Teacher Handbook

# NAVIGATE

## Exploring College and Careers

**NAVIGATE:** Exploring College and Careers
is produced by the Economic Education division, Communications and Outreach Department, Federal Reserve Bank of Dallas.

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## Exploring College and Careers


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# Unit 1 Exploring Careers

The idea that education affects earning potential seems straightforward, but the data tell a powerful story. Workers with more education have a higher median salary and a lower unemployment rate. Economists attribute this to the role of education in developing human capital—a person's knowledge, talent, experience and skills. People invest in their human capital by going to school, pursuing additional training and acquiring skills. Because workers who develop their human capital increase their productivity, they are generally paid more.

To learn about the education and skills related to a particular job, a student can use the Occupational Outlook Handbook, produced by the U.S. Bureau of Labor Statistics. The handbook, an online guide to hundreds of careers, describes the median pay and working conditions of the jobs. It also includes the typical education required at the entry level, along with projections for the growth of the occupation over the next decade. The Occupational Outlook Handbook can be found at www.bls.gov/ooh/.

## Lesson Overview

To demonstrate the connection between skill development and productivity, students will create a name tent for their desks. Different groups of students will produce the name tent in different ways, such as using their nondominant hand. The students will debrief the activity by discussing how training and skill development affect productivity. Then, the class will brainstorm reasons to further their education after high school. Students will individually use information from the Bureau of Labor Statistics' Occupational Outlook Handbook to research a career. They will describe the career, its work environment, required education/experience and pay/job outlook.

## Instructional Objectives

- Describe the relationship between education and the development of human capital.
- Describe the required education, the earning potential and the working conditions for a career.
- Compare the earning potential of workers who have different levels of educational attainment.

## Time Required

90 minutes

## Materials Required

**For each student**

- ☐ Student Workbook
- ☐ One sheet of light-colored construction paper
- ☐ Marker

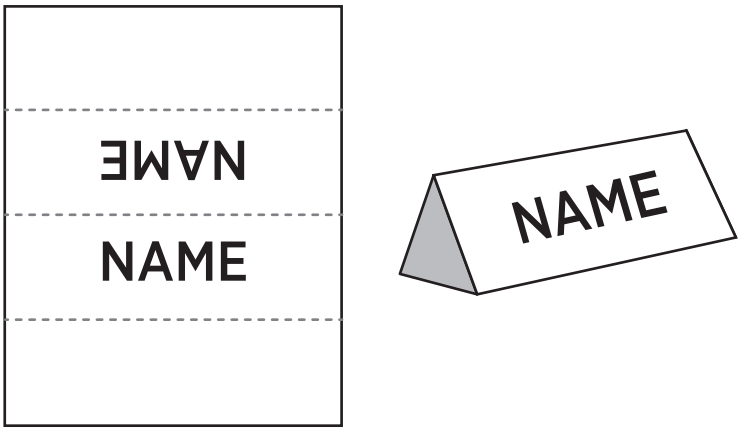
**For the classroom**

- ☐ Computer lab access (or printed copies of occupation profiles—see step 10)
- ☐ Classroom computer with Internet access and projector
- ☐ One sheet of light-colored construction paper for demonstration

## Procedure

1. Tell students that they will create name tents for display on their desks for the day.

2. Demonstrate how to produce a name tent using a sheet of construction paper. Tell the students to watch but not to start their name tent.
   - Fold the piece of construction paper in half by placing the shorter edges (8”) together.
   - Crease the center fold. The folded paper should measure 8” x 5.5”.
   - Open the paper to 8” x 11”.
   - Fold the bottom 8” edge to the middle crease. Crease the fold.
   - Open the paper to 8” x 11”.
   - Fold the top 8” edge to the middle crease. Crease the fold.
   - The paper should now have four sections, each measuring approximately 2.75” x 8”.
   - With the folds facing you, count down three rectangles from the top of the paper. Print your first name in large letters in the rectangle.
   - Turn the paper upside down. Again count down three rectangles and print your first name in large letters in the rectangle.
   - Fold the paper to create a tent with the name displayed on both sides.



3. Tell students that each of them will produce a name tent, but there will be different rules. Divide the students into four groups and describe the rules for each group as follows. Tell them to wait to start their name tent.
   - **Group 1** will remain seated to produce the name tents. They may use both hands.
   - **Group 2** will remain seated to produce the name tent, but they must keep their dominant hand—the hand with which they write—behind their back. They can only use their nondominant hand—the hand with which they do not write—to produce the name tent.
   - **Group 3** will remain seated to produce the name tent, but they must keep their nondominant hand—the hand with which they do not write—behind their back. They can only use their dominant hand—the hand with which you do write—to produce the name tent.
   - **Group 4** will produce the name tent while standing up and using only the nondominant hand to produce the name tent. They must keep their dominant hand behind their back. They may not use the desk, table, chair or floor. They may not work with another student.

4. Distribute a piece of construction paper and a marker to each student. Remind students that each group must fold name tents according to the rules described. Students should raise their hands individually when they have finished their name tents. Tell students to begin.

5. After most students have finished, ask everyone to stop producing name tents and discuss the following questions.
   - Did any students find it very difficult to produce name tents? Why?
     *Students in Groups 2 and 4 had the most difficulty. They found that using their nondominant hand was challenging. Standing and folding with the nondominant hand made it nearly impossible.*
   - In general, which group finished most quickly? Why?
     *Group 1 was able to use both hands and was able to remain seated and use the table.*
   - In general, which group of students took the longest time to finish? Why?
     *Group 4 took the longest and had the name tents that were the hardest to read. Students in this group had to use only the nondominant hand and stand. They also did not get to use tools, such as the desk or floor.*
   - What makes using your dominant hand so much easier?
     *Students have been practicing writing since they were very young. They have been trained to write with their dominant hand.*
   - Did using the table make a difference?
     *Without tools and equipment, such as the desk or floor, the task was more challenging.*

6. Introduce the idea of **human capital** to the students. Use the following information to guide the discussion.
   - Human capital is the knowledge, talent, experience and skills that people possess.
   - People are able to invest in their human capital by going to school, pursuing additional training and developing skills.
   - Workers who develop their human capital are more productive.
   - Productivity is also increased by using tools and equipment.

Remind students that Group 1—the group that used their dominant hand and the table—produced the name tents faster and at a higher quality than the other groups. They were more productive. Explain that people with more skills, education and training tend to be more productive and, as a result, earn higher incomes.

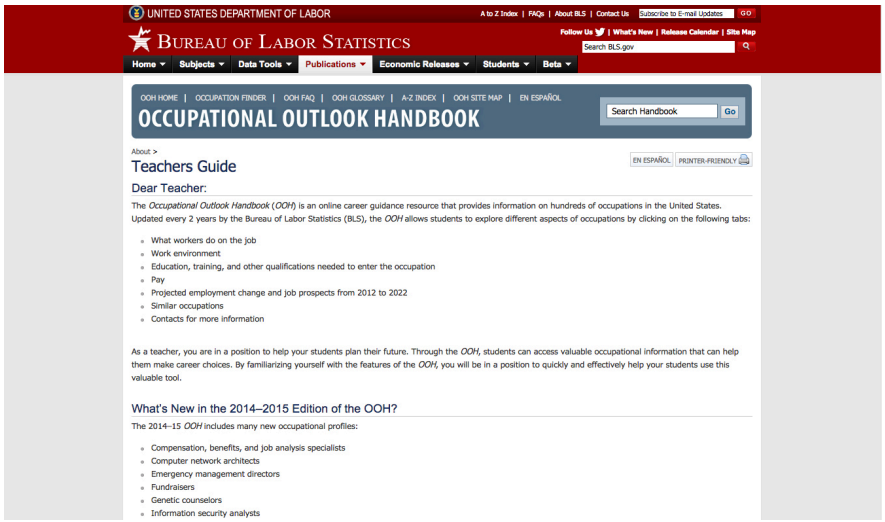
**7.** Have students work with a partner to define "human capital" in their own words. Write the definition on page 4 in the Student Workbook. Ask some students to share their definition with the class.

**8.** Tell students to work with a partner to brainstorm five skills or talents that each one currently possesses. Write them in the appropriate space on page 4. Encourage students to think about interests and talents broadly, including school subjects that they like, hobbies, extracurricular activities, etc. After they identify these skills or talents, ask them to think about ways they could develop these skills and talents through education, training and experiences. Write the ideas on the same page in the box labeled "The Road Ahead."

**9.** Tell students that one very important reason to continue their education after high school is to develop skills, increase their human capital and potentially increase their lifetime earnings.

**10.** Allow students to select a career to research from the list on pages 5–6 of the Student Workbook. Tell students that these are careers that have been studied by the United States Bureau of Labor Statistics. Display the "Occupational Outlook Handbook" page at www.bls.gov/ooh and demonstrate how to find a career listing.

*Visit **http://www.bls.gov/ooh/about/teachers-guide.htm** to find a teacher's guide to the website. Also, the website provides a printer-friendly option for every profession. If access to a computer lab is limited, the teacher could print enough different occupational information packets for students to complete research.*



**11.** Have students open the Student Workbook to page 7. Review the sections of the website that students will use to research the career that they selected.

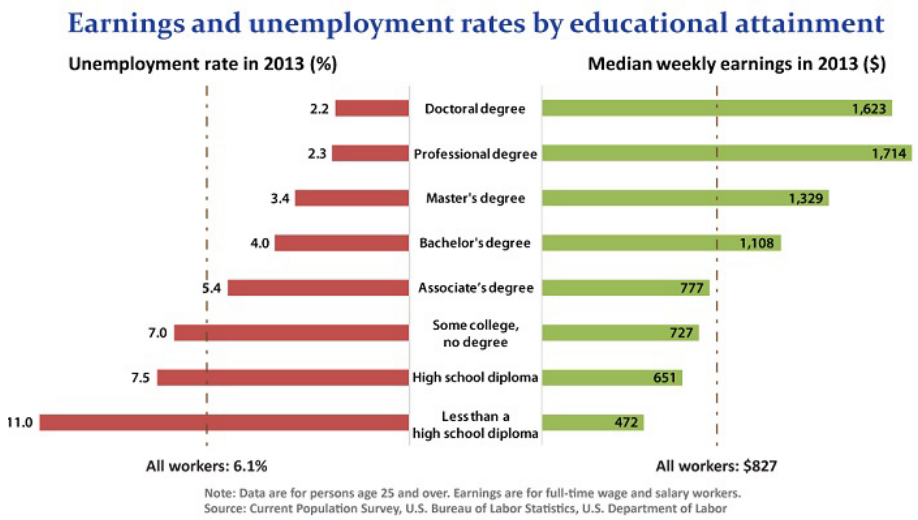
- The ***What They Do*** tab contains information about the duties associated with the job and might contain information about specializations within the field. Students should use this information to complete "Explain what you do."
- The ***Work Environment*** tab contains details about the typical workplace, schedule and hazards related to the career. Students should use this information to complete "Describe where you work."
- The ***How to Become One*** tab contains information about required training, education and licenses. The BLS uses the following categories to describe educational requirements. They are defined in the glossary in the Student Workbook. Students should use this information to complete "How much education will you need?"
  - Less than high school
  - High school diploma or equivalent (such as a GED)
  - Some college, no degree
  - Postsecondary non-degree award
  - Associate degree
  - Bachelor's degree
  - Master's degree
  - Doctoral or professional degree
- The ***Pay*** tab contains the median wage for the career, along with comparisons to similar jobs and all occupations. Students should use this information to complete "How much will you earn?"
  - Remind students that half of all workers in the career earn more than the median wage and half earn less.
  - Students should compute median weekly wage by dividing the annual pay by 52.
  - If only an hourly wage is given, multiply the wage by 40 hours to find weekly wage. Then multiply the weekly wage by 52 to find the annual wage.

**12.** Tell students to research information about the career they selected and record the information on page 7 of the Student Workbook.

**13.** Display the graph of earnings by educational attainment that can be found at www.bls.gov/emp/ep_chart_001.htm. (Note: See the screen shot on the next page. To search for the graph, visit www.bls.gov and search for "income by educational attainment.") Use the graph and the information below to discuss the link between higher educational attainment and average earnings.

- This graph compares the median weekly earnings of full-time workers, over age 25, with various levels of education. In general, workers with higher levels of educational attainment have higher wages.
- The chart also displays the unemployment rate by level of educational attainment. It shows that people with higher levels of educational attainment generally have a lower level of unemployment.

Have students transfer the data on median weekly earnings from the chart to page 8 in the Student Workbook and answer the questions.




## Closure

**14.** Have students divide into groups based on the education required for an entry-level job in the career they researched. Within the groups, have students compare median salaries. Discuss the range of salaries within each level of educational attainment, using the information below:

- Salaries within each level of educational attainment will vary based on market conditions, including the number of jobs available, growth or decline in the field and the number of qualified candidates for the jobs.
- The nature of the job, including work environment, hazards and location, can also affect median salary.
- Consumer demand for the good or service produced by the worker affects the earnings.

