

"When Am I Ever Going to Use This?"

When tackling algebra, students may ask how it connects to real life. Use this lesson to show students that algebra is a bigger part of everyday life than they ever imagined.

ADVANCEMENT
COURSES™

A Wiley Brand

advancementcourses.com



Objective: Students will explain real-world applications of algebra in a variety of ways.

Grades: 6–8

Time: two 30-minute periods on different days

Materials: 15 index cards, tape or whiteboard magnets, one or more copies of each poster (provided)

Materials for each student: two copies of the survey handout, scissors

DIRECTIONS

In advance: Label each of the 15 index cards with one of these careers: chef, auto mechanic, carpenter, zookeeper, police accident investigator, weatherperson, road inspector, conservation scientist, funeral director, landscape designer, real estate agent, power plant operator, personal fitness trainer, store clerk, electrician.

Bell-Ringer Activity

1. Have each student make a list of jobs he or she thinks might involve algebra.
2. As time allows, have each student share his or her list with a partner.

Whole-Group and Small-Group Activity

1. Arrange the 15 labeled index cards in random order on the board. Divide the class into groups of three or four students each. Select one student in each group to be the spokesperson.
2. Give groups five minutes to discuss the careers on the board and identify those that do not require the use algebra. While groups meet, write these two headings at the top of the board, each on a different side: Careers That Use Algebra, Careers That Don't Use Algebra.

3. Ask the spokesperson for one group to come to the board and arrange the cards under the headings according to the group's conclusions. Have the spokesperson briefly explain the group's choices. Then invite a spokesperson from another group to come to the board and move any cards according to their group's conclusions. Continue until each group's spokesperson has rearranged the cards.
4. After a brief discussion of any disagreements among the groups, reveal to students that all of the cards belong in the "Careers That Use Algebra" column. Discuss students' reactions to this revelation. Then, based on the list, ask them to suggest other careers that might use algebra.
5. Display the five posters (these are provided, scroll down to print). Explain that each poster features a specific career that requires a knowledge of algebra. Be sure to point out the box at the bottom of each poster that lists additional jobs in that field that use algebra. Discuss the information and invite students to make notes about the careers.

Independent, Small-Group, and Whole-Class Activity

1. Give each student two copies of the survey handout. Have students cut apart the two surveys on each page.
2. As a homework assignment, direct each student to ask three or four adults (18 or older) to complete a copy of the survey.
3. The next day have students meet in their small groups to compare their completed surveys.
4. As a class, discuss students' findings. Ask students which of the ten tasks on the survey they think involves algebra and how it might be used. Share the additional information provided explaining how each task requires algebra in some way.

Progress Check

Wrap up the lesson by asking each student to complete an exit ticket on a piece of paper by responding to the following prompt: Think about a career you are interested in pursuing, and describe how you might use algebra in your work.

Show students that algebra happens every day in the real world

Our popular course **Real-World Applications for Algebra** helps you create authentic algebra-based projects and helps you **show students how this important branch of mathematics relates to everyday life**.

Other courses you may like:

- *The Language of Math*
- *Fostering Mathematical Mindsets*
- *Adding Relevance to Teaching Mathematics*
- *Tech Tools for the Math Classroom*

Courses are self-paced, graduate level, and available online.

Learn more about this course and more than 200 others at **AdvancementCourses.com**.

ALGEBRA ON THE JOB



"I take algebra to work as a
**SUPPLY CHAIN
MANAGER.**"

What I do:

- Work with other companies to buy parts and raw materials needed to produce my product.
- Evaluate suppliers and negotiate contracts with them.
- Make sure my company does not have shortages of materials and manage its costs.
- Manage processes for shipping and warehousing.

One way I use algebra: using linear equations to determine the best prices for parts and raw materials



Other Business Careers That Use Algebra

- Accountant
- Financial Planner
- Baker
- Advertising Manager
- Loan Officer
- Economist

ALGEBRA ON THE JOB



"I take algebra to work as a

**BRIDGE
INSPECTOR."**

What I do:

- Evaluate bridges to make sure they are safe for the public.
- Help civil engineers plan, design, and build bridges, highways, and other infrastructures. This is part of my civil engineering technician certification, which most bridge inspectors must have.
- Use my certification as a scuba diver to inspect the underwater substructure of bridges (not all bridge inspectors have this certification).

