



TEACHER-LED ACTIVITY | GRADE RANGE: 6–8

Cool Careers

OBJECTIVES

Students will:

- Identify various careers within the HVAC industry.
- Analyze details, educational requirements, and expected salaries of multiple careers.
- Communicate an opinion based on research.

OVERVIEW

Students will participate in a gallery walk activity exploring various careers that take part in keeping us cool. They will compile information on educational requirements, salaries, and responsibilities before engaging in a discussion about which careers are most interesting to them. They will conclude by presenting which career they believe to be most important to keeping things cool.

TIMING

45–60 minutes

MATERIALS NEEDED

- **Cool Careers gallery** walk cards, one set
- **Cool Careers Gallery Walk** student handout, one per student
- **Exit Ticket** student handout, one half-sheet per student

ESSENTIAL QUESTION

- Who is responsible for keeping us cool?

PROCEDURE

Engage

1. Introduce students to the upcoming concept by displaying and discussing the following essential question:
Who is responsible for keeping us cool?
2. Ask the students if they have ever heard of the acronym *HVAC*. If no one can explain its meaning, tell them that it stands for heating, ventilation, and air conditioning, and it is the industry responsible for keeping us cool ...and warm for that matter! Emphasize that while it sounds, well ...cool, to call this activity “Cool Careers,” HVAC encompasses solving climate issues with innovations that heat and cool equally.

Explore

3. Explain to students that, in groups, they will be participating in a gallery walk activity in which they will get to explore the different careers involved in keeping us cool (and warm!).
4. Point out the **Cool Careers gallery walk cards** posted around the room and explain that groups will rotate around the room until they have seen all the cards. Distribute one Cool Careers **Gallery Walk student handout** to each student to record their learning.

***Note:** Emphasize that the listed salaries should serve as reference points. Salaries can vary from year to year and based on factors like location, company size, and experience.*

5. Divide students into groups of four and give groups approximately five minutes at each card before indicating that they should rotate to the next. Remind them to record information from the cards on their handout at each station.

Discuss

6. Give students the opportunity to discuss with the class which careers they found most interesting and why. Were there any careers they were surprised to see involved in keeping us cool? What career(s) did they expect to see? Are any missing?
7. Instruct students to independently review the information they learned from the gallery walk as they begin to think about which career is *most* important to keeping us cool (and warm!). Have students record their thoughts on their handouts.
8. Provide an opportunity to share their responses and discuss feedback.

Reflect

1. Distribute an **Exit Ticket Student Handout** to each student and ask them to reflect upon the activity's essential question by completing an interest rating. Collect them as students leave and use responses to determine their level of understanding. Consider taking time in a future session to address misconceptions, highlight key takeaways, or share interesting insights brought up on the tickets.

EXTENSION IDEAS FOR EDUCATORS:

- Have students choose an industry or profession of interest and conduct in-depth research into a specific career they are interested in for the future. Students can present their information to peers via speech or presentation, or students can organize a career fair to give peers an opportunity to learn from their research.
- Invite HVAC professionals, especially those featured in the gallery walk, to speak to the students about their experiences.

NATIONAL CONTENT STANDARDSNational Science Standards

- MS-ESS3-3: Apply scientific principles to design a method
- MS-ESS3-4: Construct an argument supported by evidence

Common Core State Standards for ELA

- SL.1: Engage effectively in a range of collaborative discussions.
- SL.6: Adapt speech to a variety of contexts and tasks.
- W.1: Write arguments to support claims with clear reasons and relevant evidence.
- W.7: Conduct short research projects to answer a question.

Science and Engineering Practices

- Obtaining, Evaluating, and Communicating Information
- Engaging in Argument from Evidence

HVAC TECHNICIAN

WHO ARE THEY?

HVAC technicians install, maintain, and repair heating, ventilation, and air conditioning units. They can work in people's homes or in commercial buildings.

WHAT MAKES THEM INTERESTING?

HVAC technicians are skilled workers. That means it's not enough to only know how to use tools or be good at fixing things. They understand the mechanics of HVAC, including the math, chemistry, and physics that makes these machines work.

HOW DO THEY GET THE JOB?

HVAC technicians need a high school diploma and then must complete a training program or go to trade school. They might also complete an apprenticeship program. Depending on the state they work in, they need to obtain a certificate or license.

HOW MUCH DO THEY MAKE?

According to the Bureau of Labor Statistics, the median salary for HVAC technicians as of 2023 is \$57,300/year.

THERMAL ENGINEER

Who Are They?

Thermal engineers work with the transfer of heat energy between two systems or the transformation of one form of heat energy into another.

What Makes Them Interesting?

Thermal engineers use the scientific principle of thermodynamics to design heating and cooling systems.

How Do They Get the Job?

Thermal engineers need a bachelor's degree in mechanical engineering. They need to work as an engineer and gain many years of relevant experience before becoming a thermal engineer.

How Much Do They Make?

According to Salary.com, the average salary for thermal engineers as of 2024 is \$79,595/year.

HVAC ENGINEER

Who Are They?

HVAC engineers design heating, ventilation, and air conditioning systems for offices, schools, and homes.

What Makes Them Interesting?

HVAC engineers usually have experience in plumbing and electricity.

How Do They Get the Job?

HVAC engineers need a bachelor's degree in engineering—usually mechanical engineering. Many choose to get HVAC certificates to learn the specialized skills they need.

How Much Do They Make?

According to Salary.com, the average salary for HVAC engineers as of 2024 is \$75,625/year.

HVAC PROJECT MANAGER

Who Are They?

HVAC project managers oversee the installation and replacement of HVAC units in buildings.

What Makes Them Interesting?

HVAC project managers are involved in every aspect of designing, planning, coordinating, staffing, and supervising the installation of an HVAC system.

How Do They Get the Job?

Experience with HVAC installation as a technician is the most important requirement. There are associate degrees and training programs to get started. A bachelor's degree in mechanical engineering can help a project manager advance in their career.

How Much Do They Make?

According to ZipRecruiter, the average salary for HVAC project managers as of 2024 is \$97,037/year.

HVAC SALES REPRESENTATIVE

WHO ARE THEY?

HVAC sales representatives are responsible for promoting a company's HVAC products and generating new sales leads to increase profit.

WHAT MAKES THEM INTERESTING?

HVAC sales representatives focus on building positive customer relationships. They are good communicators who are skilled at recognizing and responding to the needs of others.

HOW DO THEY GET THE JOB?

While there are usually no formal educational requirements, companies usually hire HVAC sales representatives with multiple years of proven sales experience in the HVAC industry or experience working with or installing HVAC systems.

HOW MUCH DO THEY MAKE?

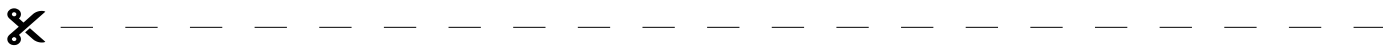
According to Glassdoor, the average salary for HVAC sales representatives as of 2024 is \$84,398/year.

CAREER	DEFINITION	INTERESTING FACT	EDUCATION NEEDED	SALARY

Exit Ticket

Rate your interest in the following items now compared to before the activity:

Item	More Interested	The Same Level of Interest	Less Interested or Not Interested
HVAC Careers			
Professional Careers (i.e., engineering)			
Technical Careers (i.e., mechanical technician)			



Rate your interest in the following items now compared to before the activity:

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