## Assessment

**15.** Assess student research, using the rubric found on page 8.

## Extension Activity

Have students visit **www.mynextmove.org**. Selecting the "I'm not really sure" icon allows the student to complete an interest survey to identify potential careers that match the student's preferences.

The name tent activity was originally developed by the Federal Reserve Bank of St. Louis and published in *It's Your Paycheck, Lesson 1: Invest in Yourself*.

## Assessment Rubric

**Student Name** _____

### 1. Did the student identify a career?

| 4 | 0 |
|---|---|
| Career identified | No response |

| Points |
|---|
| |

### 2. Did the student provide clear and complete information about the job description?

| 4 | 3 | 2 | 1 | 0 | Points |
|---|---|---|---|---|---|
| Clear and complete information | Some flaws in clarity or completeness | Flaws in clarity and completeness | Significant flaws in clarity and completeness | No response | |

### 3. Did the student provide clear and complete information about the work environment?

| 4 | 3 | 2 | 1 | 0 | Points |
|---|---|---|---|---|---|
| Clear and complete information | Some flaws in clarity or completeness | Flaws in clarity and completeness | Significant flaws in clarity and completeness | No response | |

### 4. Did the student identify the educational requirement?

| 4 | 0 |
|---|---|
| Education level indicated | No response |

| Points |
|---|
| |

### 5. Did the student correctly compute weekly wage using annual wage?

| 4 | 2 | 0 |
|---|---|---|
| Correctly computed | Mistakes in computation | No response |

| Points |
|---|
| |

### 6. Did the student complete the graph and answer the questions on page 8?

| 4 | 3 | 2 | 1 | 0 | Points |
|---|---|---|---|---|---|
| Clear and complete information | Some flaws in clarity or completeness | Flaws in clarity and completeness | Significant flaws in clarity and completeness | No response | |

**Total Points**
(24 points possible)

# Unit 2 What About College?

Education after high school is critical as workers develop skills that will enhance their employment opportunities. Post-secondary education can be found at technical institutions, two-year (community or junior) colleges and four-year colleges and universities. In *Navigate*, these institutions are broadly referred to as "colleges." A variety of traits and characteristics differentiate these colleges, including geographic setting, school size, course offerings, costs, student population and campus life.

Information about a variety of colleges can be found on a College Board website called Big Future (bigfuture.collegeboard.org). The information is self-reported by the schools to the College Board. The website's standardized reporting format and easy search feature facilitate comparisons, and every college profile contains a link to the institution's website, where more in-depth information can be found.

## Lesson Overview

Students will learn basic terms used to describe colleges and will conduct research on different types of institutions. Research findings will be presented on posters, and students will participate in a gallery walk to analyze common characteristics of different colleges.

## Instructional Objectives

- Use relevant terms when describing colleges.
- Compare the educational programs and related costs at various institutions.
- Use technology to find information about colleges.

## Time Required

- 45 minutes for website overview and research
- In-class or out-of-class time to create poster
- 30–45 minutes for gallery walk and closure

## Materials Required

**For each student**

- ☐ Student Workbook
- ☐ Large paper or poster boards
- ☐ Markers

**For the classroom**

- ☐ Computer lab access
- ☐ Classroom computer with Internet access and projector

## Procedure

1. Remind students that in Unit 1: Exploring Careers, they researched various careers and identified the education required. This unit is about the types of schools where students can pursue education after they graduate from high school.

2. Tell students that they will be conducting research about a college. Have students turn to page 10 in the Student Workbook. Discuss each term and tell students that these are important words that will help them analyze college options.

   - **My School**
     *The official name of the institution*
   - **Two-year or four-year**
     *Two-year schools offer associate degrees and workforce certification programs and are sometimes called junior or community colleges. Four-year schools offer bachelor's degrees, as well as graduate degrees in many cases.*
   - **Public or private**
     *Public schools are colleges or universities that are administered by a local or state government and receive funding from government sources. Private schools are administered by a private organization and receive the majority of their funding from tuition, fees and donations to the school.*
   - **Six-year graduation rate (only four-year schools)**
     *Most bachelor degrees are designed to be completed in four years of full-time studies. Since many students take more than four years to complete a bachelor's degree, the website offers a statistic that shows the percentage of students who complete a bachelor's degree within six years of enrollment.*
   - **Location**
     *The city where the campus is located*
   - **Commuter or residential**
     *A commuter school has a majority of students who live off-campus and travel to the school for courses and other activities. A residential school has a majority of students who live on-campus in dorms or other housing.*
   - **Team name (mascot)**
     *Most schools have a mascot or a team name.*
   - **Tuition and fees (in-state)**
     *An indicator of the cost of attending the school (Students will learn more about costs in Unit 4.)*
   - **Number of undergraduates**
     *The total size of the institution*
   - **Ethnic diversity**
     *The relative size of different ethnic groups enrolled at the school*
   - **Gender ratio**
     *A comparison of the number of males and females enrolled at the school*
   - **Student-faculty ratio**
     *The number of students per faculty member can be an indication of the average size of a class. Classes might be much larger or smaller than this ratio.*

3. Display **bigfuture.collegeboard.org**. Demonstrate the website by entering the name of a college or university in the search bar and selecting the institution from the search results.

   *Note: Select a school that is familiar to students or choose the school that the teacher attended.*

   On the school profile, point out the tabs on the left side. Tell students that the information about the school that they will be researching can be found in one of these sections.

   - At a Glance (name of school, private or public, two-year or four-year, location, six-year graduation rate)
   - Deadlines (not used in this research project)
   - Majors and Learning Environment (student-faculty ratio)
   - Campus Life (number of undergraduates, gender ratio, ethnic diversity, commuter vs. residential)
   - Applying (not used in this research project)
   - Paying (in-state tuition and fees)

4. Allow students to select a college to research or assign a school to each student. Tell students to write the information that they find for each category on page 10 in the Student Workbook.

   *Note: It is helpful if students select a variety of types of institutions, including private and public, two-year and four-year. If students have difficulty identifying colleges, the teacher could produce a list of schools and allow students to pick from the list. The search feature on the website allows the user to produce a list of all colleges in one or more states.*

5. Have students produce a poster to communicate information about the school they selected.

6. Display posters in three groups—private four-year schools, public four-year schools and two-year schools.

7. Group students in teams of two to four. Have groups conduct a gallery walk and compare the information about the various types of colleges. Have students record common characteristics of each type of college on the chart on page 11 of the Student Workbook.

## Closure

8. Discuss student observations using the information below and student notes. Students should use the space on page 12 in the Student Workbook to take notes during the discussion.

9. Discuss the common characteristics of **private four-year colleges** discovered during the gallery walk. Have students brainstorm advantages and disadvantages to this type of school. Answers might include, but are not limited to:

   - Higher graduation rates
   - Smaller student-faculty ratio
   - Tuition and fees are higher

10. Discuss the common characteristics of **public four-year colleges** discovered during the gallery walk. Have students brainstorm advantages and disadvantages to this type of school. Answers might include, but are not limited to:
    - Larger campuses
    - Lower tuition and fees
    - More commuter students

11. Discuss the common characteristics of **community colleges** discovered during the gallery walk. Have students brainstorm advantages and disadvantages to this type of school. Answers might include, but are not limited to:
    - Much lower tuition and fees
    - Flexible schedules
    - Usually commuter campuses
    - Offer workforce certifications, such as technical studies, medicine and cosmetology

## Assessment

12. Assess student-created poster for accurate representation of data and neatness of student work. Use the rubric on page 13.

## Extension Activity

Have students create a PowerPoint using information from research for presentation or electronic distribution.

## Assessment Rubric

**Student Name** _____

| | Included | Not Included |
|---|---|---|
| My School | | |
| Two-year or four-year | | |
| Public or private | | |
| Six-year graduation rate (only four-year schools) | | |
| Location | | |
| Commuter or residential | | |
| Team name (mascot) | | |
| Tuition and fees (in-state) | | |
| Ethnic diversity | | |
| Number of undergraduates | | |
| Gender ratio | | |
| Student-faculty ratio | | |

Overall Presentation (including neatness and creativity) **1** **2** **3** **4** **5**

# Unit 3 How Do I Get In?

Admission to college can be competitive. If students create a plan to maximize their high school years, they increase their options for education beyond high school. There is no single path to college admission, but a well-thought-out plan will help students ensure that they have used their high school opportunities to maximum benefit.

The vocabulary of the college application process can be daunting. Students encounter the idea of GPA and transcripts, along with national standardized tests such as SAT and ACT. Extracurricular activities, both in and out of school, provide valuable learning and service opportunities for students. However, students need to remember to track their activities and awards in preparation for applying for both financial aid and admission.

States and local school districts set requirements for high school graduation, but many colleges require course work beyond basic requirements. These requirements can change from year to year. School counselors are a vital source of information about current graduation requirements.

## Lesson Overview

Students will complete a graphic organizer during an interactive presentation about the factors that colleges consider during the admission process. Following the presentation, students will outline individual action items that will improve the likelihood of success in the college process. Instructors can extend the lesson by assigning students an admission essay.

## Instructional Objectives

- Identify key factors that colleges consider in the admission process.
- Create individual action plan to optimize future choices and success.
- Define relevant terms used in the college application.

## Time Required

90 minutes

## Materials Required

**For each student**

- ☐ Student Workbook

**For the classroom**

- ☐ Unit 3 slides (available at www.dallasfed.org/educate/navigate)
- ☐ Classroom computer with Internet access and projector

## Procedure

1. **Display Slide 1.** Tell students that many high school students eagerly anticipate the day that an acceptance letter arrives from their college or university. There are many factors that will contribute to the student receiving an acceptance letter.

2. **Display Slide 2.** Introduce the items that colleges consider during the application process. Tell students to open the Student Workbook to pages 14–15 and take notes on each of these blanks during the lesson.

3. **Display Slide 3.** Use the visual on the slide and the information below to discuss the importance of course selection to the college admission process.

   - High school courses need to be varied. Most schools require a minimum of these core courses for graduation. Electives help students demonstrate a variety of interests.
     - Core classes (English, math, social studies, science)
     - Academic electives (Foreign languages, journalism, debate, college exploration/readiness, etc.)
     - Arts (Band, choir, theater, art, etc.)
     - Athletics
     - Career and technology
   - High school courses need to be challenging. Take the most advanced classes that you can.

   Tell students that counselors and academic advisors can help them select classes that align with their academic goals. It is important for students to get to know these individuals. Summarize by asking students why varied courses and challenging courses could be important. Answers will vary, but might include the following:

   - to demonstrate the breadth of interests and ability;
   - to provide exploration for possible careers;
   - to meet requirements for graduation and college admission.

   Have students make a note under "Courses" that the courses they take should be varied and challenging.

4. **Display Slide 4.** Tell students to turn to the glossary in the Student Workbook. Select a student to read the definition of these four terms out loud. Discuss how these types of classes can be an important way to prepare students for college-level work, as well as earn college credit.

   - Advanced Placement, or AP, courses
   - Dual-credit courses
   - International Baccalaureate (IB) Program courses
   - Credit-by-exam

   Students can select advanced courses based on past performance, testing results and other factors. Tell students that they should talk to their counselor about advanced courses that are available.

5. **Display Slide 5.** Tell students that all of their high school grades will be recorded on their official school transcript. This transcript will contain the final grade from every high school class they take. Use the following definitions to discuss these terms with the students.

- Transcript—an official record of a student's grades
  *Transcripts are maintained by the school and are usually sent to colleges directly by the school.*
- Grade point average (GPA)—a number that represents a student's average grade in all classes
  *Some schools calculate the GPA using a numeric grade from each class that ranges from zero to 100. Other schools assign points to letter grades earned (4 for "A," 3 for "B," etc.). In this system, the GPA ranges from 0 to 4. (Teacher note: If possible, find out the system for GPA calculations used in your school district.)*
- Weighted GPA—a GPA that is calculated with extra points added to the grade value for honors or advanced courses
  *Many schools add points to the final grade of an honors or advanced course, so a grade of 94 might be included in the weighted GPA as a 104. In schools with a zero to 4 scale, an A in these courses might receive 5 points (rather than 4), a B would receive 4 points (rather than 3), etc.*
- Class rank—a measure of a student's grades compared to the other students in the class
  *The class rank is usually stated as a number compared to the number of students in the class. It can also be stated as a percentile. For example, if a student ranks 41st out of 427, the student is in the top 10 percent of the class.*

Ask students why grades are important in the college admission process. Answers will vary, but should include the following ideas:

- Grades can tell a college about a student's academic successes and failures.
- Grades can help a college predict future success.
- Grades allow a college to compare the performance of different applicants.

Have students write the following sentence in the "Grades" box:
*"All of my grades will be on my transcript. It will also have my GPA and my class rank."*

6. **Display Slide 6.** Use the information on the slide to discuss how tests are an important part of the college admission process.

7. **Display Slide 7.** Use the information below and on the slide to discuss the types of tests that students take.

