

Architecture



Career Cluster Teacher Guide

Resource Description

Planning the design and construction of a building involves many people – including architects, interior designers, planners, technical computer operators, landscape architects, structural, mechanical, and electrical engineers, and site engineers.

Learn all about the different career opportunities involved in planning, designing, and constructing new infrastructures.

Materials and Resources

- Teacher guide
- <http://mygpsforsuccess.com/architecture-and-construction/>
- Cluster student viewing guide
- KWL Chart
- Display paper or individual sheets
- Pen/Pencil
- 1:1 computer or laptops; or group students if limited resources

Vocabulary & Definitions

Apprenticeship: a system of training a new generation of practitioners of a trade or profession with on-the-job training and often some accompanying study

Collaboration: the process of two or more people or organizations working together to complete a task or achieve a goal.

Contractor: a person or company that undertakes a contract to provide materials or labor to perform a service or do a job.

Engineer: a person who designs, builds, or maintains engines, machines, or public works.

Infrastructure the underlying foundation or basic framework

Masonry: is the building of structures from individual units, which are often laid in and bound together by mortar; the term masonry can also refer to the units themselves.

Tradesman, tradesperson, or skilled tradesman: refers to a worker who specializes in a particular occupation that requires work experience, on-the-job training, and often formal vocational education, but often not a bachelor's degree.

Bell Ringer

1. Have the following displayed on an easel, whiteboard, or individual sheets of paper for students to review and write down their responses:

Think of your house or an important building to you. List the different types of people that needed to be involved in the completion of that structure (ex: construction workers, landscapers, etc.)

2. Have some students share responses.
3. Make a class list of responses and then open the floor to additional responses after the list is constructed.
4. Facilitate student discussions about the importance of the Architecture & Construction by discussing responses.

Objectives

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The student will be able to:

- Identify the central aspects of the Architecture & Construction Career Cluster including career paths, skills & interest, and education level
- Explore different careers within the Cluster
- Analyze what is known, wondered, and learned (KWL) about the career cluster to begin conceptualizing an individual career map

Anticipatory Set

1. Divide students into pairs – each student gets a KWL Cluster Chart.

Verbal instructions:

- *Review the list created during the bell ringer regarding Architecture & Construction careers.*
- *With your partner, list at least 5 items you know about job details, necessary skills, etc. in the “Know” Section.*

2. Have two pairs of students join one-another to form a four-person group

Verbal instructions:

- *Compare and discuss each list.*
- *With your group, list at least 5 things you want to know about the Architecture & Construction Cluster in the “Wonder” Section.*

3. Have groups share their new list with the class.

Introductory Questions

Introductory Questions:

Ask the following questions to the whole class with for students to write down their answers and/or discuss with a partner. Have 2-3 students share their answers:

- Why is collaboration such an important part of architecture and construction?
- What skills do you think are necessary to be a successful tradesman in building and construction?
- How is an apprenticeship different from volunteer work?

Learning Task & Exploration Activity

1. Introduce the Architecture & Construction Career Cluster Videos.

Video Introduction:

All buildings from huge skyscrapers to your average residential home have one thing in common. It took a team of architects, engineers, and construction professionals to design it and build it.

2. View the Architecture & Construction videos. Have students complete the Student Viewing Guide as they learn about the Career Cluster.
3. Students will fill out the “Career Cluster Research” section of the viewing guide and explore the Architecture & Construction webpage on <http://mygpsforsuccess.com/architecture-and-construction/>

Closing

1. Have students complete the “Learned” Section of their KWL with at least 3 pieces of information they learned about the cluster. Students may share out in class as well as discuss with a partner once they have finished.
2. Engage students in a whole class or small group discussion using the Discussion Questions section of this instructional plan – students may use their KWL chart as reference.

Discussion Questions

1. How would you define this Career Cluster?
2. What surprised you about this Career Cluster?
3. What career pathways were represented in this video?
4. What are the 6 different types of engineering?
5. How do the skills and/or training necessary to be successful in these fields differ from one another?
6. What are some of the trades that play a specific role in construction?
7. Knowing what you do now, how long do you believe a construction project can last?
8. How do careers in architecture & construction incorporate science & engineering, technology, math, and social studies/history?
9. What’s an industry in the Architecture & Construction Career Cluster that is lacking skilled workers nationally?

Extended Learning

Suggested activities to increase student learning and exposure to this Career Cluster.

- With approval and necessary safety precautions, take students to an active construction site or architecture firm.
- Have students engage in architecture & construction-based engineering projects such as: building a spaghetti bridge, designing and constructing model homes, designing a fictional highway or road using maps from a Point A to a Point B.
- Consider a project within your community that needs to be addressed. Have students develop a plan, propose it to the town/city/village, and if possible, act on it!
- Check out the local BOCES opportunities for architecture & construction
- Research modern and historical wonders of architecture and construction. Focus should be on how it was built, what it was built out of, who built it, why it was built (even if it's a mystery!), and cultural impacts today. Ex: Hagia Sophia, Stonehenge, Machu Picchu, Angkor Wat, Sydney Opera House, Blur Building, Empire State Building, etc.
- Have each student select a career from this Career Cluster. Students will research the career and present information to the class in the form of an oral presentation, poster, PowerPoint, video or Prezi presentation. Information to research and share might include: salary, education required, typical day schedule, roles and responsibilities, positive aspects of the job and challenges associated with the job.
- Have each student make a list of the Career Readiness Skills that are his/her personal strengths, as well as a list of the skills and behaviors required for a career as an educator. Students compare the lists to determine what Career Readiness Skills need to be strengthened.
- Have students complete a job application and/or job interview with a local employer.
- Help students construct a resume for a specific career in this Career Cluster.
- Arrange for students to meet with the school counselor to discuss classes that would help prepare a student for careers in this Career Cluster and certifications that can be obtained during high school that would be of value.
- Have each student identify a postsecondary institution

Notes to Educator

This packet includes suggested activities questions, and materials to enhance student understanding of this career cluster. Each component may be used individually or modified to fit the needs of your classroom.

More information on this Career Cluster can be found at:

<http://mygpsforsuccess.com/architecture-and-construction/>

In addition, GPS For Success has an array of resources, including:

- Interest Profiler: *online quiz to assist students in categorizing their interests by possible careers those interests apply to.*
- Scholarship opportunities
- Information on internships
- Sample resumes and cover letters
- Interview preparation materials
- Opportunities for students with disabilities