Professor, Suffolk County Community College

Rachael describes herself as an “enthusiastic” mathematician – dedicated to teaching, mentoring, and motivating the next STEM generation. Rachael earned an associate degree in mathematics at SCCC, and transferred to Stony Brook University, where she graduated with a dual major in pure and applied mathematics. Rachael participated in undergraduate research internships at Brookhaven National Lab and UCLA. After earning a Master’s degree at Columbia University, Rachael found her true passion – teaching.
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The “A” in STEAM brings in your inner Picasso. It represents the Arts, an umbrella term for writing, literature, visual and performing arts, design, and communication. The combination of arts with scientific disciplines is important for individuals and society to reap the full benefits of innovation.

Here’s an example: As you might know, the Tesla is an electric vehicle named for the famous scientist, Nikola Tesla, who made important contributions to the alternating current (AC) electricity supply system we use today. (He even worked in a lab near Shoreham, LI, for a while.) The Tesla vehicle combines scientific principles of electricity with an eye-catching design: Each is important in attracting new clients, who not only want the environmentally friendly working components, but also want to drive a car that looks good and feels comfortable.

**Why Science Needs the Arts.** We tend to think of scientific discovery happening in a vacuum, where white-coat-clad geniuses shuffle between labs until someone yells, “Eureka!” and solves the biggest problems of our day. This idea makes a good movie scene, but it’s far from accurate.

The most challenging issues facing our country and our world are multidisciplinary and must be solved by people who don’t all think the same way. Training in the arts helps scientists tackle questions with new and different approaches.

The digital media and technology we use (and relish) relies entirely on people who can create and manipulate algorithms and on people who can design interfaces that make using that technology easy and enjoyable. The design elements come from questions of human experience—which are at the core of arts education. How do people act? What appeals to them visually? How do their hands move and work? What sorts of visual elements tell the story of a particular brand or product?

The bottom line is simple: You don’t have to choose between STEM subjects and the Arts. Embrace them both—even if you’re more comfortable in the studio than the lab, or vice versa. By pursuing a STEAM education, you’ll be doing yourself—and the rest of us—a big favor.

**Stacie Krug**
New York Institute of Technology

Stacie, a senior from East Meadow, NY, majors in Interior Design in the School of Architecture and Design. This year, Stacie was awarded the prestigious Angelo Donghia Foundation scholarship - one of 12 winners selected from 60 student projects nationally. “I have truly enjoyed watching my ideas transform into realistic representations. The new technology for design allows me to demonstrate my ideas to others. It’s an essential tool to create innovative designs that allow our clients, professors, and peers to understand and visualize.”
Adelphi University is a premier institution for science, technology, engineering, arts and mathematics (STEAM) programs. Distinguished faculty. Experiential learning and research opportunities. State-of-the-art labs and facilities. It adds up to you obtaining the knowledge and critical thinking skills to be competitive on a global level.

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It's a vast field, open to professionals who thrive on exploring the intersection of physics, math, electronics, flight, and engineering. It comprises two main branches: aeronautics (the science of flight within the Earth's atmosphere) and astronautics (the science of space travel and exploration).

**Why it’s awesome.** Aerospace technicians and engineers are on the cutting edge of technology, as they figure out how to create vehicles that fly farther and faster, some of which will explore areas of the universe we've never seen. Aerospace professionals are ultimate problem-solvers who face new and captivating challenges as the world and technology change.

What’s more, many industries need aerospace engineers. Commercial airlines must figure out how to build better airplanes that reduce carbon emissions and improve amenities for passengers, all while keeping costs down. The U.S. military relies on aerospace pros to develop smarter weapons, such as unmanned combat aerial vehicles. NASA employs aerospace engineers to design all kinds of space-bound vehicles. (How amazing would it be to help create something that will one day reach Mars?) And private companies, interested in sending people into orbit, are looking to aerospace experts to help develop the technology that will make space tourism possible. (NASA has contracted with SpaceX, Boeing, and the Sierra Nevada Corporation to develop orbital space flight for governmental and commercial clients.)

**How to prepare now.** Aerospace engineers need an excellent foundation in math and science, so take as many courses in these areas as you can fit into your schedule. To make yourself a competitive candidate for admission to collegiate engineering programs, you might consider taking additional courses in the summer or enrolling in a math-and-science summer camp at a college or university. (Start your search at ams.org, sciencebuddies.org, or your local universities’ websites.)

**Learn more.** There’s always something new in aerospace. Keep up with the latest developments—and find specialties that interest you—at these sites:

- **AviationWeek.com:** Published for flight-industry professionals, the site will give you a good glimpse of the latest discussions, challenges, and ideas driving aerospace and related fields.
- **ASDnews.com:** Look here for quick-hit (and fascinating) updates on events related to aerospace and defense around the world.
- **Want more?** Spend a day at the Cradle of Aviation Museum and learn about Long Island’s important role in the history of aerospace, from air balloons to spacecraft and an actual Lunar Module. The museum is located on Charles Lindberg Blvd., in Garden City. Go to cradefofaviation.org for hours, exhibits, and special education programs.

- **Visit the Intrepid Sea, Air & Space Museum,** located aboard the aircraft carrier Intrepid, a National Historic Landmark. The museum, on Pier 86 on the west side of Manhattan, also showcases the space shuttle Enterprise, as well as a large collection of aircraft, including the Concorde. Go to intrepidmuseum.org for hours, exhibits, and guided tours.

- **National Aeronautics & Space Administration (NASA)** has a network of websites geared to students by grade level, as well as programs for teachers.
  - **Grades 9-12** (nasa.gov/audience/forstudents/9-12/index.html). Meet some of NASA's women engineers, scientists, and astronauts, and check out NASA's Facebook page for high school and college students.
  - **Quest.nasa.gov.** This site is geared toward students who want to learn more about space exploration. Find mind-bending challenges, links to the latest news about NASA missions, and biographies of aerospace pros.
“S.T.E.M.”citement*

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The Cradle of Aviation Museum, Nassau County’s Long Island STEM Hub and home to the STEM Magnet Academy, brings excitement to STEM through…

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For more information contact our Education Department at 516-572-0559 or visit www.cradleofaviation.org.
Driven by a growing demand for computer programmers—and more basically, by the argument that everyone should have at least a basic understanding of how digital devices work—coding’s popularity has led to more opportunities for students in elementary, middle, and high schools to give coding a try. We think you should join them; here’s why:

**It builds problem-solving skills.** The essence of coding is the pursuit of a solution: Coders manipulate things—words, numbers, graphics—to make them behave a certain way for computer users. The computer is, as programmers like to say, “dumb but obedient,” and the process of figuring out how to make it do what you want it to do requires tenacity, critical thinking, and clarity of thought. (Throwing proverbial darts at the wall won’t work.) The ability to think “algorithmically” that is, to break complex problems into smaller, logical pieces—will help you no matter which profession you choose.

**You might be good at it.** Computer science professors suspect that some students don’t choose to pursue degrees in this field because they don’t have any exposure to it as middle- or high-school students. By trying coding early on—before you’re on a college campus—you’ll be able to test out your talent and interest before you face the high-stakes decision of choosing a college major.

**Apps and SmartPhones aren’t going anywhere.** Given digital devices’ role in modern life, it’s probably a good idea to have a basic understanding of how they work. You study science and music and literature to develop literacy—not because you’re necessarily going to be a biologist, opera singer, or novelist. Similarly, you should have a basic understanding of the computer languages that influence and affect so much of your life.

**It could lead to your dream job.** Learning how to code is the first step toward a career as a software programmer or developer, and it’s hard to think of a company or organization that doesn’t need these professionals. Sure, Google and Facebook are uber-reliant on programmers, but schools, non-profits, hospitals, multinational companies, and small businesses all need them, too. In fact, the U.S. Bureau of Labor and Statistics projects that opportunities for computer software developers will grow by 22 percent between 2012 and 2022, much faster than average for all industries. And with a median income of more than $93,000 a year, developers are among the highest-paid professionals without advanced degrees.

**It’s fun.** Coding is like figuring out a puzzle or playing a game of strategy. Students who start with the basics—like the Scratch language, developed at MIT—don’t even realize they’re learning how to think like programmers. We call that a win-win.

**Where to Code:**

**Coder Dojo:** Part of a global movement to teach students how to code, Coder Dojo invites children ages 7 – 17 and their parents to attend free workshops, where a presenter teaches about a computer-related topic and then instructs students on how to code in a variety of languages. (Note: You must bring your own laptop.) Local workshops kick off this academic year on September 21 at St. Joseph’s College of New York and on October 18 at Stony Brook University. Spots fill up quickly: Learn more and register at coderdojolongisland.org.

**Code.org:** This site, established by a non-profit organization dedicated to giving K-12 students an opportunity to learn computer programming, offers well-done tutorials of increasing complexity. Students begin with the basics, courtesy of drag-and-drop programming and lectures from heavy hitters including Bill Gates and Mark Zuckerberg. Other lessons introduce popular programming languages including JavaScript and Python.