   General tests are designed to measure academic aptitude. One or more of these tests is generally required for admission to any college or university. For the college admission process, these tests are usually taken in the 11th and 12th grade years. However, the Duke Talent Identification Program allows 7th grade students to take the SAT or the ACT. High-scoring middle school students are recognized and invited to participate in a variety of enrichment programs.

   - ACT—Consists of four tests (English, mathematics, reading and science) that are scored on a scale of 1–36. These four scores are averaged for a Composite Score. The ACT also includes an optional writing test.
   - SAT—Consists of three sections (critical reading, writing and mathematics) that are each scored on a scale of 200–800. The total score is the sum of the scores on the three sections.

- PSAT/NMSQT—The Preliminary SAT/National Merit Scholarship Qualifying Test is administered to juniors. The test has a format similar to the SAT and allows students to practice for the college admission test. It is scored on a scale of 20–80 for each of the three sections. Scores on this test qualify students for several competitions that provide scholarships and recognition.

Course-specific tests

- Advanced Placement tests—These tests are taken after a student has completed an Advanced Placement course. They consist of multiple-choice and free-response questions. Scores are reported on a scale of 1–5. Schools have different policies on awarding credit or making placement decisions based on the test score.
- International Baccalaureate tests—These tests are taken after a student has completed an International Baccalaureate course. The tests are scored on a scale of 1–7, with up to three additional points available.
- SAT Subject Tests—These are content-specific tests that students can take to demonstrate skills and knowledge in various academic subjects. Each one is scored on a scale of 200–800.

Under "Test Scores," have students write the following sentence:

"Some tests are used for college admission, like the SAT or ACT. Some tests are used for college credit, like AP or IB."

8. **Display Slide 8.** Tell students that it is important to start a tracking system to record awards and achievements. The slide contains two fictitious examples. Review the types of information that the tracking sheet contains. It is helpful to keep track of references that can describe the award or comment on your qualifications. Ask students to name other awards of which they are aware.

   Write the following sentence under "Achievements."
   *"It is important to track my awards and keep copies of documentation."*

   The last page of the Student Workbook provides a form for students to use to track various achievements throughout their high school career.

9. **Display Slide 9.** Use the information below and on the slide to discuss how extracurricular activities allow students to develop skills and talents in school-based organizations and activities. Discuss the variety of opportunities that are available at school. They can include:

   - Athletics
   - Academic clubs and competitions
   - Fine arts
   - Service organizations
   - Student leadership

   Under "Extracurricular at School," have students list one activity that they currently participate in and identify a skill or a leadership quality that the activity can develop.

10. **Display Slide 10.** Use the information on the slide to discuss how involvement in community organizations and volunteer activities can provide opportunities for students to develop skills, serve their community and build relationships that can provide references.

- Community organizations (Lions Clubs, Rotary, Kiwanis, etc.)
- Faith-based organizations (church, synagogue, etc.)
- Youth organizations and clubs (Boys and Girls Club, scouting, etc.)
- Federal programs (Upward Bound, Gear Up, etc.)

Many college applications ask students to list the places they volunteered, along with the number of hours of community service.

Tell students that paid and unpaid employment, such as internships, can allow for career exploration and reference development. They can also enhance a college application.

Under "Extracurricular Outside of School," students should identify one organization that could provide opportunities for membership or volunteer service.

11. **Display Slide 11.** Discuss the importance of personal references using the information on the slide. Have students think of two people who could provide a personal reference and write their name under "References." Tell students that these names will likely change as they progress through high school, have new teachers, meet new people and experience new opportunities.

12. **Display Slide 12.** Use the information on the slide and below to discuss additional components of the college application.
    - Essay—The topics of college essays vary but provide an opportunity for the student to show creativity and explain qualities that are not captured in other parts of the application.
    - Auditions and portfolios—Music, art or theater programs may require an audition or work samples as part of the application for admission.
    - Interviews—Some colleges require (or offer) an interview with a school representative.

    Under "Other," list these three additional components.

## Closure

13. **Display Slide 13.** Tell students that all colleges and universities require an application and supporting documents. It is important to remain aware of upcoming deadlines throughout high school. Counselors, teachers and advisors are crucial sources of information about the admission process.

14. **Display Slide 14**. Review the areas that the class has discussed.

## Assessment

**15.** Have students imagine that as seniors they receive an acceptance letter to the college of their choice. Have them write the acceptance letter to themselves explaining the reasons that the college admitted the student. They should make their final copy on page 16 of the Student Workbook.

**16.** The letter should highlight at least four of the areas discussed in the lesson. Letters should be written in correct format. To assess student performance, consider the following questions.

a. Does the letter contain a college logo and a salutation?

b. Does the letter include four areas of consideration that were introduced in the lesson?

- Courses
- Grades
- Test Scores
- Achievements
- Extracurricular at School
- Extracurricular Outside of School
- References
- Other

c. Does the letter use correct spelling and grammar?

## Extension

**1.** Have students write a college admission essay using one of the following prompts.

- Tell about a life-changing experience. How did it change the way you look at the world or relate to other people?
- Tell about a person who shaped your life. How did this person affect you? What did you learn from them?
- If you could change one thing in your community, what would it be? Why?

**2.** Invite a representative from a local college or university to talk about the admission process.

## Unit 3 Slides

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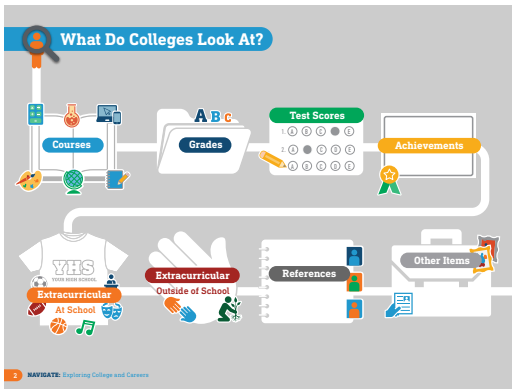


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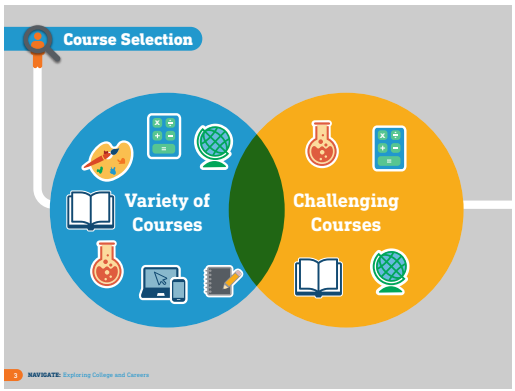


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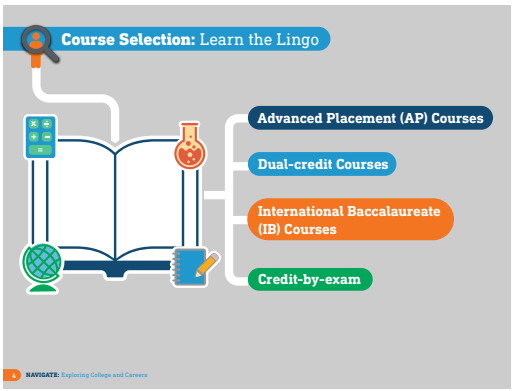


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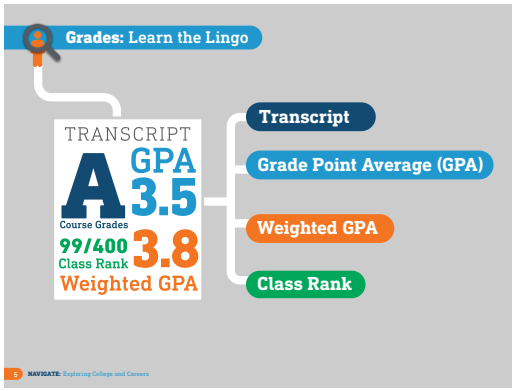


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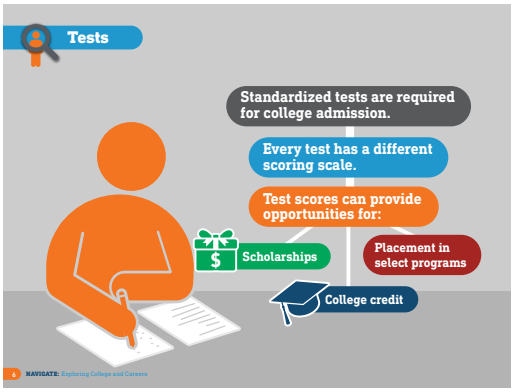


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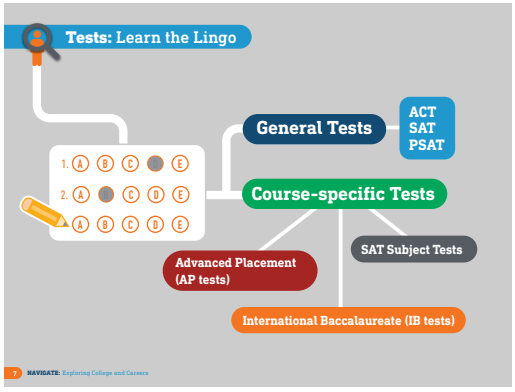


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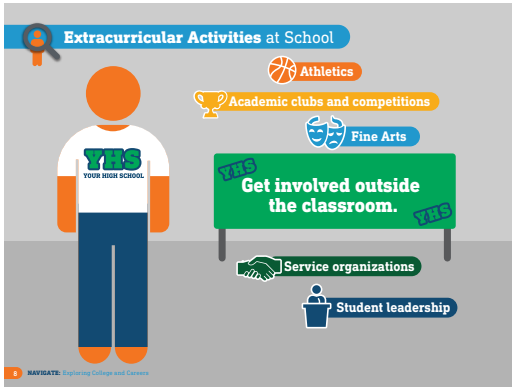

## Unit 3 Slides

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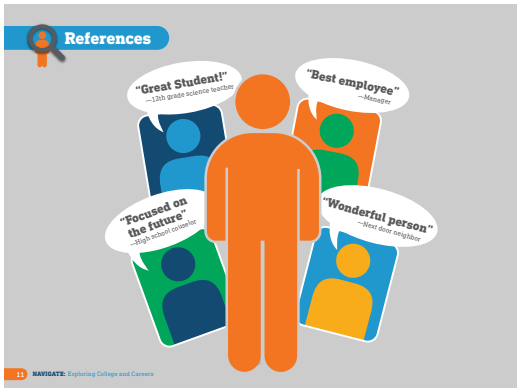


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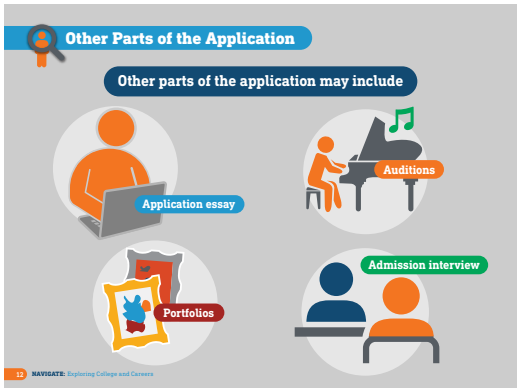


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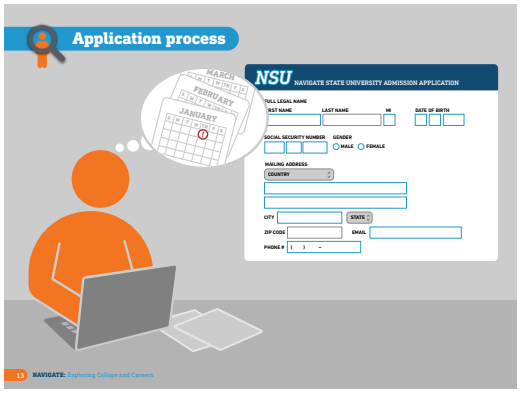


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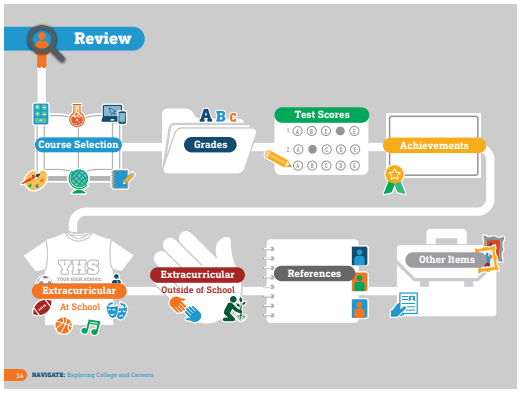

# Unit 4 How Much Does College Cost?

Continuing education beyond high school can be expensive, but a student's choices can have a significant impact on that cost. Students will examine the differences in cost between two-year and four-year educational institutions and between private and public schools. Some students may choose to minimize costs by living at home and attending community college before they transfer to a four-year college to complete their education. Others may opt to move away from home to attend schools they believe will most effectively allow them to attain their career goals.