One way I use algebra: analyzing construction plans and designs for bridges and other infrastructure projects



Other Building and Engineering Careers That Use Algebra

- Architect
- Home Builder
- Surveyor
- Electrical Engineer
- Nuclear Power Plant Operator
- Landscape Architect

ALGEBRA ON THE JOB



"I take algebra to work as a
DIETICIAN."

What I do:

- Design nutrition programs that protect health, ease symptoms of many kinds of diseases, and prevent allergic reactions.
- Explain nutrition issues to clients.
- Assess the dietary and health needs of clients.
- Can work in many settings: hospitals, long-term care facilities, schools, public or community health facilities, company cafeterias, food and nutrition industry, sports organizations, and more.

One way I use algebra: figuring out a person's nutritional needs based on factors such as age, weight, blood, temperature, stress level, family history, and other health factors



Other Medical and Health Careers That Use Algebra

- | | |
|---------------------------|------------------------------|
| • Doctor | • Pharmacist |
| • Nurse | • Nutritionist |
| • Radiologic Technologist | • Fitness Trainer/Instructor |

ALGEBRA ON THE JOB



"I take algebra to work as a

**MARINE
BIOLOGIST."**

What I do:

- Observe and study the animals and plants that live in the ocean and other saltwater environments.
- Work in lots of different environments, such as on a ship, a beach, or a marsh.
- Design experiments, use tracking technology, and utilize computer software to record and analyze results.
- Write research papers and reports.

One way I use algebra: analyzing data on different species of marine organisms and how they interact within their habitats and then using that data to make models and predictions



Other Science Careers That Use Algebra

- Astrobiologist
- Astronomer
- Chemist
- Meteorologist
- Biologist
- Oceanographer