Special thanks to Sister Jane Fritz at St. Joseph’s College of New York for her help with this article.
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BRING THE WORLD YOUR BEST
In general, engineers innovate by solving problems and creating new systems, technologies, and structures that make human life easier and safer—and more exciting. They apply scientific and mathematical principles to real-world challenges: building bridges, designing roller coasters, creating the next technological sensation (iPad, anyone?), developing new technologies to produce and preserve food supplies, dreaming up cleaner biofuels, and much, much more.

Aerospace engineer Theodore Van Karmen famously summed up the difference between science and engineering: “Scientists discover the world that exists; engineers create the world that never was.”

**Why it’s awesome.** Engineers often report feeling very satisfied with their jobs because they do work that matters to society. And engineers get to follow their curiosity and make calculated risks to solve complex problems. As a mechanical engineer explains, “most people wonder about why something is the way it is, but they never have the time or resources to figure it out. Lucky for me, it’s my job to pay attention to my curiosity and satisfy it.” (Plus, how much fun would it be to mention at a cocktail party, when someone asks what you do, that you had a hand in landing a rover on Mars?)

**What’s available.** Dozens of careers fall under the “engineering” umbrella, and many of these fields are facing a serious shortage of qualified professionals. Here are a few areas you might consider:

- **Civil engineers** design and build roads, bridges, railways, tunnels, parking garages, sports stadiums, airports, waste water treatment facilities—anything that affects the daily life and wellbeing of an average citizen. Visit the American Society of Civil Engineers’ website (asce.org) to learn more.

- **Computer engineers** make computers faster, cheaper, smarter, and smaller. They design the systems that process, transmit, and store data for a wide range of industries; these pros develop the computer systems that are embedded in airplanes, cars, ATMs, household appliances, biomedical instruments, and robots.

- **Environmental engineers** help solve the complex problems associated with a changing planet, growing population, and dwindling natural resources. For example, some work in water management; others design systems to reduce erosion, and still others develop programs to mitigate air pollution.

These are a small sample of the possibilities for students interested in engineering. Discover more at discoverengineering.org and tryengineering.org. (A warning: You might have a hard time choosing just one area to pursue!)

**Scholarships and mentoring organizations.** There are many websites for engineering scholarships. Here are a few to get you started:

For a big picture view: Go to college scholarships.org/scholarships/engineering-students.htm, for an array of scholarships from NASA to the Barry Goldwater Scholarship to the Hispanic Scholarship Fund. One example, the American Society of Heating, Refrigerating and Air-Conditioning Engineers offers scholarship awards between $3,000 to $10,000 to full-time undergraduate engineering students.

The Society of Women Engineers (swe.org) is a strong advocate for increasing the participation of women in the engineering and technology fields. In 2013, SWE disbursed over 200 scholarships valued at $550,000, according to its website.

Also worth checking out: National Society of Black Engineers (nsbe.org) and the Society of Hispanic Professional Engineers (shpe.org).

**exploring careers:**

Maybe you were the kid who played with Legos for days on end, constructing ornate buildings and bridges and vehicles. Or maybe you took apart your electrical toys to figure out how they were made. If so, engineering might be the career for you.
Located in the heart of a dynamic college town, ninety minutes from New York City, SUNY New Paltz is a creative, diverse, challenging, and supportive environment where you get a degree from a highly selective university and an education rich in experiences that will equip you to succeed. At New Paltz, you are encouraged to explore and take intellectual risks, to find your passion, to begin your path, and to find your voice. This journey in self-enrichment and discovery is fostered through lessons in open-mindedness, ingenuity, and a broad spectrum of perspectives that reach far beyond the classroom.

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– U.S. News & World Report

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– The College Database

Offering STEM opportunities, including pre-med, biochemistry, computer science, physics, astronomy, engineering and our new 3D printing curriculum.
The two go hand-in-hand: “Life sciences” refers to the study of living organisms, while “health sciences” apply that knowledge to promoting human health. Disciplines that fall in this category include pathology (the study of disease), and physiology (the study of the physical and chemical functions of living organisms). Life and health sciences are so intertwined that some colleges and universities combine them into one department.

**Why it’s awesome.** Thanks to rapid advances in technology, science has seen the growth of new specialties in life and health sciences. Scientists today are exploring ideas and using tools that their colleagues 30 years ago couldn’t even imagine.

For example, scientists interested in nutrition and genetics are working in nutrigenomics, the study of how food and genes influence one another. One day, we might know enough about individual gene expression to understand how much of each nutrient is perfect for each person.

Another exciting emerging field is synthetic biology, which designs and builds new biological devices and systems. Synthetic biologists can build new strands of DNA and insert them into empty living cells. These cells might then perform new functions. So what? Synthetic biologists might be able to create biological “robots” that produce chemicals, like biofuels, or bacteria that consume pollution. Is your mind blown yet?

**What’s available.** A lot. There are hundreds of fields that might satisfy your curiosity. You might like to become an agronomist—a scientist who improves the quality and production of field crops. Maybe you’re interested in how diseases spread, so you’ll pursue a career in epidemiology. If you have both artistic and analytic skills, you might like to become a medical illustrator, specializing in drawing parts of the human body for textbooks and presentations. You can combine your interests in biology and chemistry and become a pharmacologist, someone who develops new medicines and improves on old ones.

**How you can prepare now.** With so many fields to consider, you’re smart to do a little research now—before you get to college. Call science departments at local colleges and ask if you can visit classes, chat with professors about their fields, and tour the labs. You can also check in with the HR departments of your local healthcare systems, such as North Shore-LIJ on Long Island, NY, and find out if there are internships or job-shadow days available for high school students.

And keep up with scientific news at websites such as ScienceDaily.com or EurekAlert.org.

**Explore on the Web.** Ever heard of a perfusionist? The starting salary for a recent graduate is between $60,000 to $75,000, and because of the aging population, there will be increased demand for perfusionists. Go to healthcareersinfo.net to find out more about this health profession and about 60 others, many of which you probably seldom hear about. This website provides job descriptions, salary estimates, college education requirements and financial aid.

If you lean more to the STEAM “Arts” side of you, the health professions are a great place to use your communication skills and creative expression. For example, there are careers like art therapist, or medical illustrator or medical historian, where a background in arts and humanities is ideal. Go to explorehealthcareers.org, and find out more in the “Arts and Humanities in Health” area.
Once you start thinking about all the careers available in healthcare, it’s easy to see how important the STEM (Science, Technology, Engineering and Math) disciplines are to a hospital organization. That’s why North Shore-LIJ Health System is proud to support local students, parents and teachers with our involvement in the Long Island STEM Hub – a group dedicated to education and opportunity. It is estimated that by 2018 there will be three million jobs open in STEM professions. Now is the time to plan your future with us!

HEALTHCARE: Where all STEM subjects converge.

nslijcareers.com
If you like solving puzzles and you’re an early-adopter of new technology, a career in IT might be perfect for you.

There’s hardly an industry alive that doesn’t need professionals who specialize in information technology. At its core, “IT” is the management of data, and IT pros use hardware and software to store, transmit, analyze, and protect information. Like their colleagues in other STEM fields, these experts are problem-solvers and critical thinkers.

**Why it’s awesome.** Because IT professionals are so important to so many industries, you get to choose which areas appeal most to you. Interested in finance and IT? Pursue a gig with an investment firm. Love professional sports? IT gurus help develop better equipment and design systems that simulate play or capture motion for later analysis. Considering a career in marketing? IT professionals are at the center of the discussion about “Big Data,” information gathered from online users’ activity. The opportunities are wide open. Plus, technologies evolve quickly, so IT employees rarely do the same thing year after year. There’s always a new language to learn or a new server to consider, so if you have an inquisitive mind, you’ll find a lot of satisfaction here.

**What’s available.** A lot. IT professionals do all sorts of things: Everyone is talking about “cloud computing.” Cloud architects give structure to the various computer, servers, and data systems that make up the “cloud.” Computer forensic investigators use computer-based technology to identify and analyze crime data. (Hello, cool job.) Health IT specialists help doctors’ offices and hospitals with the enormous task of organizing and protecting digital health records. And mobile application developers create programs for smartphones—a rapidly growing field, as more companies try to find ways to engage customers on their mobile devices. There are dozens more jobs that fall under the IT umbrella, so if one of these doesn’t appeal to you, don’t worry: You’ll find a job that does.

**How to prepare now.** You’ll need a strong technical background in programming languages, such as Java, C++, and PHP. (Even now, there’s debate among IT professionals about which languages are most essential, but you should be exposed to a few different ways of thinking about programming.) Taking advanced math and science courses is important, of course, as is honing those communication skills: Contrary to the pop-culture ideas of IT “islands,” professionals here need to be able to collaborate with their peers and share ideas.

**What Subjects to Study in High School.** A strong background in computer science, especially coding basics (see page S16), as well as a solid foundation in algebra, calculus, geometry, and English, are required for individuals working in the Information Technology field.

**Education Requirements:** The computer science field offers you the opportunity to start out with an associate’s degree or the completion of a certification program, and then continue on to complete a bachelor’s degree or master’s degree as you move into jobs that require more skills and responsibility.