It is never too early to have students practice working with a budget that has limited resources and excess wants. The shopping basket exercise at the end of this unit provides a real-world example that challenges students to weigh benefits and costs and create a plan to balance their budget.

## Lesson Overview

Students will learn about different categories of college costs and conduct research to determine costs for a variety of types of colleges and universities. As part of the research project, students will create circle graphs (or pie charts) and compare data. The lesson finishes with a budget activity and a discussion of how student choices affect college costs.

## Instructional Objectives

- Compare the total yearly monetary costs of different types of colleges and universities
- Identify student choices that affect the total cost of college
- Evaluate a budget for personal expenditures

## Time Required

90 minutes

## Materials Required

**For each student**

- ☐ Student Workbook
- ☐ Colored pencils

**For the classroom**

- ☐ Classroom computer with Internet access and projector
- ☐ Computer lab access

## Procedure

1. Define the following terms. Have students paraphrase the following definitions on page 18 of the Student Workbook.
   - **Tuition and fees** – the cost of instruction and facility use at an educational institution
     *Tuition can be quoted as a cost per credit hour, or as a flat rate for a range of credit hours. Fees include general fees, such as libraries and student activity costs, and may include course-specific costs, such as lab fees.*
   - **Room and board** – the cost of living and eating on campus
     *This can be the cost of housing and meals provided by the school or an estimate of the cost of living off-campus.*
   - **Estimated personal expenses** – costs that are not billed by the college
     *These may include laundry, meals not covered under a meal plan, or personal items such as soap and shampoo. They also include academic supplies, such as calculators and computers. These costs vary based on an individual's habits and course selection.*
   - **Transportation expenses** – The estimated cost of going to and from campus during the academic year
     *These costs vary based on the distance you live from your chosen educational institution and your travel decisions, such as number of trips to and from school and means of transportation.*
   - **Books and supplies** – the estimated cost of purchasing the textbooks and course supplies
     *These costs vary based on the courses taken and books and supplies required.*

2. Tell students that there are four broad categories of colleges and universities that vary significantly in cost. In this lesson, students will be researching the cost of a school in each category.
   - Four-year public college or university in your home state
   - Four-year public college or university in a state other than your home state
   - Four-year private university
   - Two-year community college or junior college

   Brainstorm schools that belong in each category. Refer to the posters that were created in Unit 2: What About College? Tell students to turn to pages 19–20 in the Student Workbook and write the name of a school for each category on the appropriate page.

3. Tell students to research the cost of attending each school that they identified at www.bigfuture.collegeboard.org. Cost information can be found by clicking "Paying" on the left side of the school profile.
   - Have students use the column for "on campus" expenses for this comparison.
   - Remind students that to find the percentage cost of each item, divide the cost of the individual category by the total yearly cost and multiply by 100.
   - Have students use the percentages to create a pie chart in the circle. Use colored pencils to complete the graphs.

4. After students have completed their research, discuss the information they found. Ask students if they can make any generalizations about the types of institutions that are the least expensive. *Answers should include the observation that two-year community colleges are often the least expensive, public schools are less expensive than private schools and in-state public schools are usually less expensive than out-of-state public schools.*

5. Tell students that the choices they make affect the cost of attending college. Brainstorm with students how their choices affect each of these categories. Answers will vary, but might include:
   - Tuition and fees (school choice, number of hours, course selection)
   - Room and board (dorm choice, having a roommate vs. a single room, living at home, choice of meal plan, frequency of eating out)
   - Books and supplies (new vs. used textbooks, digital textbooks, rented textbooks)
   - Estimated personal expenses (clothing expenses, entertainment expenses and memberships in social organizations, clubs and intramural sports)
   - Transportation expenses (car, number of trips home, use of public transportation)

6. Explain to students that the category of estimated personal expenses can include many items. Have students turn to page 21 in the Student Workbook. Review the instructions and ask students to modify the budget for personal expenses so that income matches expenditures.

7. Ask students to explain changes that they made to the budget. Remind students that their choices have a significant impact on the cost of going to college.

## Closure

8. Ask students to identify the following information from their research.
   - What category represents the largest percentage of the total cost for each type of institution?
     - Four-year public college or university in your home state (in-state tuition)
     - Four-year public college or university in a state other than your home state (out-of-state tuition)
     - Four-year private university
     - Two-year community college or junior college (in-state tuition)
   - What category represents the smallest percentage of the total cost of each type of institution?
     - Four-year public college or university in your home state (in-state tuition)
     - Four-year public college or university in a state other than your home state (out-of-state tuition)
     - Four-year private university
     - Two-year community college or junior college

## Assessment

9. Evaluate student research on college costs. Assess for completeness and accuracy of percentages and circle graphs.

## Extension Activities

For additional information and activities about budgeting, consider these resources:

1. Use the instructions and the table on page 22 of the Student Workbook to practice making choices about spending and saving, then developing a budget.

2. The Federal Reserve Bank of Dallas' signature personal finance program is *Building Wealth*. The suite of resources that includes a printed guide and classroom lessons is available at **www.buildingwealth.org**.

3. *The Budget Game: Living on a 20 Square Salary* is a basic budget activity that is available from the office of two state treasurers, Ohio and West Virginia. Find it at **ohiotreasurer.gov/Documents/CMS/BudgetGame8%205x11.pdf** or at **https://wvde.state.wv.us/counselors/links/students/documents/Lesson11.30BudgetGameHandout1.pdf**

# Unit 5 Paying for College

The cost of a post-secondary education should not be the barrier that prevents a student from achieving his or her career goal. This unit provides a broad overview of the financial options available to assist students and their families in paying for college. This is not intended to provide comprehensive coverage of the financial process, and students and their families are strongly encouraged to use the www.FAFSA.gov website to obtain the most current information for their personal situation. The financial process is rich in specialized vocabulary, and this unit provides an opportunity for students to become comfortable with this terminology.

It is important to know that approximately 70 percent of all college students receive some type of financial assistance while in college. Becoming familiar with these websites and terminology will give students a head start to navigate this process.

## Lesson Overview

Students will be introduced to the major types of financial aid in an independent reading. While reading, students will create an information web about paying for college. The types of aid are reviewed in a quiz game, with students competing in teams to earn "financial aid" that will help them in the college process.

## Instructional Objectives

- Describe the different types of financial aid.
- Identify significant differences between types of financial aid.

## Time Required

60 minutes

## Materials Required

**For each student**

- ☐ Student Workbook

**For the classroom**

- ☐ Unit 5 slides (available at www.dallasfed.org/educate/navigate)
- ☐ 4 copies of Handout 1, cut into four cards
- ☐ 4 copies of Handout 2, cut into 20 certificates
- ☐ Classroom computer with Internet access and projector

## Procedure

1. Tell students that, according to the U.S. Department of Education, more than 70 percent of undergraduate students receive some type of financial aid. This lesson will explore different types of financial aid.

2. Tell students to turn to pages 24–25 in the Student Workbook and read the information. After they complete the reading, students should fill in the information on page 26.

3. Discuss the students' information web and the reading. Emphasize that there are three main types of financial aid: Gift aid (including scholarships and grants), work study, loans

4. Play a quiz game about financial aid. The questions and answers are provided below and on the slides.
   - Divide students into four teams and give each team a set of cards from Handout 1.
   - Tell students to answer the questions in the game by holding up the appropriate card that names the type of aid: a scholarship, a grant, work study or a loan.
   - Have all teams hold up their selected card at the same time.
   - Award one $1,500 certificate to each team that has the correct answer.

## Game Questions

1. You are an education major, and part of your financial aid is the money you earn as a tutor. (*work study*)
2. You are majoring in chemistry and entering your third year of college. You receive money from the federal government through a program that awards financial aid to students majoring in science, technology, engineering or math. (*grant*)
3. You receive $500 from the local cultural society. (*scholarship*)
4. Your father lost his job and the family's income became much lower. You received money from the government to pay for college. (*grant*)
5. You borrowed money through a federal program to pay for your education this year. (*loan*)
6. You entered your painting in a contest and won $750 to pay for your college expenses. (*scholarship*)
7. You work in an office on campus after class every day. (*work study*)
8. You received $3,000 per year from the lottery funds in your state. Every high school graduate can receive this aid if they attend an in-state college. (*grant*)
9. You received $4,000 from the federal government because you promised to teach in a school that serves low-income students after graduation. If you change your mind, you will have to repay the full amount. (*grant*)
10. You were a high school athlete. The university is paying your tuition while you play on the college team. (*scholarship*)
11. Your parents borrowed money through a U.S. government program for parents of college students. (*loan*)

12. You were raised by a single parent. Your family income qualified you to receive a need-based award from the U.S. government. (*grant*)
13. You are going to school to study voice performance, and you receive $1,000 per semester because you sing in the college choir. (*scholarship*)
14. You work 20 hours per week in the library at your college. (*work study*)
15. Your family qualified for a federal government program that reduced the interest on the money you borrowed to pay for college. (*loan*)
16. Your mom works for a company that will pay 50 percent of your tuition at any in-state public college. (*scholarship*)
17. You receive a $1,000 award to help pay for college from a local community organization in recognition of your volunteer activities. (*scholarship*)
18. Your other financial aid did not cover all of your college costs, so you borrowed money from a private lender. (*loan*)
19. You work in the college's computer lab three days per week. (*work study*)
20. Your PSAT scores qualified you as a National Merit Scholar. Several schools have offered you free tuition. (*scholarship*)

**5.** Ask each team to add up the total amount of financial aid that the team earned. Use the information below to remind students about the cost of tuition and fees at different types of institutions. Tell students that with more financial aid, they will have more choices about the type of institution that they might choose to attend.

- Public Two-Year College (in-state students) $3,347
- Public Four-Year College (in-state students) $9,139
- Public Four-Year College (out-of-state students) $22,958
- Private Four-Year College $31,231

Source: https://trends.collegeboard.org/college-pricing

Teacher note: Remind students that these figures are for tuition and fees only. The cost of attending college will also include other items such as room and board, books and supplies, etc. See Unit 4 for more information about the total cost of attending college.

## Closure

**6.** Ask students how many different cards they held up during the financial aid game. (They should have used all four.) Remind students that paying for education after high school may require a variety of sources. Planning, research and communication with college advisors and counselors at your high school will play a key role in your ability to pay for college.

## Assessment

**7.** Assess the fill-in-the-blank questions and the information web on page 26 of the Student Workbook for completeness and accuracy, using the key on page 34.

## Unit 5 Slides

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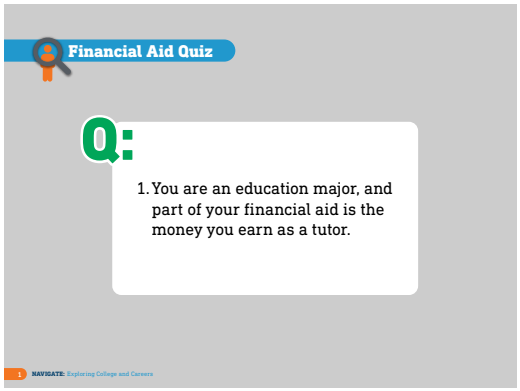


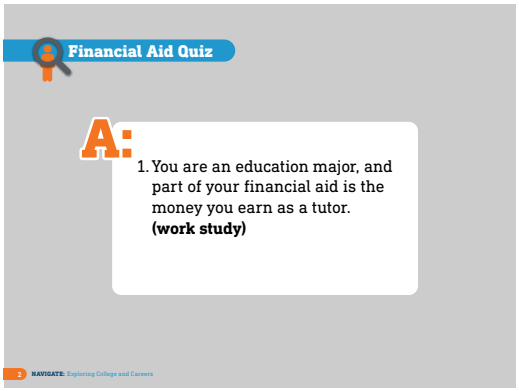


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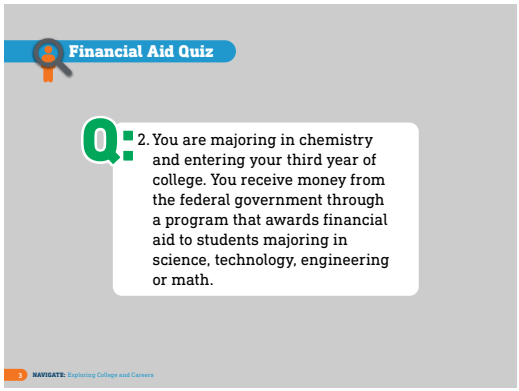


