



## Exploratory Tasks:

*Where will your journey take you?*

# ARCHITECTURE & CONSTRUCTION

Look at all the structures around you – an endless variety of homes, buildings, roads, furniture, etc. Each were created by skilled professionals who designed, planned, managed and worked to bring an idea to life. The tools, equipment and structures themselves require unique skills to maintain safe operations. These professionals work in a variety of settings, such as offices, outdoors, factories and small businesses.



## DESIGN & PRE-CONSTRUCTION PATHWAY

Specialists in this pathway turn a concept into a set of plans that guide other construction professionals as they continue the building process. These plans – or blueprints – include not only the layout for the structure, but also include plans for wiring, plumbing, etc.

**EXPLORATORY TASK:** Create a *floorplan for a tiny house*, one with less than 400 square feet. Find a sample online to use as a model. How do they use symbols to communicate? Use graph paper to create a sketch of your idea. Include a key to the scale, i.e.,  $\frac{1}{4}$  inch = 1 inch. Consider:

- What is the best use of space?
- How do you communicate the location of doors, appliances, etc.?
- What type of materials would you use?
- What is the total square footage?

**EXTENSION:** In architecture, elevation refers to a particular view of the outside of a structure. Research *architecture elevations* for examples and create an elevation drawing of your tiny house. Be sure to label the elevation of your drawing, e.g., right front, left side, etc.

## CONSTRUCTION PATHWAY

Employees in construction literally build our future! These are the people who build homes, buildings and schools. Others in this pathway build highways, bridges, tunnels and power plants.

**EXPLORATORY TASK:** Construction specialists work in a variety of trades. Create a visual map of the following trade specialties. Go on a scavenger hunt in your home or school to locate examples of:

- Carpentry
- Masonry (structures built with brick and mortar)
- Electricity
- Plumbing
- Welding (metalwork)
- Heating and cooling

### *What Is a Career Cluster?*

Career Clusters are a way to organize career options. There are **16 Career Clusters** in the National Career Cluster Framework. They are further divided into specific pathways that can lead you to a successful future.

### *What Are Career Pathways?*

Each of the 16 Career Clusters are divided into approximately 80 Career Pathways. The pathways are further divided into specific careers that share similar skills.

A Career Pathway offers a range of entry options, from entry-level positions that require a high school diploma or industry certificate to those that require a professional degree.

**EXTENSION:** What are the tools of the trades? Choose one of the areas from your scavenger hunt. Create a flipbook illustrating and describing commonly used tools.

## MAINTENANCE & OPERATIONS PATHWAY

Employees with careers keep our future growing as they assemble, install, repair and perform preventive maintenance on equipment and machines. They detect, diagnose and correct minor problems on machinery, keep buildings and structures in good repair and maintain the smooth operation of refineries, power plants, chemical plants and mills.

**EXPLORATORY TASK:** Do things ever need repaired at your home? Keeping things running smoothly requires regular maintenance. Research **home maintenance** to discover what is recommended. Create a home maintenance checklist. Use it to do a walk-through inspection of your home with an adult.

**EXTENSION:** Have you seen your parents replace an appliance? If so, you've probably heard them talk about how expensive they are. Preventative maintenance can help keep appliances running longer, too. Use the internet to find **recommended appliance maintenance** tips. Create an infographic to share your findings.

## MORE TO EXPLORE

With more than 80 job titles in this cluster, there is a lot more to explore. Below are a few questions to guide your quest.

### DESIGN & PRE-CONSTRUCTION PATHWAY

- What are the **different types of architects** and what do they do?
- What are the **different types of blueprints** and how do they differ?
- What is the meaning of the **blueprint symbols**?

### CONSTRUCTION PATHWAY

- What are the construction organizations in your community? How many specialties can you find, e.g., carpentry, electrical, plumbing, building?
- What is the difference between **alternating (AC) and direct (DC) currents**?
- What are the **tools used in construction**? How are they used?
- What is a **plumbing layout**?
- How many **different masonry types/uses/patterns**, e.g., brick, block or stone can you find in your school or neighborhood?

### MAINTENANCE & OPERATIONS PATHWAY

- What information is found on a **maintenance schedule**?
- What are **Safety Data Sheets (SDS)** and how are they used?
- What is **troubleshooting**? How is it used in this pathway?

### *How Can I Use Career Pathways?*

Career Pathways are planning tools to help you prepare for your future career goal. They provide a map of required courses at both the high school and college level.

A pathway also lists opportunities to earn college credit, industry certificates or gain real-world experience while in high school.

### *What Is an Industry Certificate?*

Industry certifications are credentials recognized by business and industry that demonstrate mastery of necessary knowledge and/or skills.

### *Discover More*

Choose a career in one of the pathways to discover:

- Demand for this career
- Location of jobs
- Starting wage
- Education requirements
- High school pathway
  - Classes
  - Dual/articulated credit
  - Industry certificates
  - Work-based learning
- Related careers