Go to sciencebuddies.org, for detailed information on education and training requirements for computer programmers, database administrators, or computer systems analysts, among the many career options available in the computer science field. This website also includes videos and fun project ideas to help you explore your interests in these areas.

Another good website is trycomputing.org, where you can watch a short video on computing, meet real-life professionals, and search for colleges and universities with math and computer science-related degree programs.
Changing the world requires revolutionary thinking that goes above and beyond, and at Vaughn College that’s the type of thinking we instill in you. Vaughn offers an array of master’s, bachelor’s and associate degree programs— including one of the only degree programs in mechatronic engineering in the New York metropolitan area, and 92 percent of our graduates are employed or continue their education within one year of graduation.

Set your sights on Vaughn College and start thinking above and beyond.
No doubt you’ve heard about renewable energy, which comes from natural resources such as wind, water, sun, and geothermal energy. It’s a hot topic at the center of discussions about climate change, economic development, and the growing energy demands of a burgeoning international population.

Sounds important, right?
It is. And with importance comes opportunity. Governments, corporations, utilities, and consulting firms all hire renewable-energy professionals as these organizations participate in the quest for cleaner, cheaper energy. There’s a challenge here, too. A few years ago, we thought we would soon run out of oil, but fossil fuel technology has grown more quickly than green-energy tech. What does that mean for you? You’re probably smart to learn about the science of green energy and of fossil fuels, which will make you a key player in the sometimes highly politicized discussions about how and where Americans source energy.

Why it’s awesome. You could save the world and make people’s lives better. (It’s like being Superman, but without the tights and cape.) And there are opportunities for people with one- or two-year certificates, two-year degrees, and four-year degrees, so nothing should stop you if you’re curious about work in green energy.

How to prepare. No surprise here: The more science and math knowledge you have, the better. And consider joining extracurricular clubs that emphasize hands-on application of scientific principles. (Does your high school have an environmental club or a physics group? Sign up.)
If you’re sure you want to work in renewable energy, consider any of the educational programs designed for students like you. These programs are relatively new, and they run the gamut from technical training in a specific field to high-level interdisciplinary study. The diversity means you should ask a lot of questions about each program’s curriculum: Does it emphasize hydropower over solar? Is it geared toward research and development or public policy?

If you’re not sure you want to work in green energy, you can also major in engineering, science, computer science, or another STEM field and consider a minor in environmental studies or renewable energy.

An awesome example. Farmingdale State College unveiled a solar carport and charging station on their campus. It accommodates 20 electric-charged vehicles at a time, draws its power from 390 solar panels above, and produces approximately 100 kilowatts of electricity. Another key element is the Energy Smart House which will be equipped with smart appliances controlled by a smart meter so that the owner will be able to monitor the house’s energy use at any time in any location.

Learn more:
Eia.gov/kids: This site is a great introduction to the basics of energy, with puzzles and games to stimulate your thinking.
Greencareersny.com: Here you’ll find news about green-energy projects and job opportunities throughout New York—a helpful resource for teens and adults.
Need.org: Click on the “Students” tab for ideas about how you can reduce your community’s energy consumption. And consider applying for the organization’s annual scholarship or Youth Awards.
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The Bramson ORT Programs Gainful Employment Disclosures are posted on www.BramsonORT.edu
Fascinating and essential: Robots do all kinds of work that people can’t. They examine the depths of the ocean and the far reaches of space. They defuse landmines in war-torn countries. They act as prosthetic limbs for quadriplegics, lift equipment and supplies too heavy for even the beefiest human being, and—one day soon—serve as first-responders during natural or manmade disasters.

Why it’s awesome. There’s a whole lot of innovation happening with robotics, driven by sensing technologies and elaborate algorithms that enable robots to work alongside people. These new robots can “observe” human activity and add information to the algorithms that drive their actions. (Yes, we’d call that “learning.”) As a result, these new robots can anticipate what their human counterparts will do next, making them ideal assistants (who won’t steal your lunch from the office fridge).

What this means is that robots could do the work we don’t want to do—and some of the work we do. But as automation becomes more commonplace, we’ll see a whole new realm of career opportunities open up, much the way the Industrial Revolution brought a major shift from jobs in agriculture to jobs in manufacturing. Scientists and engineers predict that the most successful professionals of the future will be the ones who know how to interact with robots, no matter the field. You’ll need to know how to use robots to boost productivity and your own creativity in solving new challenges.

How to prepare now. Robotics professionals rely on advanced math and science skills, so take as many classes as you can in these subjects to prepare for college-level courses. Because so much of their work is computer-based, it’s a good idea to take electives in computer science, programming, or applications. Consider joining an extracurricular robotics club, and if there isn’t one available, try your hand at building a robot in your free time. (YouTube has a selection of videos with instruction.)

Enhances STEM learning. Robotics is increasingly being considered as the fourth “R” of learning with Reading, WRiting and ARithmetic that today’s students must understand to succeed in a highly competitive, technology-driven world. It integrates all STEM fields: Mechanical, electrical, electronics, control engineering, computer science, technology, math and science.

Robotic competitions. You can win scholarships, meet new friends, and bring home nice trophies in robotic competitions. Go to page S34 (STEM Outside the Classroom) for websites and organizations that host robotic competitions.

Learn more. The new book Robot Futures by Illah R. Nourbakhsh (a professor at MIT) examines how our interaction with robots might change our daily lives. (It’ll appeal to anyone who likes a combination of imagination and plausibility.) And for shorter reads, check out spectrum.ieee.org/robotics and catch the latest news from the field.
Since 1999, more than 14,000 Long Island high school students have participated in SBPLI’s FIRST Robotics STEM-based programs. The students have described the robotics experiences as “life-changing!”

**WANT TO GET INVOLVED?**
Ask your school to contact us about starting a team to compete in this season’s events!

Students who participated in FIRST Robotics Competitions in 2013 had access to over $16 million in college scholarships throughout the country.

SBPLI partners with Farmingdale State College to offer the Fred Breithut Memorial Scholarship.

For more information, call (631) 627-8400 or visit www.sbpli.org
Why it’s awesome. It’s a great way to combine creative talent with analytical skills. The most successful game designers are brilliant storytellers, able to visualize and articulate every detail of a game’s narrative; they also have a deep understanding of programming and graphics. If you’re left-brained and right-brained, you might love game design.

How to prepare. As you’re considering colleges, you might be tempted to study game design or game programming. But career counselors recommend that you enroll instead in a top-notch computer science program. Why? You’ll have a broader education in all aspects of programming and coding, giving you an edge when platforms in the gaming industry change. (And they will.) Plus, your aspirations might change down the road, and a less specialized degree will give you more opportunities.

Meanwhile, prepare now by designing your own games. Hiring decisions often hinge on a prospective employee’s portfolio, which should include several “shipped games”—titles you’ve created and released to the big, bad world on the App Store or Google Play. Experts suggest using tools such as Game Maker Studio and Unity and keeping it simple: You don’t have to design games that compete with the epic masterpieces available to avid gamers. You just have to show that you can design and think creatively.

And one final piece of advice: Develop interests outside of gaming. Much like novelists don’t just read other people’s books to find inspiration, video-game developers must have deep knowledge of other fields—history, art, philosophy, warfare, and sports, for example—to dream up new ideas for games.

Learn more:
IGDA.org: The International Game Developers Association is a prime place to learn more about the work gamers do. Find advice on breaking in, information on conferences, and details about local chapters where you can network.

Gamasutra.com: Full of industry news and behind-the-scenes details, this site also has an up-to-date list of available jobs and a calendar of game-development events throughout the world.

GameCareerGuide.com: Look here for the latest news on the gaming industry and good advice from successful game designers about launching a career. The “Digital Counselor” tab will guide you through a game-design-specific search for college programs suited to your interests and preferences, like where you’d like to live and work.

Connect your STEAM “Arts” skills with video game design careers.
Do you like to write and use your imagination? A video game script writer, not only creates the storyline for a game, but also works on character development and scenery, as well as the music and sound for the game. The script writer must be very detail-oriented, and well-rounded in STEM subjects, as well as the humanities.

However, if you have a more artistic leaning, there are several video game art careers that might be a good fit for you. Concept/storyboard artists flesh out the game with sketches and paintings of characters, background, and vehicles in a game.

Character artists and animators produce the characters and objects that make up the game, while texture artists make sure the textures are mapped onto the 3D objects in a detailed and convincing manner. Go to adigitaldreamer.com to learn more about these jobs and others that you might find in a video game design company.
In March of 2014, a seven-member team representing the Middle States Commission on Higher Education came to Dowling College to conduct a once-a-decade evaluation. Here are representative excerpts from their final report.

“The team was impressed with the institution’s commitment to its educational mission, which we witnessed repeatedly.”

“There are many achievements occurring daily at Dowling.”

“The team commends the college community because everyone is working toward student learning...The teamwork and mutual respect among colleagues in all areas is demonstrable and admirable.”

“All groups appear to work well together with a universally strong team spirit for the good of the students and the institution.”

“It is apparent that academic quality control is important to the College.”