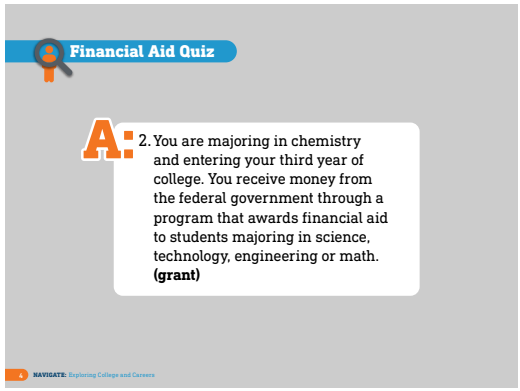


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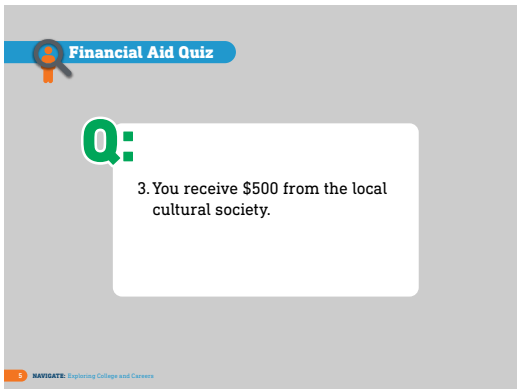


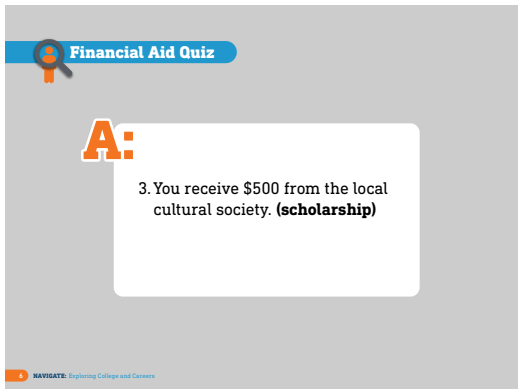


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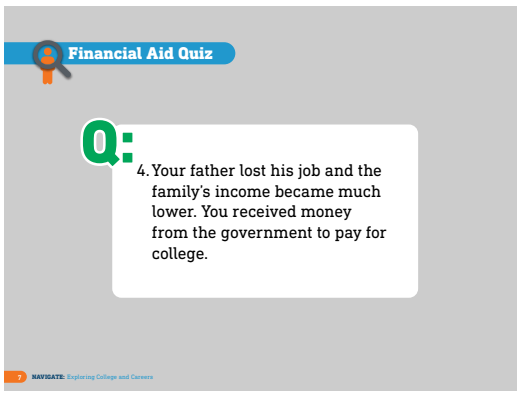


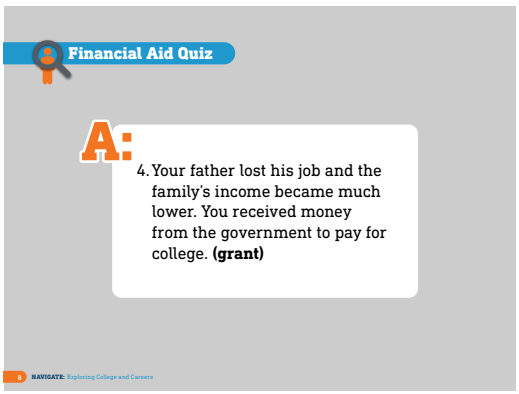

## Unit 5 Slides

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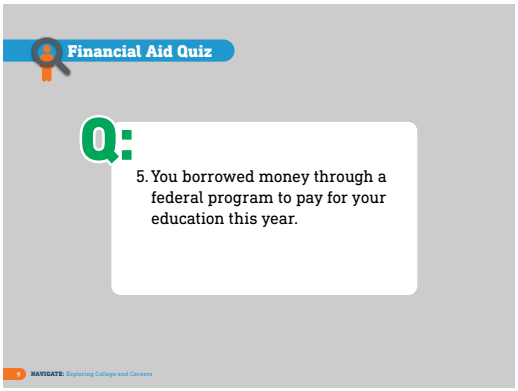


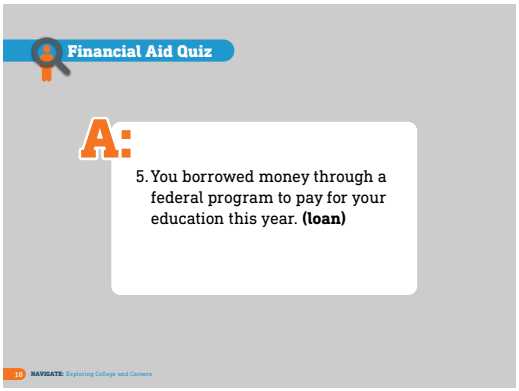


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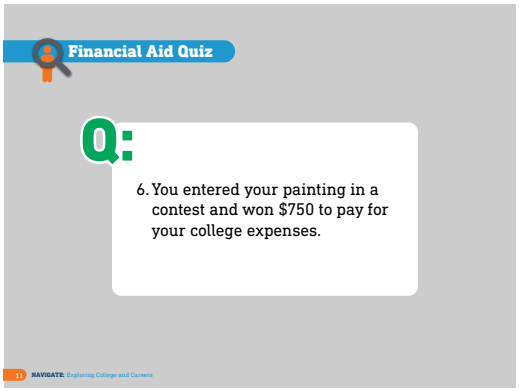


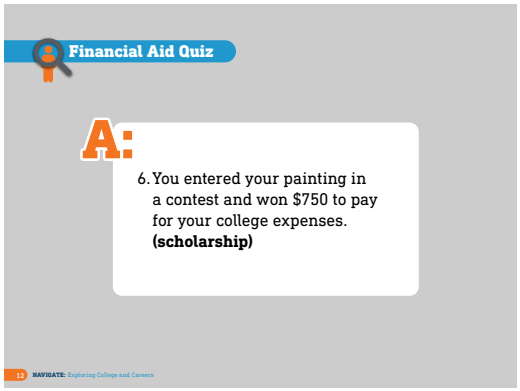


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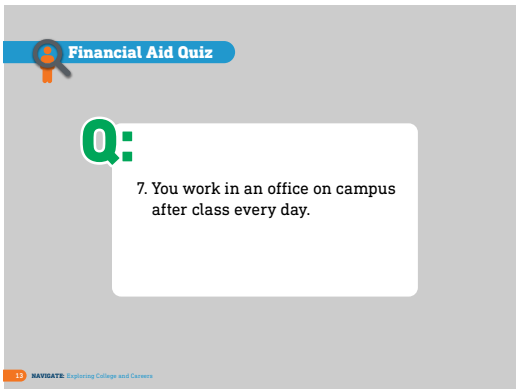


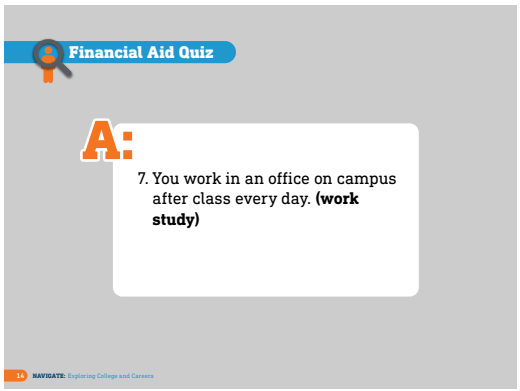


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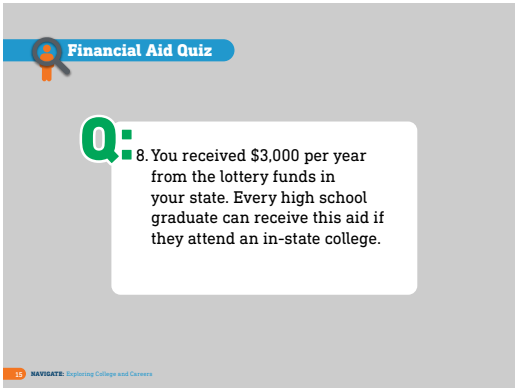


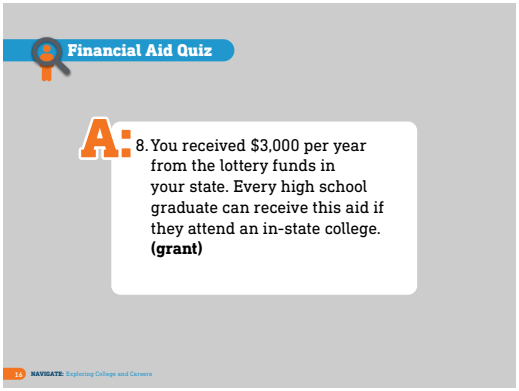

## Unit 5 Slides

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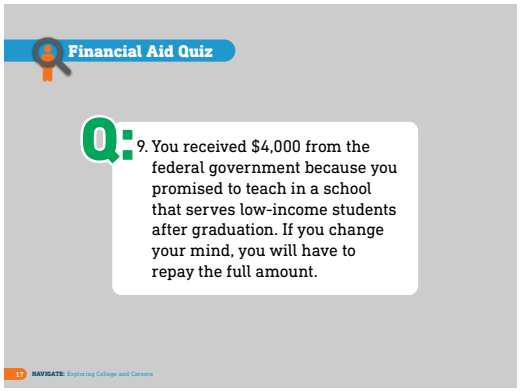


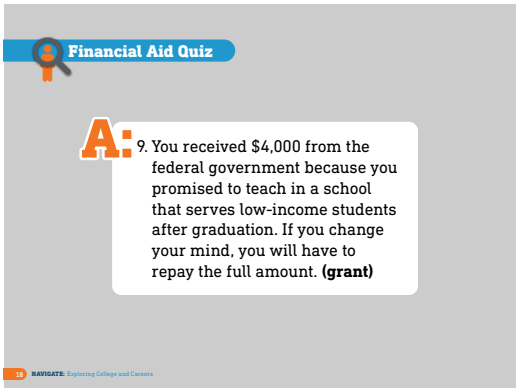


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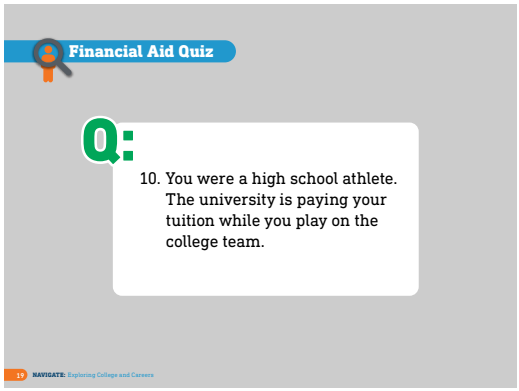


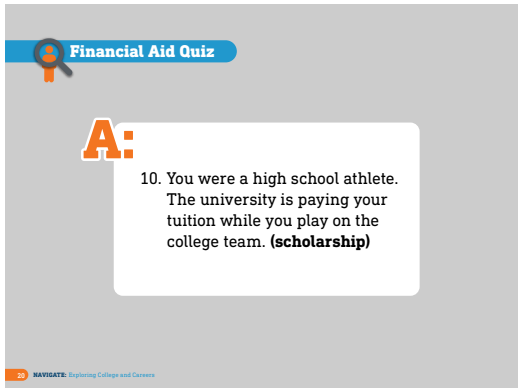


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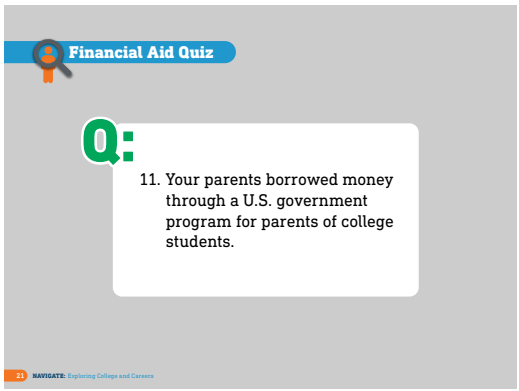


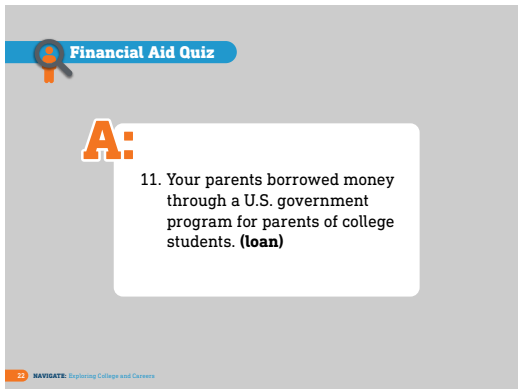


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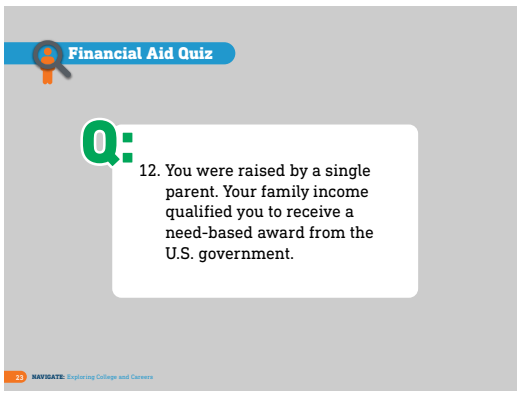