ALGEBRA ON THE JOB

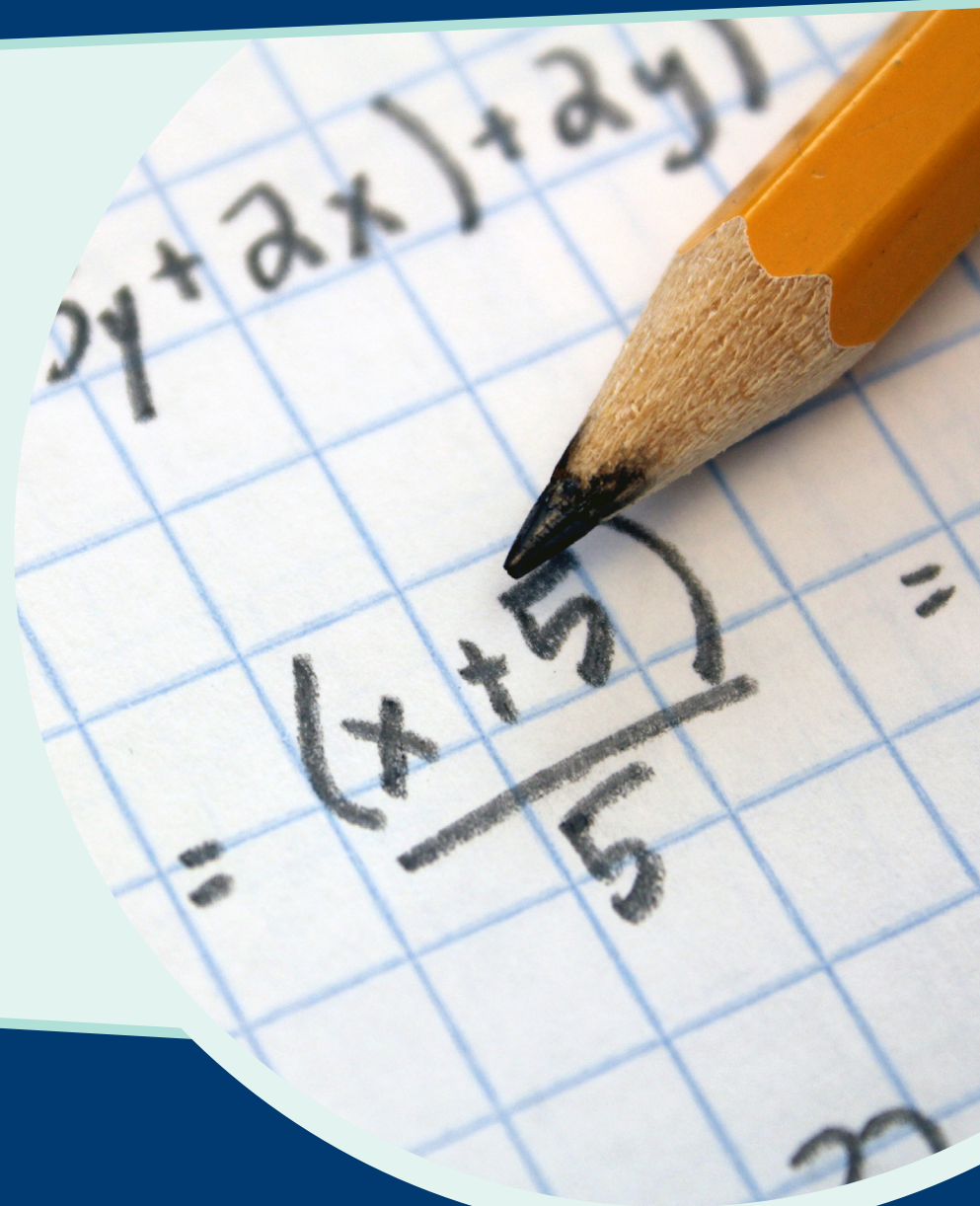


"I take algebra to work as a
CRYPTOLOGIST."

What I do:

- Develop and/or decipher codes and puzzles to protect classified or private information.
- Decipher messages and codes in foreign languages.
- Analyze intelligence data to identify potential terror threats.
- May work for government agencies like the FBI or CIA, U.S. military, technology companies, law enforcement, universities, and research institutes.

One way I use algebra: developing systems that protect a company and its customers from hackers



Other STEM Careers That Use Algebra

- Gaming Programmer
- Mathematics Teacher
- Computer Programmer
- Computer Analyst
- Statistician
- Software Developer

Name _____

Conducting a Survey

Respondent _____

Directions for respondent: Put a check mark for any action you have taken in the last six months.

- ☐ 1. Traveled out of the country
- ☐ 2. Revised a recipe's ingredients to feed a larger or smaller number of people
- ☐ 3. Took out a loan or investigated whether to take out a loan
- ☐ 4. Watched television or used any technology
- ☐ 5. Played a video game or used a game app
- ☐ 6. Visited a doctor, dentist, pharmacist, or other health professional
- ☐ 7. Planned or completed a do-it-yourself project such as a home repair, landscaping, or remodeling
- ☐ 8. Figured out whether you had enough money to buy something
- ☐ 9. Determined the amount of time needed to get somewhere
- ☐ 10. Watched or read a weather report

List the numbers of the actions you checked that used algebra.

©2019 Advancement Courses, a Wiley brand

Name _____

Conducting a Survey

Respondent _____

Directions for respondent: Put a check mark for any action you have taken in the last six months.

- ☐ 1. Traveled out of the country
- ☐ 2. Revised a recipe's ingredients to feed a larger or smaller number of people
- ☐ 3. Took out a loan or investigated whether to take out a loan
- ☐ 4. Watched television or used any technology
- ☐ 5. Played a video game or used a game app
- ☐ 6. Visited a doctor, dentist, pharmacist, or other health professional
- ☐ 7. Planned or completed a do-it-yourself project such as a home repair, landscaping, or remodeling
- ☐ 8. Figured out whether you had enough money to buy something
- ☐ 9. Determined the amount of time needed to get somewhere
- ☐ 10. Watched or read a weather report

List the numbers of the actions you checked that used algebra.

©2019 Advancement Courses, A Wiley Brand

Additional Information for the Student Survey (for teacher use)

1. Algebra is used when converting U.S. dollars to currency used in the country a person is visiting.
2. Converting ingredient measurements for more or fewer servings requires algebra.
3. Algebraic formulas are used to figure out the interest one must pay on a loan.
4. The technology we use every day—cell phones, search engines, social media, computers, tablets, television, etc.—all rely on mathematics and algebra.
5. Video game and app developers use algebra to design and create their products.
6. The fields of medicine, dentistry, and pharmacy all require algebra. For example, medical professionals use linear equations to determine correct dosage amounts for patients who are taking more than one medication.
7. Algebra is used when figuring out costs and buying materials.
8. Budgeting of any kind requires algebra.
9. Determining the best deal on something you want to buy and making other important financial decisions all require algebra.
10. Meteorologists use algebra to make reliable weather predictions.