“The team’s visit confirmed a student-centered community galvanized to ensure that students have a positive and challenging experience.”

“During our visit to your picturesque campus, the team had many ‘wow’ experiences and was impressed with the competence and quality of (the College’s) work, in addition to the inspiring students we met.”

and...

Dowling College’s Aviation Program recently became the first in New York State, at any college or university, to earn full accreditation from the Aviation Accreditation Board International.
There’s just one problem, you don’t want to go to a four-year college. There are many roads to a future in a STEM-related field. While many may require a four-year degree, a certificate program, two-year associate’s degree, or a specialized training program may fit well with your personality and interests. A recent report about STEM jobs revealed that employees without bachelor’s degrees hold about half of all high-tech jobs. The average STEM job open to a person without a bachelor’s degree pays $53,000—almost $8,000 more than the national average wage (for all workers, regardless of degree type).

For example, there are many opportunities in healthcare, paralegal studies, criminal justice, and graphic design that require two year degrees or specialized training. Carefully consider your interests, and consider prepping for a career in any of these fields:

**Machinists.** Using power metal-cutting tools, a machinist creates essential machine parts. Machinists must be precise and an expert on how power tools—lathes, drill presses, and others—work on various materials. They generally learn the trade through a combination of technical training and apprenticeship programs; together, this instruction can take four or five years.

**Technical writers.** You’re a wordsmith and a technophile. Combine those skills and become a technical writer who writes the content for tech companies’ user manuals. Train at private-sector seminars, community-college courses, and online programs.

**LPNs.** Becoming a licensed practical nurse is the quickest way to start your career in nursing. These nurses are hands-on caregivers, administering medicine, checking vitals, collecting patients’ health history, dressing wounds, and more. Training is generally a short one-year program at a community college or vocational school.

**Electricians.** Every business needs electricity, and electricians are the people who make sure the power supply is reliable and safe. These pros read blueprints; connect breakers, fuses, outlets, and other components; assess the quality of electrical systems; and keep up with government regulations. Most electricians start by joining an apprenticeship program. Others pursue training at a technical college and then look for apprenticeships.

**Automotive.** Ready to learn a trade? You can train for jobs that actually exist (yes, there is a skills gap). And with the importance of technology in transportation, STEM under the hood might be your calling. Today’s vehicles are computers on wheels. Students use algebra to calculate compression ratios while geometry is used as it relates to engine torque. Geometry along with math determines optimal suspension performance. And talk about applied physics...try lifting a ton without hydraulics. Top manufacturers in the transportation industry are looking to fill thousands of jobs. Entry-level techs that learn their way around a car, truck, motorcycle or boat are in high demand. In fact, transportation industry employment is expected to grow 17% in auto and 21% in marine.

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**So you’ve heard about the enormous opportunity in STEM fields—those that involve science, technology, engineering, or math skills. And you think you’d like to have a high-tech job that allows you to apply scientific principles and use the latest technology.**

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**Check out pg. C38 to learn about opportunities at community colleges and technical schools.**

Flip it!
Universal Technical Institute offers complimentary school workshops that bring STEM to life in exciting workshops that promote careers involving science, technology, engineering and math.

**Classroom Workshop Series**

**WORKSHOP 1: STEM & NASCAR**
- Students see how STEM impacts the economy
- Define the role of STEM in transportation
- Examine prospective STEM career paths
- Participate in a hands-on NASCAR activity

**WORKSHOP 2: Now is the Time**
- Students are engaged in planning for their futures
- Investigate options after high school graduation
- Learn the importance of technology in transportation

**WORKSHOP 3: Opportunities in Technician Training**
- Investigate student options after high school graduation
- Discover why transportation is critical to the economy
- Learn about the various STEM training options at UTI

**Meet Your Speaker:**
Michael Cruz

**Favorite Quote:**
"If it’s meant to be, it’s up to me."

Michael Cruz is proud of his Long Island, New York, roots and shares a personal connection with the students who attend over 150 schools in the area. He sees his role as a motivator and supporter of students’ dreams, and offers to help them achieve their life goals after high school graduation.

Additionally, Michael is a husband and father of two young children. He enjoys time with his family plus his volunteer work with the Cub Scouts and youth basketball.

**Contact Information**
Michael Cruz
Admissions Representative
Cell phone: 516-368-1808
Email: micruz@uti.edu
Website: UTI.edu
Let us introduce STEM high schools and STEM career academies. Recognizing the growth and importance of STEM learning, two jurisdictions on Long Island, NY, have created special STEM high schools to give highly motivated students two-year or four-year programs that integrate engineering and applied sciences to a project-based and hands-on-learning curriculum.

A year ago, Nassau County BOCES, in partnership with the Doshi Family Foundation, created the Doshi STEM Program – a four-year, half-day high school program (nassauboces.org/steam). This fall, the regional STEM High School of Engineering and Applied Technology will open under the auspices of the Eastern Suffolk County BOCES. Eleventh-grade students will attend a full day, two-year program at the new academy, where they can also earn up to 15 college credits (academyli.org).

At both STEM high schools, teachers are certified in math, science and engineering, and the students go on field trips and tours, as well as meet with real scientists, engineers, and technicians. Admission to both of the STEM high schools is competitive and limited. Each STEM high school has strong partnerships with local universities and businesses, as well as the Long Island STEM Hub (see center pull-out).

Six Long Island school districts (see pg. C42 for list) have launched their own STEM career academies, often described as “a school within a school.” The career academies focus on a specific STEM industry, such as health care, engineering, or information technology. Similar to STEM high schools, the career academy teaches students to apply their knowledge to real-world questions. So in a “green tech” career academy, you might use your math and science skills to figure out a company’s return on investment for solar panels.

If you have an opportunity to enroll in a career academy or STEM high school, here’s why you should seriously consider it:

**You get an insider’s look at careers.** Local businesses partner with career academies and STEM high schools to offer internships, special presentations by guest speakers, tours of facilities, and job-shadow days.

**You’ll learn what you love—and what you don’t.** Maybe you’ve dreamed of being an aerospace engineer since you were six, but you probably don’t know much about the day-to-day work. A career academy focused on aerospace teaches you not only about the industry but also shows you the actual work involved. This experience gives you a chance to figure out if you’ll like your chosen field—before you start paying for college.

**You’ll discover new opportunities.** There are way more jobs available to you than you can imagine. Take this example: The North Shore-LIJ Health Systems employ 50,000 people, and 40,000 of them do non-clinical work (meaning they’re not treating patients directly). That’s good news for science-minded students who are more interested in administration, for example, than in diagnosing or preventing disease.

**You have experiences that boost your resume for college.** A successful college application explains what makes you distinctive and interesting—and a good addition to campus. College admissions officers are looking for students who’ve had experiences that will help influence the college community in positive ways. Your time in a career academy or STEM high school makes you a compelling candidate—and gives you plenty to say in your application essays.

**You stay connected.** A newly formed alumni association, supported by the Long Island STEM Hub, helps career-academy graduates keep in touch with each other and with local employers, who make internships available to these college students.
SOPHOMORES AND JUNIORS
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Harry B. Ward Technical Center (WTC)
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For more information, please call a Tech Center or see our full list of course offerings at www.academyli.org

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Outside of the classroom, you might discover that you like science and math when you have more freedom to explore and test your ideas. And if you already love your science and math classes, extracurricular activities will help you apply your knowledge and talent in new ways.

Ready to give STEM activities a try? Here’s where to look:

**Scouts.** The Boy Scouts of America offers Nova Awards to encourage Scouts to explore the basic principles of STEM. Cub Scouts can consider why rockets have fins, for example, or where a local creek flows, while Boy Scouts ponder projectile motion. Learn about requirements at [scouting.org/STEM](http://scouting.org/STEM).

The Girl Scouts of America have created “leadership journeys” related to STEM, based on research that shows girls are more interested in science and math when they understand how their work helps others. The journeys emphasize hands-on learning and cooperation—both important skills in STEM careers. Find out more at [girlscouts.org/program/basics/science](http://girlscouts.org/program/basics/science).

**Competitions.** Need a little incentive to explore STEM principles? Look no further than the many contests open to middle- and high-school students. A quick search online will yield many results; here are a few examples:

- **The International Space Settlement Design Competition** ([spaceset.org](http://spaceset.org)) invites teams of high school students to design a space settlement based on parameters provided by the sponsors. The prize: Twelve winning teams from around the world are invited to compete at the NASA Johnson Space Center in Houston.

- **The National STEM Video Game Challenge** ([stemchallenge.org](http://stemchallenge.org)) invites middle and high school students to design video games using free resources and a helpful toolkit. Each winner gets a laptop loaded with game-design and educational software and $2,000 for his or her school or non-profit of choice.

- **The DuPont Challenge** ([theduchallenge.dupont.com](http://theduchallenge.dupont.com)) is an essay contest. Students research broad issues (food production or energy security, for example) and then write about innovative solutions.

- **FIRST Robotics programs** ([USFIRST.org/roboticsprograms](http://USFIRST.org/roboticsprograms)) challenge students ages 6 to 18 to create robots using various resources and principles. Winners earn scholarship money. (Score!)  