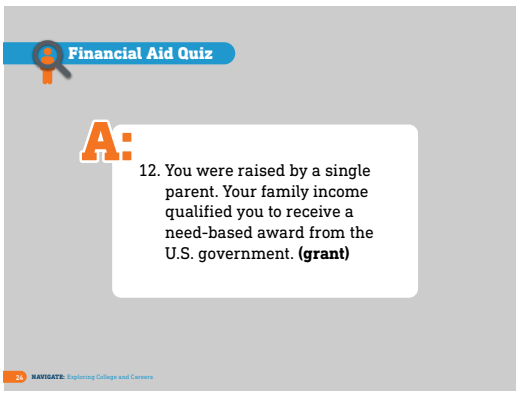

## Unit 5 Slides

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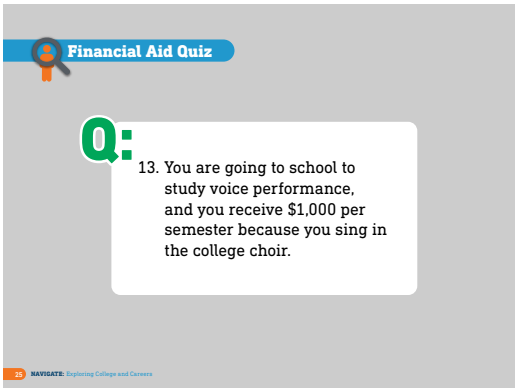


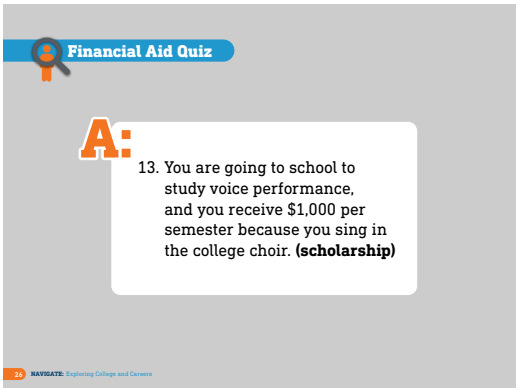


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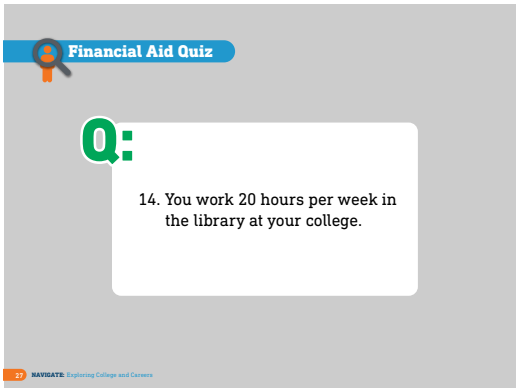


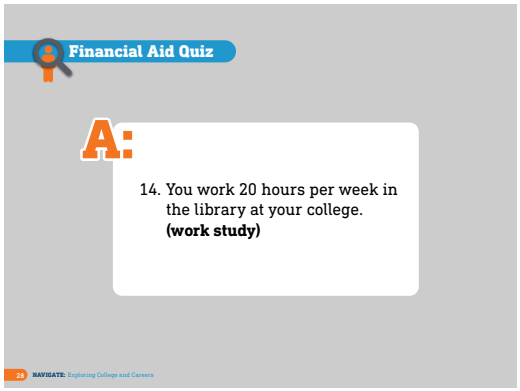


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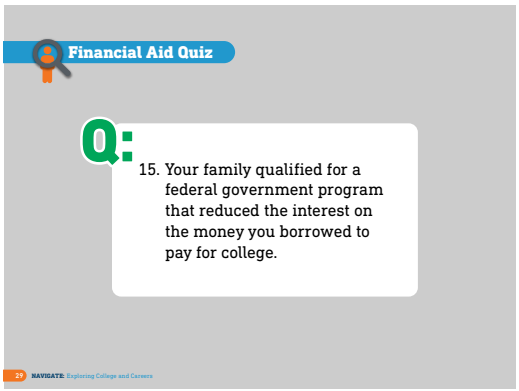


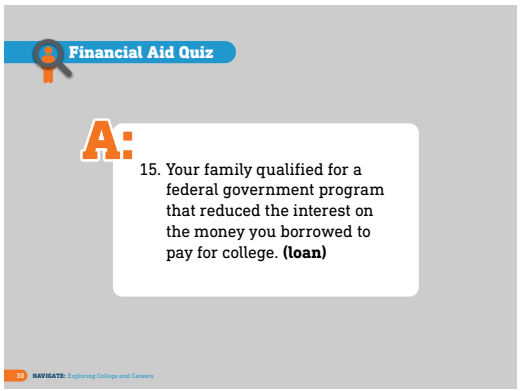


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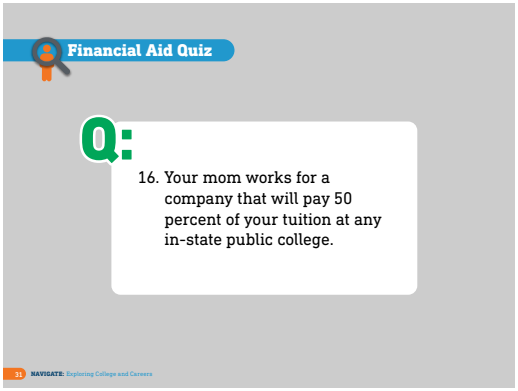


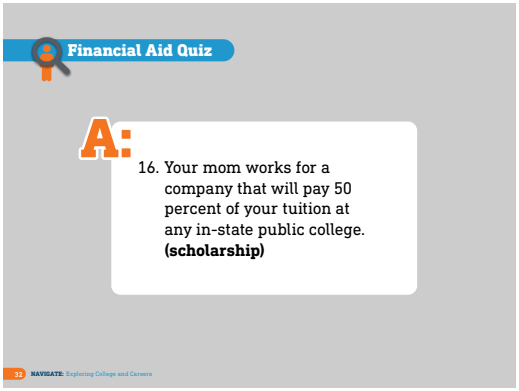

## Unit 5 Slides

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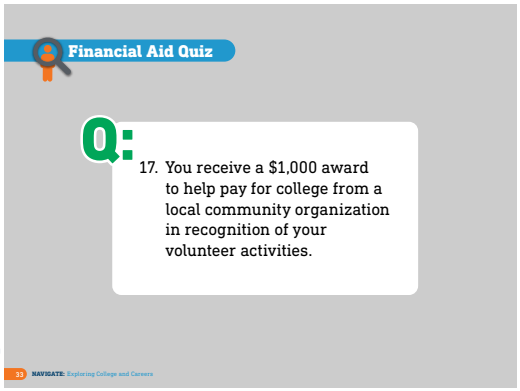


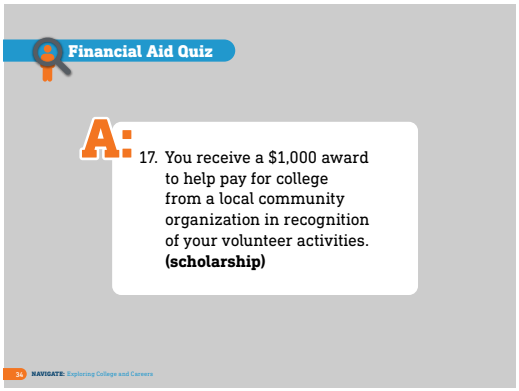


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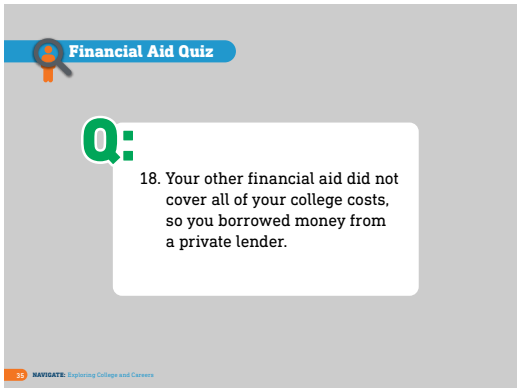


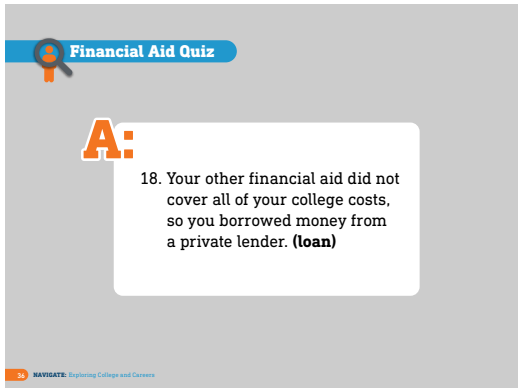


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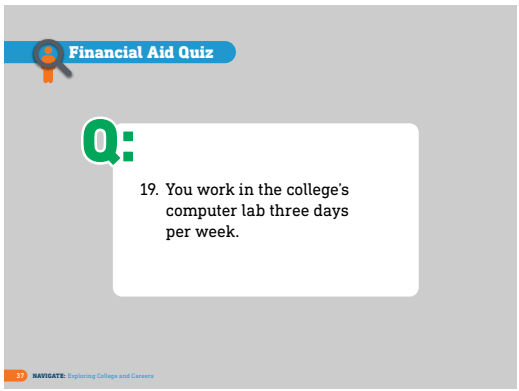


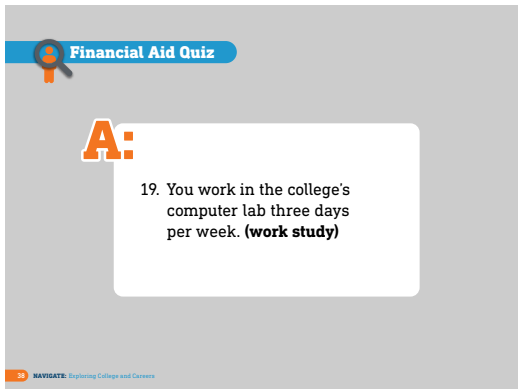


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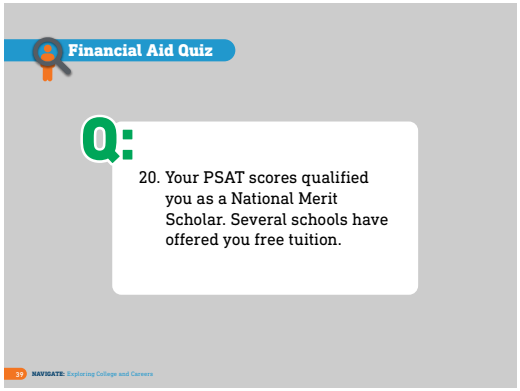
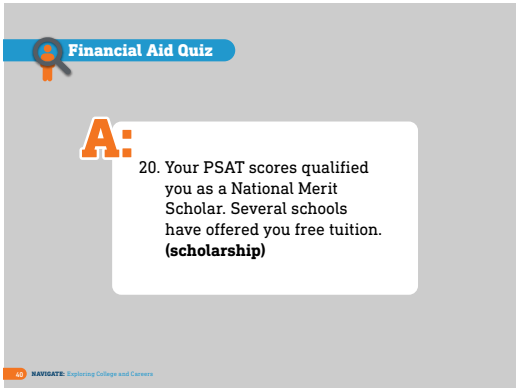
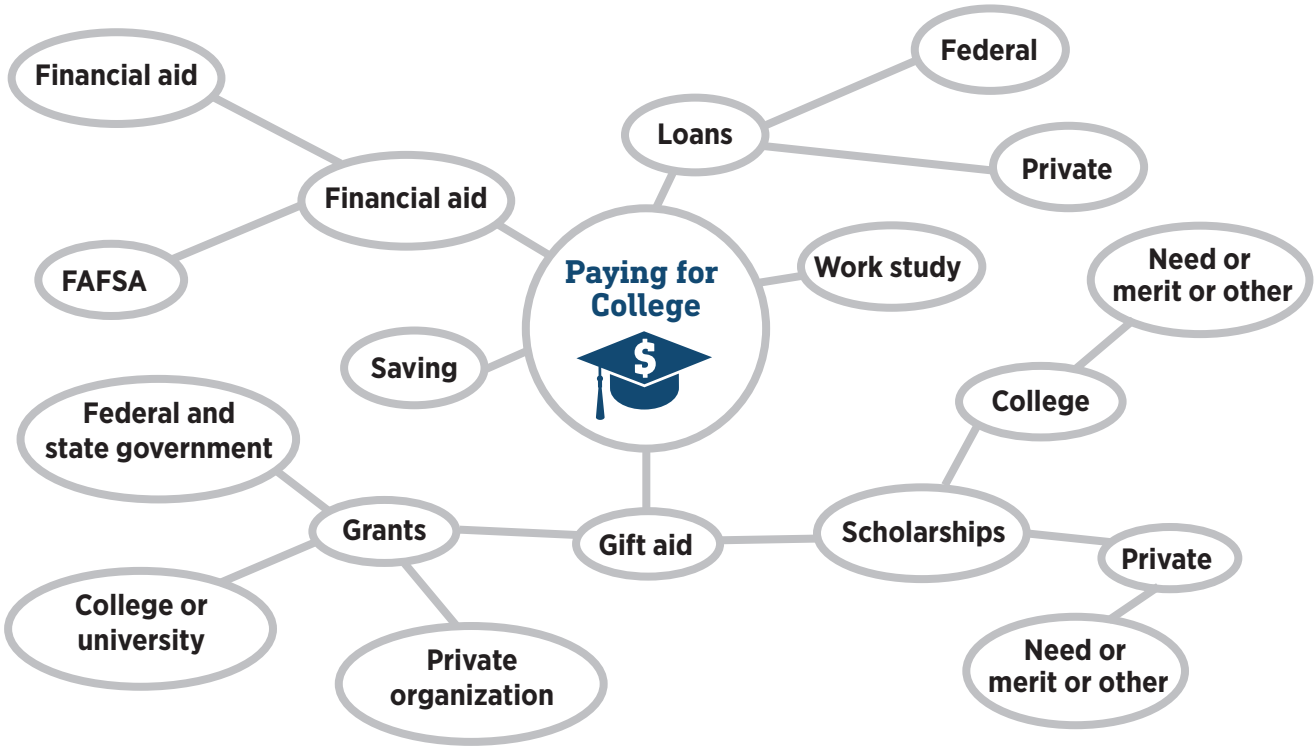