**Extracurricular activities.** Your high school might already have clubs and organizations geared toward budding scientists, but if it doesn’t, start one. You could ask a science teacher to sponsor your club and find out about requirements for new organizations. Once you’re legit, plan field trips, compete in the National Science Bowl or the Science Olympiad, even invite local scientists, engineers, doctors, and researchers to speak to the group.

If a school club isn’t your thing, try finding an internship or mentorship program where you can learn from science and engineering professionals. One example: ACE ([acementor.org](http://acementor.org)), a mentorship program in which students are paired with architecture, construction, and engineering firms, where the students engage in real-world work and earn grants and scholarships.

**Open-learning initiatives.** These web-based courses are like college-level independent studies. You get access to course materials for free and feedback on your progress. Bonus: You’ll discover specialties (anatomy and physiology, or biochemistry, for example) that you probably won’t learn in high school. Check out Carnegie Mellon’s initiative at [oli.cmu.edu](http://oli.cmu.edu) and Harvard’s version at [extension.harvard.edu/open-learning-initiative](http://extension.harvard.edu/open-learning-initiative).
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Enter poster competitions. (No, we’re not talking about replicating your favorite Lady Gaga concert art.) These contests invite students to conduct original research into specific STEM-related issues or problems and then share that research on posters, in written abstracts (the basic summary of the project), and through oral presentations of their research, generally at scholastic STEM conferences.

Interested? You’re in luck: We gathered experts’ best advice for how to get ahead in STEM poster research competitions. Here’s what they had to say:

**Know the rules and requirements.** Sounds dumb, right? Of course you would read the rules—but you’d be surprised how often students fail to note, for example, how to submit their abstracts or how large the posters should be. Also, punctuation and spelling are very important, and be sure to include a list of references and bibliography, or you could lose points in the final score.

**Start with a problem.** Your research shouldn’t be about something. It should be an attempt to solve a problem. The more specific it is, the better able you’ll be to conduct strong research in pursuit of a single question. For example, a weak topic is “the weight of metal bridges.” Instead, you might ask how to reduce the weight of a metal bridge by changing the structure of its components. See the difference?

**Be specific.** As you write your abstract and prepare your oral presentation, describe exactly how you conducted your research and what you conclude based on your findings. Generalities don’t fly.

**Make it look good.** Now is not the time to indulge your STEAM (Arts) side: Your poster should be clean and easy to read, and graphics, photos, or figures should boost a reader’s understanding of your research.

**Admit weakness.** When you read scientific research, you’ll discover something surprising: The authors often explain the potential problems of their research methods and make recommendations for alternative approaches. Your poster and oral presentation should do the same.

**Channel Abe Lincoln.** Your mom is right: You have to practice your presentation (over and over) in order to wow the crowd. Judges give full points for presenters who can share the details of their research with confidence—and without reading off a set of note cards. And don’t assume that your audience knows acronyms or esoteric words. Take the time to explain them briefly. Non-verbal skills, such as direct eye contact and a relaxed, self-confident poise, also will enhance your presentation.

**Think “So what?”** Be prepared to discuss the implications of your research. Why does it matter? Think about your research as part of a larger conversation about the problem you’ve addressed and any related problems. The judges are bound to ask.

**Consider the future.** Another favorite question from judges is, “What’s next?” Be prepared to recommend how you think scientists should build on your work to find out more about the issue you’ve investigated. Most good research answers one question and poses at least two more: How would you try to answer those questions?

**Review your critique.** Judges involved in research poster competitions usually are professionals or educators in STEM fields. They want you to learn and to gain confidence. Spend a little time reviewing their comments for ways to improve, and ideas for new projects.

Now that you’re getting more involved in STEM, it’s a great time to explore these topics in a greater depth, learning more about scientific research techniques and scoring some high-fives and maybe even some scholarship money for your knowledge.
Connecting Students, Higher Education, Community & Business
To Build Tomorrow’s STEM/STEAM Leaders

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Parents & Community Groups – Learn How You Can Nurture STEM/STEAM Achievers

FOR MORE INFORMATION: Starting Nov. 1, go to the STEM Diversity Summit website – farmingdale.edu/stem – for registration and program information.

Or call: 631-420-2622.

Farmingdale State College
State University of New York

For more information on sponsorships, contact veronica.henry@farmingdale.edu
You know that the need for professionals with expertise in science, technology, and mathematics will grow rapidly in the next few decades, so it makes sense to help cultivate your child’s interest in these fields now. But instead of making Little Timmy swear to study civil engineering in 10 years, integrate science and math into your kids’ lives more subtly—and more creatively. Here’s how:

Put a scientific spin on every-day activities. Kids decide early (as young as 7, some research suggests) how they feel about science. Help them conclude that science is fun by talking about it. Why does your daughter have blue eyes like her dad? How does the Brooklyn Bridge support all those cars? Why do helium-filled balloons float—and how high will they go? The earlier your kids see that science and math are everywhere, the less likely they are to dread them when it’s time to study calculus and physics.

Resist the urge to solve every problem. Every day, at every age, a child encounters scientific problems. Young children puzzle over how to move a heavy pile of books from the living room to her bedroom, or how to make a paper airplane fly farther. Older kids calculate how long it will take to drive to soccer practice or wonder how to fix a faltering computer. Give your kids time to solve these issues, even if it would be easier—and quicker—for you to step in at the first sign of struggle. Scientists emphasize the importance of trial and error in developing scientific minds.

Take day trips. Lucky for us, science- and math-inspired resources are abundant in the Tri-state area. Carve out one day each month or two to check out a new museum or exhibit. Elementary-school age children will get a thrill from finding their way through the pitch-black “touch tunnel” at the Liberty Science Center or exploring in the 30,000-square-foot outdoor science playground at the New York Hall of Science. Even hard-to-impress teens will find fun at the Museum of the Moving Image, where they can learn about the intersection of scientific and artistic skills that creates films, TV shows, and digital entertainment. And you’ll find something for everyone at the relatively new Museum of Mathematics, which will persuade you that math is both hugely influential and great fun. (Try the square-wheeled tricycle and try not to laugh.)

Send ‘em to camp. The combination of playfulness and hands-on learning makes science and math camps excellent places to inspire your budding scientist. Campers at the American Museum of Natural History go in-depth with the collection, while aspiring engineers design and build robots at the Brooklyn Robot Foundry. Budding scientists age 13-16 can spend two weeks at Molloy College’s Summer Science Camp (molloy.edu) participating in a host of lab experiments and research projects. Many other local colleges also offer summer science camps as well.

Travel with science in mind. On your next vacation, consider how you can play with science and math. We’re not talking about creating elaborate lesson plans. Instead, choose an easy topic or two: Before you head to the beach, research with your kids how and why waves form or check out a book on different types of shells. Prior to your next cross-country plane trip, help your kids understand the physics of flight. And when you arrive, talk about the differences in natural life you see: Why does Florida have such big bugs? Why don’t palm trees grow in the Rockies?

A little extra work will go a long way toward inspiring your kids to develop into critical thinkers who love solving scientific problems. And who knows? You might even learn a few things, too.
TOURO COLLEGE
SCHOOL OF HEALTH SCIENCES
BAY SHORE • BROOKLYN • MANHATTAN

EXPERIENCE OUR STUDENT-CENTERED APPROACH TO UNDERGRADUATE EDUCATION

• Small classes / affordable tuition / personal advisement
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UNDERGRADUATE STUDIES
Biology - Health Sciences - Psychology

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For more information call: 631.665.1600, ext. 6264
Email: enrollhealth@touro.edu • visit www.touro.edu/shs

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Touro is an Equal Opportunity Institution
The 4Cs are essential regardless of which field a student chooses. They’re the skills that will separate a mediocre job candidate – one who can only repeat information he’s memorized or tackle a task someone shows him how to do – from someone who can apply that knowledge in innovative ways to create new solutions to 21st-century problems.

The public education system in the U.S. frequently emphasizes content knowledge, like memorizing multiplication tables or identifying elements on the periodic table. Certainly students need content as a foundation for exploring new ideas, but an education that stops with mere facts fails to develop the kinds of professionals employers say they want. Here’s another way to think about this challenge. An education – even at a top public school or elite college – cannot teach a student all the content she needs to know to perform a job, but top-notch teaching should cultivate the 4Cs so she’s able to apply knowledge she learns as she progresses through her career.

So how do we incorporate the 4Cs into your child’s learning now? Experts suggest parents can look for – and encourage – the following techniques in their children’s schools:

**Judgment calls.** Information flows like water from a fire hose; students need to practice evaluating the credibility and quality of data. Which pieces of info are reliable and relevant to answering the question at hand? Teachers who create interdisciplinary lessons and tests with opportunities to integrate sources of information help students practice this skill.

**Open-ended problems.** Instead of relying on multiple-choice tests, schools should incorporate assessments that require students to apply the information they’ve learned to answer questions, especially questions they haven’t already encountered in homework or textbooks. After all, how often is there a single right answer to a real-life problem?

**Presentation of original ideas.** Employers want professionals who can explain their ideas to a diverse audience: A computer scientist must be able to speak to clients who aren’t as tech-savvy as she is; a marketing executive has to explain his newest campaign to his colleagues in the finance department. The best way to cultivate this skill is to assign students a problem to solve and ask them to present their solutions to their peers while encouraging the other students to ask questions.

**Opportunities to revise.** Teachers often assign a project or a paper, grade the assignment, and move on to the next topic. A powerful alternative is to give students opportunities to try again. If a chemistry experiment failed, a student should have a chance to evaluate what went wrong and try another method. If a written argument about a piece of literature fell flat, the student benefits from creating a new thesis and crafting a stronger argument. The point isn’t to earn a better grade; instead, it’s to cultivate tenacity and practice approaching problems in different ways. In the real world, a professional (or a parent, politician, voter, or volunteer) often has to try several times to solve a problem or create a new product or service.

No doubt these teaching techniques may take more time and greater resources, but the payoff will be significant: individuals better equipped to bolster America’s economic strength and a nation of professionals able to tackle the most pressing problems of the 21st century.
Our colleges enable students to dream, thrive and flourish

We cultivate tomorrow’s leaders in science, math, engineering and technology

The Science and Technology Entry Program (STEP) increases the number of historically underrepresented and economically disadvantaged students pursuing careers leading to professional licensure or professions in mathematics, science, technology and health-related fields.

STEP provides students with academic enrichment and research experience in science, mathematics and technology content areas. Programs consist of summer and academic year components including:

▲ Core subject instruction/Regents exam preparation
▲ Supervised training in research methods
▲ High School and College admissions counseling ▲ Standardized test preparation
▲ Internships ▲ Career awareness/development activities

This ad sponsored by the New York State STEP Capital District Region.

StepForLeaders.org

Visit the Capital District STEP colleges’ websites for more information:

On almost every page of this Guide, you will find lots of interactive resources – from videos to podcasts, games, blogs, and websites – for you and your parents on STEM and STEAM activities.

Here are a few more recommendations from our advisory team of experts.

**Follow the money:** Full STEM scholarship at CUNY or SUNY College. New York State STEM Incentive Program, which provides a full tuition scholarship to students graduating in the top 10% of their high school class if they pursue and complete a STEM degree at a CUNY or SUNY college. Residency and job requirements also stipulated to receive full scholarship award. For an application and program details, go to [hesc.ny.gov](http://hesc.ny.gov).

**Bookmark These Websites:**
- sciencebuddies.org for career exploration;
- stemconnector.org for blogs, STEM scholarships, summer programs;
- 101science.com, a portal to science sites;
- lisciencecenter.org to visit the Long Island Science Center.

**Learn programming in a 3D environment:**
- alice.org; What’s Nano technology?, visit trynano.org; or more code videos, apps, games at codeavengers.com, codeacademy.com and blackgirlscode.com

**EngineerGirl.org:** Videos, fun facts, profiles, cool places to visit on family trips and vacations; or go to [ABET.org](http://ABET.org), for a list of applied science and engineering programs across the country.

**Go to Pinterest for great project ideas, cool apps:**
pinterest.com/pragmaticmom/stem-to-steam

**Worldwide Center of Mathematics:**
centerofmath.org.

**Museum of Mathematics, NYC:**
momath.org

**Stretching out:** Find out what other states and local communities are doing in STEM/STEAM education at [stemx.us](http://stemx.us).

**More on Career Academies.** These 6 Long Island school districts have launched their own focused on specific STEM career areas: Baldwin; East Islip; Massapequa; Plainview-Old Bethpage; Richmond Hill; South Huntington (middle school). Contact [LISTEMhub.org](http://LISTEMhub.org) to find out how you can start one at your school.
With 50+ Pre-college STEP (Science & Technology Entry Program) programs throughout New York State, you can get hands-on guidance, academic enrichment, mentoring and college admissions prep for your STEM and health career.

Learn which 49 colleges and universities sponsor undergraduate CSTEP (Collegiate Science & Technology Entry Program) programs which provide students with academic support, research and internships, career guidance and preparation for careers in STEM and health fields.

NYS Science Technology, Engineering & Math (STEM)
INCENTIVE PROGRAM

Full Tuition Scholarship to NYS students graduating in the top 10% of their high school class if they enroll and complete a STEM degree in a CUNY or SUNY college.

Eligible student must maintain minimum 2.5 GPA each year and commit to live and work in New York for at least 5 years in a STEM field after graduation.

Go hesc.ny.gov or tinyurl.com/NYS-STEM-Incentive-Program for full details.

To learn more about STEP and CSTEP, visit us at: www.StepForLeaders.org
Courses such as English, algebra, foreign language, and technology, will better prepare you for more challenging courses in high school. Start now to develop the skills that will help you succeed in college and life. Add your own ideas to these checklists:

**6th Grade**
- Talk to your school counselor, librarian and other adults who have interesting jobs.
- Develop strong study habits that help you earn good grades and high test scores.
- Read at least one book every month, just for fun.
- Participate in class activities.

**7th Grade**
- Begin taking advanced courses such as Algebra I and a beginning foreign language class. (Pace yourself. Take only the most difficult classes you can handle.
- Talk to your counselor and teachers about courses you can take in high school.
- Get involved in school or community-based extracurricular activities.
- Start reading magazine or newspaper articles – digital is OK.
- Keep a journal to develop good writing skills.
- Do well on standardized tests.

**8th Grade**
- Keep doing your best in school – study hard, earn good grades, and participate in class.
- Ask your counselor about challenging and interesting classes you can take in high school.
- Continue to explore different career options (check out sciencebuddies.com or connecttotech.org)
- Start saving money now to help pay for college
- Continue taking advanced classes in math, science, and foreign language.
- Talk to your college students (older brother/sister, family, friend) about their college experience.

More advice, activities and guidelines for middle and junior high school students can be found at studentaid.ed.gov.
You challenge the way things are.
You like to know how things work.
You create things for a better world.
You solve problems for others.

Visit these web sites today to get started!

Global resources:
Explore Career Information
Enter Competitions and Earn Scholarships
Try Programs and Projects

ConnectToTech.org

S.T.E.M. Search™
Long Island area:
Workplace experience | Career day events
Museums and Summer camps

• ConnectToTech is a 501(c)3 non-profit organization whose volunteers aim to inspire students to engage in technical and technology careers

“STEM learning today unleashes unbridled innovation tomorrow...”
CEO, Applied DNA Sciences

“STEM education is the foundation for success and sustainability of Long Island’s businesses and workforce...”
Vice President, LISTnet

“STEM is the portal to a high tech career in Intellectual Property Law...”
Managing Partner, Campolo, Middleton & McCormick

“STEM is a solid foundation to build successful engineering careers...”
Chairman, IEEE Long Island Section

“Technology skills are critical to delivering life-saving information for our public safety...”
CEO, IMPACT

“A STEM-educated technical workforce underlies Long Island’s manufacturing future...”
President, LIFT

“Experience STEAM at our YouthSpark annual student conference...”
CEO, We Connect The Dots, Inc.

“STEM skills fuel imagination and creativity in problem-solving for our clients...”
CEO, BASCOM

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Managing Partner, Campolo, Middleton & McCormick

“STEM learning today unleashes unbridled innovation tomorrow...”
CEO, Applied DNA Sciences

Visit these websitese today to get started!
1. Common Application  
commonapp.org
Pretty much every high school senior is familiar with the so-called “Common App.” It provides online and print versions of application materials for almost 400 schools. Students complete one application and essay that can be submitted to multiple colleges with one mouse click. Teachers and school counselors also can submit recommendations electronically.

2. FAFSA  
fafsa.com
Get comfortable with the website of the Free Application for Financial Student Aid. Administered by the U.S. Department of Education, it’s a user-friendly resource, and most importantly, it’s where you set up an account to apply for federal aid, including Pell grants, Stafford, Perkins and Plus loans.

3. FastWeb  
fastweb.com
If you’re hoping for a scholarship, this is the place to hunt it down. After registering, you can custom-search a database of 1.3 million awards based on your individual qualifications and needs. FastWeb also supplies info on job and internship programs and has an active discussion board as well.