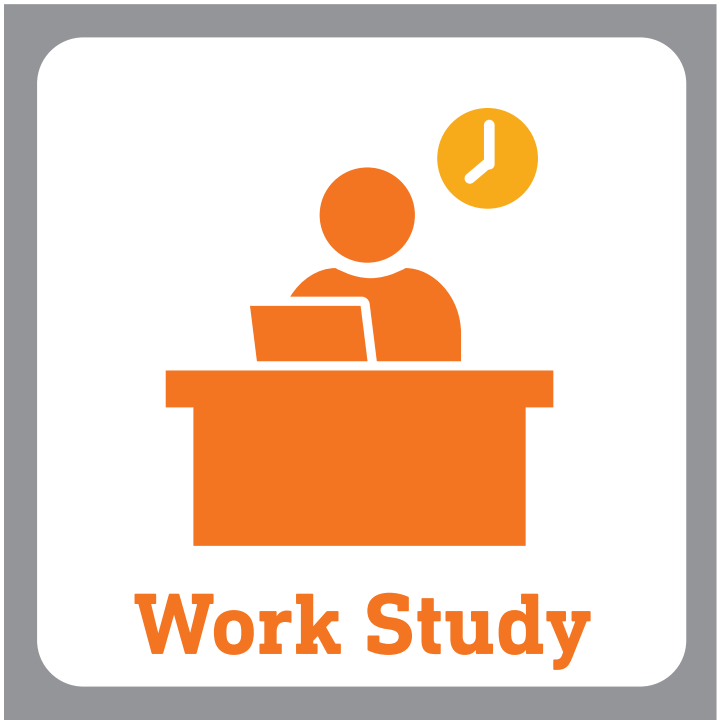
## Answer key

1. **Grants** are often based on financial need and do not need to be repaid unless you do not complete the requirements.
2. **Scholarships** are a type of gift aid that are awarded based on merit, need or other criteria.
3. **Work study** is a type of aid that allows a student to earn money while enrolled in school that can be used to pay for educational and other expenses.
4. **Loans** are a type of financial aid that must be repaid with interest.
5. The **FAFSA** is a free application for financial aid. It is required for all types of aid from the U.S. government and used by many other financial aid providers.
6. The money that you or your family have earned and not spent is called **savings**. The money can be used for educational and other expenses.

## Information Web



## Handout 1



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# Unit 6 Future Paths

Throughout this workbook, we have asked students to dream about their future career, imagine the college they might attend, and think about the activities and courses they might select in high school. In this final unit, students bring all these units together as they create a life narrative of a successful alumnus from their own high school. Students evaluate the skill level needed for a career and select a possible education path.

It is important to remind students that there are many factors to consider when they select a career. No career is inherently more important or "better" than another. Each provides individuals with benefits that they personally value at a cost that they were willing to pay. Additionally, students may pursue multiple careers in a lifetime as their life goals and objectives change. Their education will continue throughout their lives—both on the job and in their personal lives.

## Lesson Overview

Students will review key concepts, including career exploration, college choice, the application process, the cost of college and financial aid. Following the brief review, students will be given a career card and asked to write a possible success story for that career.

## Instructional Objectives

- Identify and review key concepts from Units 1–5.
- Create a success story for an assigned career.

## Time Required

60 minutes

## Materials Required

**For each student**

- ☐ Student Workbook

**For the classroom**

- ☐ Unit 6 slides (available at www.dallasfed.org/educate/navigate)
- ☐ Copies of career cards, cut apart (available at www.dallasfed.org/educate/navigate)
- ☐ Classroom computer with Internet access and projector

## Procedure

1. Use the slides for this unit to review key concepts about college. For additional information, have students review their completed Student Workbooks. Also refer to the information in the procedure documents for Units 1–5.

2. Distribute one career card to each student and tell students to open the Student Workbook to page 28. Tell students to brainstorm ways to prepare for the career in high school. For example, for a career in desktop publishing, student responses might include:
   - **Courses** – English, journalism, computer design, graphic arts
   - **Extracurricular at school** – Work on yearbook or school newspaper
   - **Extracurricular outside of school** – Develop and publish a newsletter for a youth group
   - **References** – English teacher, journalism teacher, yearbook sponsor, youth group leader

3. Tell students to read the prompt on page 29 and use the space to brainstorm information for the personal narrative. Remind students to use information on entry-level education and career description from the career card as they plan their essay.

4. Have students complete their final copy on page 30 of the Student Workbook.

5. Have students share their success stories with a partner to compare career paths.

## Closure

6. Debrief the writing activity by discussing the following questions:
   - What was the most challenging part of writing the essay?
   - How do you think that writing the essay will help you as you enter high school?
   - What is the most important information you learned while studying *Navigate*.

## Assessment

7. Evaluate the student essay for completeness and inclusion of relevant details, using the rubric on page 39.

## Extension Activities

1. Students can interview an adult in a career that interests them and ask the adult to describe his or her career and educational path.

2. Students could do an oral report on the interview.

## Assessment Rubric

**Student Name** _____

**1. Did the student provide clear and complete information about high school preparation for the career?**

| 4 | 3 | 2 | 1 | 0 | Points |
|---|---|---|---|---|---|
| Clear and complete information | Some flaws in clarity or completeness | Flaws in clarity and completeness | Significant flaws in clarity and completeness | No response | |

**2. Did the student provide clear and complete information about the post-secondary education required?**

| 4 | 3 | 2 | 1 | 0 | Points |
|---|---|---|---|---|---|
| Clear and complete information | Some flaws in clarity or completeness | Flaws in clarity and completeness | Significant flaws in clarity and completeness | No response | |

**3. Did the student provide clear and complete information about the challenges that someone might face?**

| 4 | 3 | 2 | 1 | 0 | Points |
|---|---|---|---|---|---|
| Clear and complete information | Some flaws in clarity or completeness | Flaws in clarity and completeness | Significant flaws in clarity and completeness | No response | |

**4. Did the student edit the final copy for spelling and grammar?**

| 4 | 3 | 2 | 1 | 0 | Points |
|---|---|---|---|---|---|
| No errors | Few errors in spelling or grammar | Multiple errors in spelling and grammar | Significant errors in spelling and grammar | Essay incomplete | |

| | |
|---|---|
| **Total Points** (16 points possible) | |

## Unit 6 Slides

1

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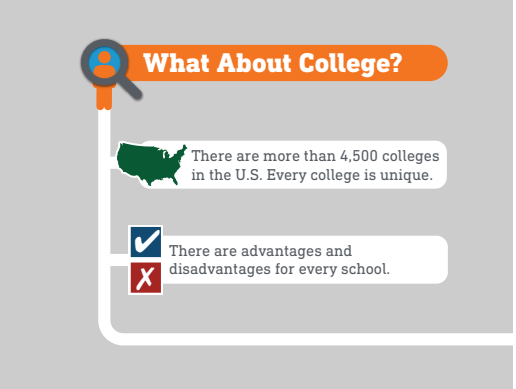


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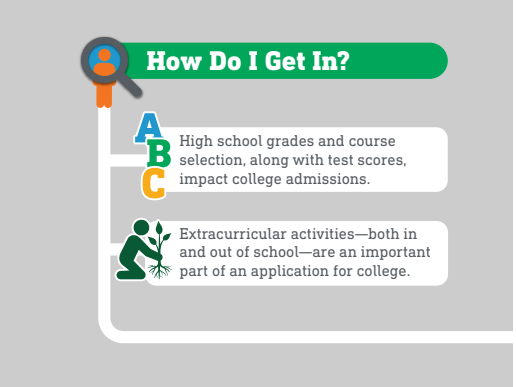


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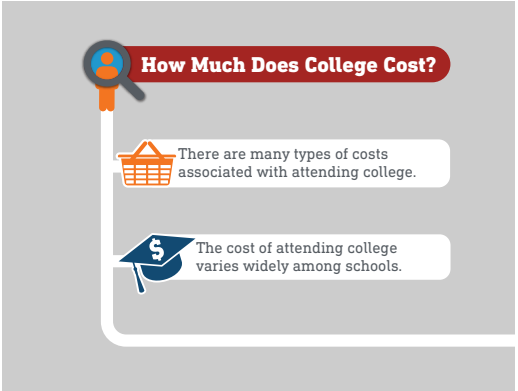


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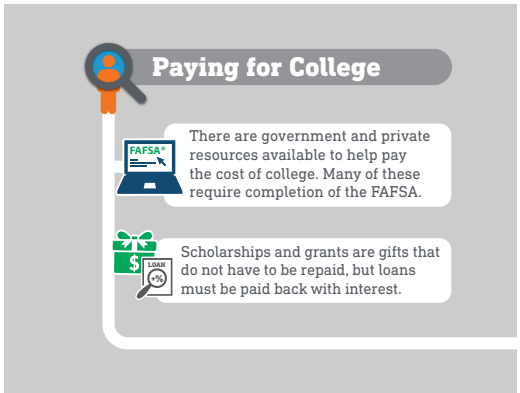

## Career Cards

### Architecture and Engineering
**Drafters**

Drafters use software to convert the designs of engineers and architects into technical drawings and plans. Workers specialize in architectural, civil, electrical, or mechanical drafting and use technical drawings to help design everything from microchips to skyscrapers.

| Entry-level Education: | Median Income: |
|---|---|
| Associate degree | $49,630 |

### Arts and Design
**Industrial designer**

Industrial designers develop the concepts for manufactured products, such as cars, home appliances, and toys. They combine art, business, and engineering to make products that people use every day. Industrial designers focus on the user experience in creating style and function for a particular gadget or appliance.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $59,610 |

### Architecture and Engineering
**Environmental engineering technicians**

Environmental engineering technicians carry out the plans that environmental engineers develop. They test, operate, and, if necessary, modify equipment used to prevent or clean up environmental pollution. They may collect samples for testing, or they may work to mitigate sources of environmental pollution.

| Entry-level Education: | Median Income: |
|---|---|
| Associate degree | $45,350 |

### Arts and Design
**Interior designer**

Interior designers make interior spaces functional, safe, and beautiful by determining space requirements and selecting decorative items, such as colors, lighting, and materials. They read blueprints and must be aware of building codes and inspection regulations.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $47,600 |

### Architecture and Engineering
**Electrical engineer**

Electrical engineers design, develop, test, and supervise the manufacturing of electrical equipment, such as electric motors, radar and navigation systems, communications systems, and power generation equipment. Electronics engineers design and develop electronic equipment, such as broadcast and communications systems—from portable music players to global positioning systems (GPS).