4. NCAA  
ncaa.org
Any student athlete who dreams of playing at a Division I, II or III school should log onto this site and download the National Collegiate Athletic Association’s guide. This is also where athlete applicants submit a “clearinghouse form” that is used by college coaches for recruitment purposes.
<table>
<thead>
<tr>
<th>5. College Board</th>
<th>collegeboard.com/sat</th>
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<tbody>
<tr>
<td>You’ll need to create an account here so you can register for the SATs. This nonprofit organization of more than 5,700 member schools provides a wealth of other information as well. Its website is a great starting point to gather—and compare—basic data on colleges, including admission requirements, program offerings and costs.</td>
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<tr>
<th>6. The College Solution</th>
<th>thecollegesolution.com</th>
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<tr>
<td>On her blog, higher-ed journalist Lynn O’Shaughnessy covers the latest news related to colleges and gives especially good advice about how to pay for college. Give your parents a head’s up, too: The site’s online course “Cut the Cost of College” gets rave reviews from families, as does O’Shaughnessy’s book, <em>Shrinking the Cost of College</em>.</td>
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<tr>
<th>7. College Prowler</th>
<th>collegeprowler.com</th>
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<tr>
<td>You’ll get the lowdown on schools directly from students and recent grads. For each of nearly 1,500 colleges listed, you can learn about everything from acceptance rates to assessments of the campus social life.</td>
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<th>8. College Confidential</th>
<th>collegeconfidential.com</th>
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<tr>
<td>This site has a helpful search function (dubbed “SuperMatch”) and good advice for college-bound teens, but by far the best part of the site is the discussion boards, where students, parents, and admissions officers answer each other’s questions and offer support. Register to search the archived discussions or post a question yourself.</td>
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<tr>
<th>9. College Navigator</th>
<th>nces.ed.gov/collegenavigator</th>
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<tbody>
<tr>
<td>Chock-full of good basic information about colleges, this federal website is an excellent place to start your search, especially if you use the advanced search options. Build your list here, and refine it with info from other sites (and the all-important college visits).</td>
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<tr>
<th>10. Cappex</th>
<th>cappex.com</th>
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<tr>
<td>Another hot spot for finding schools that might suit you, Cappex offers a kind of “matchmaking” service: You create a free profile, and the site provides schools that you might like. The site also matches you with relevant scholarships. While you’re here, read students reviews of colleges and try out the “What Are My Chances” Calculator. (Just don’t get discouraged if the results aren’t favorable: An online algorithm can’t replicate the actions of a real, live admissions committee.)</td>
<td></td>
</tr>
</tbody>
</table>
junior year

 sept

 q Meet with your school counselor
 q Register for the PSAT/NMSQT at your high school
 q Attend a college fair

 oct

 q Take the PSAT
 q Start your college search
 q Open a 529 Savings Plan for college

 senior year

 sept

 q Attend a financial aid night
 q Polish your list of colleges
 q Register at commonapp.org
 q Start your applications

 oct

 q Write application essays
 q Get a list of local scholarships
 q Ask your teachers and counselor for letters of recommendation
Checklist for success

- Polish your application essays
- Confirm SAT or ACT scores at colleges
- Request transcripts sent to the colleges on your list
- Apply for a PIN to complete the FAFSA

- Finish applications before winter break, if possible
- Gather materials to fill out the FAFSA
- Submit supplements

- Complete the FAFSA asap
- Complete all necessary financial aid forms
- Schedule college visits for the spring

- Student Aid Report arrives with FAFSA results
- Review admissions letters & financial aid awards
- Keep studying so you don’t lose admission opportunities
Checklist for success

- Polish your application essays
- Confirm SAT or ACT scores at colleges
- Request transcripts sent
- Get practice guides
- Ask your teachers and counselor for letters of recommendation
- Get a list of local scholarships websites
- Apply for a PIN to register for the SAT or ACT
- Focus on your extracurricular activities
- Visit colleges
- Talk to adults about their college experiences
- Get a summer job
- Call college for details if you want to play sports
- Call the financial aid offices to confirm awards
- Practice for the SAT or ACT test
- Get a summer job and save
- Prepare for AP exams
- Submit final transcript to college
- Submit final transcript to the NCAA Eligibility Center
- Complete your senior-year schedule fulfills necessary financial aid forms
- Complete all supplements applications
- Register at local colleges
- Update your list of scholarship websites
- Review acceptance
- Send thank-you notes to teachers, coaches, counselors
- Visit STEMsearch.ConnectToTech.org
- Explore Career Information
- Enter Competitions and Earn Scholarships
- Museums and Summer camps
- Workplace experience|Career day events
- Museums and Summer camps
- Workplace experience|Career day events
- Visit these websites today to get started!

Mar
- Look for a spring college fair in your area
- Practice for admissions interviews
- Investigate college credit courses
- Revisit colleges at the top of list
- Call the financial aid offices to confirm awards
- Keep applying for scholarships

Apr
- Register for June’s SAT or ACT test
- Get a summer job and save
- Start planning summer college visits
- Enroll in college for June’s SAT or ACT test
- Wait listed? Call college for details
- Create a plan for your summer

May
- Make sure your senior-year schedule fulfills college requirements
- If you want to play sports, send a letter of interest to prospective colleges
- Review timeline checklist
- Submit final transcript to college
- Send final transcript to the NCAA Eligibility Center
- Take AP tests
- Send thank-you notes to teachers, counselors
The LI STEM Hub’s mission is to develop an integrated and effective systemic regional partnership between industry, academia and not-for-profit organizations to increase the number of Long Island students interested in and prepared for careers that support the region’s high tech industry and economic vitality.

The Long Island STEM Hub, formed as part of the Empire State STEM Learning Network, focuses on preparing students for the Long Island workforce through enhanced science, technology, engineering, and mathematics (STEM) experiences.

As the stewards for the Long Island STEM Hub, Brookhaven National Laboratory (BNL) and North Shore-Long Island Jewish Health System (NSLUJ) have partnered with many other organizations with STEM-based missions on Long Island to launch the Hub and develop strategies that fit the needs of Long Island businesses. BNL and the Cradle of Aviation serve as Hub anchors in Suffolk and Nassau Counties respectively. One such strategy includes the formation of eight Regional Industry Councils (RIC).

The following free websites will provide you with tips and tools to find the prefect STEM career.
listemhub.org  onetonline.org
stemcareer.com  stemconnector.org

**STEM Initiatives**

**FALL.** Teacher Professional Development Day – We encourage LI STEM companies to invite teachers into their industry setting and learn about the broad spectrum of career paths, skills and education needed for employment.

**WINTER.** Week of Code – For more information and to participate please visit: code.org

**SPRING.** STEM Island – During March, we promote STEM awareness on LI. We highlight events, competitions, business tours and other STEM initiatives available to the LI community.

**LI STEM Hub Annual Event.** Celebrates the contributions in education and collaboration with industry by highlighting “Stars of STEM” which involve; a student project showcase, STEM industry leaders and partners in education.
Why is a STEM educated workforce vital to Long Island?

A strong STEM workforce enables the growth of existing businesses and the attraction of other businesses to the region. It reduces the cost of doing business by lowering turnover rates and recruitment costs (particularly those related to the attraction and relocation of workers from outside the region). A STEM literate workforce reinvigorates industries that provide high paying jobs, producing the multiplier effects that drive regional prosperity.

This list represents Long Island’s strong and growing industry sectors that need well prepared STEM candidates.

### aerospace

<table>
<thead>
<tr>
<th>Occupation</th>
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<tbody>
<tr>
<td>Aerodynamicist</td>
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<tr>
<td>Aeronautical Engineer</td>
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<tr>
<td>Air Traffic Controller</td>
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<tr>
<td>Aircraft Mechanic and Service Technician</td>
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<tr>
<td>Aviation Inspector</td>
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<tr>
<td>Commercial Pilot</td>
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<tr>
<td>Environmental Engineer</td>
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<tr>
<td>Global Satellite Engineer</td>
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<tr>
<td>Machinist</td>
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<tr>
<td>Quality Assurance Engineers</td>
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<tr>
<td>Research Scientist</td>
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<tr>
<td>Space Medicine Support</td>
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<td>Welder</td>
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### energy & environment

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<tr>
<th>Occupation</th>
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<tbody>
<tr>
<td>Atmospheric and Space Scientist</td>
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<tr>
<td>Biostatistician</td>
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<td>Climate Change Analyst</td>
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<tr>
<td>Conservationist</td>
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<tr>
<td>Environmental Restoration Planner</td>
</tr>
<tr>
<td>Fire-Prevention and Protection Engineer</td>
</tr>
<tr>
<td>Forest and Conservation Technician</td>
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<tr>
<td>Geographic Information Systems Technician</td>
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<tr>
<td>Meteorologist</td>
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<tr>
<td>Park Ranger</td>
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<tr>
<td>Power Distributor and Dispatcher</td>
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<tr>
<td>Powerplant Operator</td>
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<tr>
<td>Solar Energy Installation</td>
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<tr>
<td>Sustainability Specialist</td>
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<tr>
<td>Water and Liquid Waste Treatment Plant and System Operator</td>
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<tr>
<td>WindTurbine Service Technician</td>
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### engineering & architecture

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<tr>
<th>Occupation</th>
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<tbody>
<tr>
<td>Architectural Drafter</td>
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<tr>
<td>Automotive Specialty Technician</td>
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<tr>
<td>Civil Engineer</td>
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<tr>
<td>Commercial and Industrial Designer</td>
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<tr>
<td>Construction Manager</td>
</tr>
<tr>
<td>Electronics Engineering Technician</td>
</tr>
<tr>
<td>Landscape Architect</td>
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<tr>
<td>Marine Architect</td>
</tr>
<tr>
<td>Materials Scientist</td>
</tr>
<tr>
<td>Nuclear Equipment Operation Technician</td>
</tr>
<tr>
<td>Photonics Engineer</td>
</tr>
<tr>
<td>Transportation Engineer</td>
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<tr>
<td>Urban Planner</td>
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</table>
### global business