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $89,630 |

### Business and Financial
**Cost estimators**

Cost estimators collect and analyze data to estimate the time, money, materials, and labor required to manufacture a product, construct a building, or provide a service. They generally specialize in a particular industry or type of product.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $58,860 |

### Architecture and Engineering
**Landscape architect**

Landscape architects plan and design land areas for parks, recreational facilities, private homes, campuses, and other open spaces.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $64,180 |

### Business and Financial
**Loan officers**

Loan officers evaluate, authorize, or recommend approval of loan applications for people and businesses.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $59,820 |

## Community and Social Service

### Rehabilitation counselors

Rehabilitation counselors help people with emotional and physical disabilities live independently. They work with clients to overcome or manage the personal, social, and professional effects of disabilities on employment or independent living.

| Entry-level Education: | Median Income: |
|---|---|
| Master's degree | $33,880 |

## Education, Training and Library

### Teacher assistants

Teacher assistants work under a teacher's supervision to give students additional attention and instruction.

| Entry-level Education: | Median Income: |
|---|---|
| Some college, no degree | $23,640 |

## Computer and Information Technology

### Computer network architects

Computer network architects design and build data communication networks, including local area networks (LANs), wide area networks (WANs), and intranets. These networks range from a small connection between two offices to a multinational series of globally distributed communications systems.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $91,000 |

## Health Care

### Radiation therapists

Radiation therapists treat cancer and other diseases in patients by administering radiation treatments.

| Entry-level Education: | Median Income: |
|---|---|
| Associate degree | $77,560 |

## Computer and Information Technology

### Information security analysts

Information security analysts plan and carry out security measures to protect an organization's computer networks and systems. Their responsibilities are continually expanding as the number of cyberattacks increases.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $86,170 |

## Health Care

### Dental hygienists

Dental hygienists clean teeth, examine patients for signs of oral diseases such as gingivitis, and provide other preventative dental care. They also educate patients on ways to improve and maintain good oral health.

| Entry-level Education: | Median Income: |
|---|---|
| Associate degree | $70,210 |

## Education, Training and Library

### Special education teachers

Special education teachers work with students who have a wide range of learning, mental, emotional, and physical disabilities. They adapt general education lessons and teach various subjects, such as reading, writing, and math, to students with mild and moderate disabilities. They also teach basic skills, such as literacy and communication techniques, to students with severe disabilities.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $55,060 |

## Health Care

### Radiologic and MRI technologists

Radiologic technologists perform diagnostic imaging examinations, such as x-rays, on patients. MRI technologists operate magnetic resonance imaging (MRI) scanners to create diagnostic images.

| Entry-level Education: | Median Income: |
|---|---|
| Associate degree | $55,910 |

## Health Care

### Athletic trainers and exercise physiologists

Athletic trainers specialize in preventing, diagnosing, and treating muscle and bone injuries and illnesses. Exercise physiologists develop fitness and exercise programs that help patients recover from chronic diseases and improve cardiovascular function, body composition, and flexibility.

**Entry-level Education:** Bachelor's degree

**Median Income:** $42,690

## Health Care

### Licensed practical and licensed vocational nurses

Licensed practical nurses (LPNs) and licensed vocational nurses (LVNs) provide basic nursing care. They work under the direction of registered nurses and doctors.

**Entry-level Education:** Postsecondary non-degree award

**Median Income:** $41,540

## Health Care

### Dietitians and nutritionists

Dietitians and nutritionists are experts in food and nutrition. They advise people on what to eat to lead a healthy lifestyle or achieve a specific health-related goal.

**Entry-level Education:** Bachelor's degree

**Median Income:** $55,240

## Installation, Maintenance and Repair

### Medical equipment repairers

Medical equipment repairers install, maintain, and repair patient care equipment.

**Entry-level Education:** Associate degree

**Median Income:** $44,570

## Health Care

### Genetic counselors

Genetic counselors assess individual or family risk for a variety of inherited conditions, such as genetic disorders and birth defects. They provide information and advice to other health care providers, or to individuals and families concerned with the risk of inherited conditions.

**Entry-level Education:** Master's degree

**Median Income:** $56,800

## Installation, Maintenance and Repair

### Aircraft mechanics and service technicians

Aircraft and avionics equipment mechanics and technicians repair and perform scheduled maintenance on aircraft. They also may perform aircraft inspections as required by the Federal Aviation Administration (FAA).

**Entry-level Education:** Postsecondary non-degree award

**Median Income:** $55,230

## Health Care

### Dental assistants

Dental assistants have many tasks, ranging from providing patient care and taking x-rays to recordkeeping and scheduling appointments. Their duties vary by state and by the dentists' offices where they work.

**Entry-level Education:** Postsecondary non-degree award

**Median Income:** $34,500

## Installation, Maintenance and Repair

### Electrical and electronics repairers, commercial and industrial equipment

Electrical and electronics installers and repairers install, repair, or replace a variety of electrical equipment in telecommunications, transportation, utilities, and other industries.

**Entry-level Education:** Postsecondary non-degree award

**Median Income:** $51,220

## Installation, Maintenance and Repair

### Heating, air conditioning, and refrigeration mechanics and installers

Heating, air conditioning, and refrigeration mechanics and installers—often called HVACR technicians—work on heating, ventilation, cooling, and refrigeration systems that control the temperature and air quality in buildings.

**Entry-level Education:** Postsecondary non-degree award

**Median Income:** $43,640

## Life, Physical and Social Science

### Conservation scientists and foresters

Conservation scientists and foresters manage overall land quality of forests, parks, rangelands, and other natural resources.

**Entry-level Education:** Bachelor's degree

**Median Income:** $59,060

## Life, Physical and Social Science

### Environmental science and protection technicians, including health

Environmental science and protection technicians do laboratory and field tests to monitor the environment and investigate sources of pollution, including those affecting public health. Many work under the supervision of environmental scientists and specialists, who direct the technicians' work and evaluate their results.

**Entry-level Education:** Associate degree

**Median Income:** $41,240

## Life, Physical and Social Science

### Forensic science technicians

Forensic science technicians help investigate crimes by collecting and analyzing physical evidence. Many technicians specialize in either crime scene investigation or laboratory analysis. Most forensic science technicians spend some time writing reports.

**Entry-level Education:** Bachelor's degree

**Median Income:** $52,840

## Life, Physical and Social Science

### Forest and conservation technicians

Forest and conservation technicians measure and improve the quality of forests, rangeland, and other natural areas.

**Entry-level Education:** Associate degree

**Median Income:** $33,920

## Life, Physical and Social Science

### Epidemiologists

Epidemiologists are public health professionals who investigate patterns and causes of disease and injury in humans. They seek to reduce the risk and occurrence of negative health outcomes through research, community education, and health policy.

**Entry-level Education:** Master's degree

**Median Income:** $65,270

## Life, Physical and Social Science

### Geological and petroleum technicians

Geological and petroleum technicians provide support to scientists and engineers in exploring and extracting natural resources, such as minerals, oil, and natural gas.

**Entry-level Education:** Associate degree

**Median Income:** $52,700

## Life, Physical and Social Science

### Urban and regional planners

Urban and regional planners develop plans and programs for the use of land. Their plans help create communities, accommodate population growth, and revitalize physical facilities in towns, cities, counties, and metropolitan areas.

**Entry-level Education:** Master's degree

**Median Income:** $65,230

## Management

### Advertising, promotions and marketing managers

Advertising, promotions, and marketing managers plan programs to generate interest in a product or service. They work with art directors, sales agents, and financial staff members.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $115,750 |

## Media and Communication

### Film and video editors and camera operators

Film and video editors and camera operators manipulate images that entertain or inform an audience.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $46,280 |

## Management

### Human resources managers

Human resources managers plan, direct, and coordinate the administrative functions of an organization. They oversee recruiting, interviewing, and hiring of staff; consult with top executives on strategic planning; and serve as a link between an organization's management and its employees.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $99,720 |

## Media and Communication

### Technical writers

Technical writers, also called technical communicators, prepare instruction manuals, journal articles, and other supporting documents to communicate complex and technical information more easily. They also develop, gather, and disseminate technical information among customers, designers, and manufacturers.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $65,500 |

## Management

### Training and development managers

Training and development managers plan, direct, and coordinate programs to enhance the knowledge and skills of an organization's employees. They also oversee a staff of training and development specialists.

| Entry-level Education: | Median Income: |
|---|---|
| Bachelor's degree | $95,400 |

## Media and Communication

### Sound engineering technicians

Broadcast and sound engineering technicians set up, operate, and maintain the electrical equipment for radio and television broadcasts, concerts, sound recordings, movies and in office and school buildings.

| Entry-level Education: | Median Income: |
|---|---|
| Postsecondary non-degree award | $41,200 |

## Management

### Elementary, middle and high school principals

Elementary, middle, and high school principals are responsible for managing all school operations. They manage daily school activities, coordinate curricula, and oversee teachers and other school staff to provide a safe and productive learning environment for students.

| Entry-level Education: | Median Income: |
|---|---|
| Master's degree | $87,760 |

## Personal Care and Service

### Funeral service managers

Funeral service workers organize and manage the details of a funeral.

| Entry-level Education: | Median Income: |
|---|---|
| Associate degree | $51,600 |

## Personal Care and Service

### Recreation workers

Recreation workers design and lead leisure activities for groups in volunteer agencies or recreation facilities, such as playgrounds, parks, camps, aquatic centers, and senior centers. They may lead activities such as arts and crafts, sports, adventure programs, music, and camping.

**Entry-level Education:** Bachelor's degree

**Median Income:** $22,240

## Protective Service

### Firefighters

Firefighters control fires and respond to other emergencies, including medical emergencies.

**Entry-level Education:** Postsecondary non-degree award

**Median Income:** $45,250

## Personal Care and Service

### Hairdressers, hairstylists, and cosmetologists

Barbers, hairdressers, and cosmetologists provide hairstyling and beauty services.

**Entry-level Education:** Postsecondary non-degree award

**Median Income:** $22,770

## Sales

### Sales engineers

Sales engineers sell complex scientific and technological products or services to businesses. They must have extensive knowledge of the products' parts and functions and must understand the scientific processes that make these products work.

**Entry-level Education:** Bachelor's degree

**Median Income:** $91,830

# Glossary

**Admission process:** the application and evaluation process a prospective student goes through to be accepted to a school.

**Advanced Placement (AP)**: a program of college-level courses taught in high schools to prepare students for Advanced Placement (AP) tests. These tests, administered by the College Board, provide the opportunity for students to earn college credit.

**Associate degree:** a degree awarded by community colleges, technical schools and some universities after completion of a program of approximately 60 credit hours (also called a two-year degree).

**Bachelor's degree:** a degree awarded by a college or university after completion of an academic program of approximately 120 credit hours (sometimes called a four-year degree).

**Career:** a professional field or occupation that one trains for or undertakes as an intentional path.

**Class rank**: a measure of a student's grades compared to the other students in the class.

**College:** an institution that offers classes and instruction leading to a bachelor's degree and/or vocational training and certification.

**Community college:** a two-year school that offers associate degrees and workforce certification programs (sometimes called a junior college).

**Commuter student:** student who lives off-campus and travels to the school for courses and other activities.

**Credit-by-exam:** tests that provide the opportunity to earn college or high school credit by passing a standardized test without taking a course.

**Dual-credit courses:** high school courses that count toward high school graduation requirements and earn college credit hours.

**Fees:** see tuition and fees.

**Free Application for Federal Student Aid (FAFSA):** an application that includes financial information about a student and his or her family and is used to determine the student's eligibility for financial aid.

**GED:** a set of tests that allow people who did not gradate from high school to obtain high school credentials.

**GPA (grade point average):** an average of a student's grades in all classes taken, often reported on a four-point scale.

**Human capital:** knowledge, talent, experience and skills that people possess.

**In-state tuition:** the tuition paid by students who reside in the same state as the college or university they attend.

**International Baccalaureate Program (IB Program):** a program of challenging high school classes with a global focus. Courses include examinations that may allow a student to earn college credit.

**Junior college:** see community college.

**Liberal arts college:** an undergraduate school that awards degrees in areas such as English, history, economics, foreign languages, math and science.

**Major:** the academic discipline in which a student takes most of his or her classes.

**Master's degree:** a one- to two-year graduate degree that is earned after a bachelor's degree. The field of study can be an academic discipline or professional field.

**Out-of-state tuition:** the tuition paid by students who reside in a different state from the college or university they attend.

**Private school:** a college or university that is administered by a private organization and receives the majority of its funding from tuition, fees and donations to the school.

**Professional degree:** a graduate-level degree that provides training in specific skills related to a career, such as medicine or law.

**Public school:** a college or university that is administered by a local or state government and receives funding from government sources.

**Religious affiliation:** the historic or current association of a college with a religious faith. Some of these institutions may require specific religious instruction.

**Residential school:** an educational institution that provides housing for students.

**Room and board:** the cost of living and eating on campus.

**Six-year graduation rate:** the portion of students at a college or university who complete a bachelor's degree within six years.

**Student-faculty ratio:** the number of students per member of the faculty.

**Technical school (vocational school):** post-high-school institutions that provide technical training. Programs sometimes lead to certifications or licenses.

**Transcript:** an official record of a student's grades.

**Tuition and fees:** cost of instruction and facility use (classes) at an educational institution. Tuition can be quoted as a cost per credit hour or as a flat rate for a range of credit hours. Fees include general fees, such as for use of libraries and for student activities, and may include course-specific costs, such as lab fees.

**Undergraduate classes:** classes offered to students who have not earned a college degree.

**University:** an institution usually made up of multiple colleges (such as liberal arts, medical or business) that offers bachelor's, master's and doctoral degrees.

**Vocational school:** see technical school.

**Weighted GPA:** a grade point average (GPA) that is calculated with extra points added to the grade value for honors or advanced classes.

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