- Accountant
- Actuary
- Auditor
- Business Intelligence Analyst
- Cost Estimator
- Financial Quantitative Analyst

### healthcare & life sciences

- Dental Hygienist
- Dietitian and Nutritionist
- Diver
- EMT or Paramedic
- Fish and Game Warden
- Food Science Technician
- Human Factors Engineer and Ergonomist
- Industrial Safety and Health Engineer
- Medical and Clinical Laboratory Technician
- Microbiologist
- Occupational Health & Safety Specialist
- Pharmacy Technician
- Respiratory Therapist
- Veterinary Technician
- Zoologists and Wildlife Biologist

### homeland security

- Air Marshal
- Computer and Information Research Scientist
- Customs and Border Protection
- Emergency Management Specialist
- Forensic Science Technician
- Immigration and Customs Enforcement
- Information Security Analyst
- Network Systems and Data Communications Analyst
- Risk Management Specialist
- Security Management Specialist
- Sociologist
- U.S. Coast Guard

### information technology

- Audio and Video Equipment Technician
- Audiologist
- Computer Network Architect
- Computer User Support Specialist
- Film and Video Editor
- Industrial Engineering Technician
- Microsystems Engineer
- Special-Effects Designer
- Telecommunications Engineering Specialist
- Video Game Designer

### manufacturing

- CAD Technician
- Computer Numerically Controlled Machine Tool Programmer
- Electromechanical Equipment Assembler
- Industrial Machine Operator
- Manufacturing Engineer
- Mechatronics Engineer
- Precision Instrument and Equipment Repair
- Product Safety Engineer
- Robotics Engineer
- Skilled Assembler
- Software/Computer GUI Engineer
- Transportation Planner
Meet Long Islanders from our growing STEM/STEAM community!

**aerospace**

**Michael Biancospino**
Connetquot High School  
Bachelor’s Degree  
Director of Engineering, Air Industries Machining, Corp.

After graduating from Cornell University, I returned to L.I., and found a job with Air Industries Corp., as a manufacturing engineer. In 2009, I was elevated to Program Engineering Manager working on major aerospace landing gear systems. Last year, I was promoted to Director of Engineering.

**Joseph DeRosa**
Rocky Point High School  
Certification  
Production Coordinator, Welding Metallurgy, Inc.

I received my welding certification in high school from Eastern Suffolk BOCES. My first job at Welding Metallurgy was as an Assembly Mechanic, where I learned all aspects of production and inventory management. At 22 years old, I was promoted to Production Coordinator, working with senior management on new projects.

**global business**

**Pina Campagna**
St. Francis Prep High School  
Bachelor’s Degree  
Patent Attorney, Carter, Deluca, Farrell & Schmidt, LLC

Based on all of the entrepreneurial efforts the last few years, Long Island may have cornered the market as a top tech community. As a result, Long Island is creating job opportunities for college graduates and will be able keep the area’s brightest and most creative youth from moving and taking their talents outside NewYork.

**Ryan Waibel**
West Islip High School  
Bachelor’s Degree  
Marketing Coordinator, A Plus Mobile Solutions

It is really exciting to work in the STEM industry right here on Long Island. I’ve always had a passion for technology and marketing and now I have the unique opportunity to market STEM education technology that is helping to prepare young students for the high tech careers of tomorrow.
### growing STEM/STEAM on Long Island

8 Regional Industry Councils (RICs) who prepared for and found exciting STEM careers right here “at home”.

#### energy & environment

<table>
<thead>
<tr>
<th>Name</th>
<th>School/College</th>
<th>Degree</th>
<th>Current Position/Company</th>
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</thead>
<tbody>
<tr>
<td><strong>Kenneth Sanger</strong></td>
<td>Brentwood Ross High School</td>
<td>Certification</td>
<td>Owner/CEO, <strong>Solar Dad and Sons Inc.</strong></td>
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<td>My industry of Renewable Energy incorporates each and every aspect of STEM. I made the leap into Solar right HERE on Long Island after over 20 years in the industry. I believe technology careers are limitless with more opportunities than ever before and it is a very exciting place to work as more new technologies are introduced.</td>
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<tr>
<td><strong>Michelle Wilinski</strong></td>
<td>Riverhead High School</td>
<td>Master’s Degree</td>
<td><strong>Electrical Engineer</strong> Department of Energy/Brookhaven National Laboratory</td>
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<td>Because Long Island needs smart, strong-willed women working in STEM, I focused exclusively on Long Island companies during my post-undergraduate job search. I completed my Master’s degree at Stony Brook while working at BNL. STEM careers aren’t easy, but incredibly rewarding.</td>
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#### homeland security

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<tr>
<td><strong>Steve Rubin</strong></td>
<td>Hicksville High School</td>
<td>Ph.D.</td>
<td>Partner/Patent Attorney, <strong>Moritt Hock &amp; Hamroff LLP</strong></td>
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<td>I see a new invention almost every day and I continue to learn how the world works – while helping make the world a better place. If it has buttons, I likely have seen patents on the technology and understand how it operates. What could be more interesting?</td>
</tr>
<tr>
<td><strong>Neil Schloth</strong></td>
<td>East Rockaway Jr./Sr. High School</td>
<td>Bachelor’s Degree</td>
<td><strong>Security Engineer, First Data Corp.</strong></td>
</tr>
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<td>My interests going into college were to study areas relating to technology, business, engineering, and entrepreneurship. At Hofstra University, upon discovering the Information Technology and Business Analytics major program, my technical academic passions and pursuits were translated into lucrative career-oriented goals.</td>
</tr>
</tbody>
</table>
Long Island
and found exciting STEM careers right here “at home”

**engineering & architecture**

**David Berg**
Stuyvesant High School  
Master’s Degree  
Land Use Planner/Environmental Analyst  
*Cameron Engineering & Associates, LLP*

Inspired by a 9th grade earth science teacher, I pursued the sciences. An uncle’s passion for the environment led to marine biology and aquaculture. Today, I take pride in the work we do to restore our environment, design ‘greener’ infrastructure, and make communities resilient to climate change.

**Dan Weinman**
Island Trees High School  
Bachelor’s Degree  
Mechanical Engineering Support Technician  
*Farmingdale State College*

My experiences from participating on my high school robotics team lead me to realize that I was interested in applied science and technology where I could use my hands to fabricate and test things that I have designed, which inspired me to study and work in the engineering field.

**information technology**

**Michael Nizich**
Division Avenue High School  
Ph.D.  
Vice President of Sales, **IMPACT**

Growing up on Long Island I was regularly exposed to the rich history of scientific and engineering achievements that had happened right in my own backyard. I chose to stay on Long Island as an Information Technology professional to continue that tradition of scientific and engineering growth and excellence.

**Barbara Porter**
Huntington High School  
Master’s Degree  
Chief Technology Officer, **FragranceNet.com**

I chose the STEM field of technology because it is changing the world around us. The demand for STEM talent is only growing larger, and people who keep their skills up to date rarely have to worry about finding employment. Technology also pays well, regardless of race, creed or gender!
Ways To Get Involved!

Find STEM Educational Programs on Long Island through the ConnectToTech S.T.E.M. Search™ database
Facility Tours | Fellowships | Internships | Job Shadowing | STEM camps
wSpeakers Bureau | STEM workshops

Join a Regional Industry Council (RIC)
Apply for Internships or Work Experience

healthcare & life sciences

Mike Reichert
Islip High School
Certificate & Bachelor’s Degree
Systems Analyst, Catholic Health Services

I pursued a career in IT because it is continually evolving. You must be willing to adapt and learn new skills; complacency is not an option. A career in IT will offer a broad range of industries to work in as technology is a key component of most businesses.

manufacturing

Steve Campolo
Copiague High School
Master’s Degree
Vice President of Engineering, Leviton Mfg. Co. Inc.

There was never a doubt in my mind that L.I. was the place to go to college and begin a career. Growing up in the 60’s, the space-race was a big influence. The astronauts were my heroes and the technology was amazing. Plus, the Lunar Lander was built here! Today, there are still plenty of L.I. companies hiring STEM graduates.

Jon Monath
Beach Channel High School
Associate’s Degree
Chief Technology Officer, Creative 3D Printing Inc.

I chose this industry because the way technology can change the world and improve so many things around us is very exciting to me. My company “Creative 3D Printing” is proud to help fuel the technology / manufacturing revolution that 3D printers are making possible.
Long Island’s history as a science and technology powerhouse includes many highlights: helping to land a man on the moon, establishing the only national laboratory in the Northeast, and supporting the defense industry among them. Today, with seven Nobel Prizes to its credit, Brookhaven National Laboratory (BNL) is excited to continue this tradition of scientific excellence with the support of its many Long Island partners. Explore the links below to find out how you too can become part of the scientific and technology future of Long Island. High tech jobs, rewarding careers, and unique opportunities await those who choose science, technology, engineering, and math (STEM) pathways.

BNL’s Office of Educational Programs offers many ways for students, teachers, and families to participate in STEM experiences. Visit: www.bnl.gov/education for more information.