

# BRICK, BLOCK & STONEMASONRY

## INDUSTRY SECTOR | Building and Construction Trades

### PATHWAY | Residential and Commercial Construction

#### COURSE ESSENTIAL QUESTION:

#### COURSE OVERVIEW:

Masonry is an introduction into the field of masonry which prepares students for entry level positions. The class is an overview of the masonry trade including the history and origin of masonry construction, tools and equipment, safety, basic fundamentals of mortar preparation and application, and the use of various masonry products. Block masons build block walls, partitions and other structures. Integrated throughout the course are Common Core State Standards and Career Technical Education Standards, which include safety, communication, technology, ethics, career planning and other employability skills.

#### INFORMATION:

- A. **Pre-requisite:** 16 years old or a 11<sup>th</sup>/12<sup>th</sup> grader
- B. **Abilities Required:** [Click here to enter text.](#)
- C. **Dress Requirement and Grooming:** School Dress Code
- D. **Students must master 75% of the certificate competencies to receive a certificate.**
- E. **Fee:** None
- F. **Course Length:** 180 hours
- G. **Textbook:** Modern Masonry: Brick, Block, Stone by Clois Kinklighter
- H. **UC a-g Approved:** No
- I. **Industry Certification:** No
- J. **Sequencing to Include a Capstone:** Not Applicable
- K. **Community College Articulation:** No
- L. **Common Core Alignment:** Yes
- M. **Community Classroom:** No
- N. **Career Technical Student Organization:** No
- O. **Work- Based Learning:** No

THEME: UNIT 1. ORIENTATION

ENGAGING TITLE:

ESSENTIAL QUESTION: *Enter Essential Question*

INSTRUCTIONAL HOURS: LEVEL 1 = 5 HOURS; LEVEL 2 = 5 HOURS

### Common Core Unit Objective

At the conclusion of this unit students will understand class rules and objectives by returning required paperwork with parent/student signatures using information from the class lectures and classroom discussions.

### Key Assignments

Students will complete and return required paperwork with parent / student signatures.

### Anchor Standards

- 1.0 **Academics:** Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the Building and Construction Trades academic alignment matrix for identification of standards.
- 3.0 **Career Planning and Management:** Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.
  - 3.1 Identify personal interests, aptitudes, information, and skills necessary for informed career decision making.

### Pathway Standards

- B1.0 Understand soil characteristics and properties.
- B3.0 Demonstrate a basic understanding of grading and drainage.

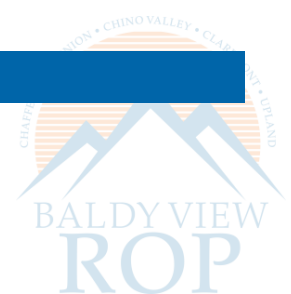
### Common Core Standards

- RLST 11.12.7 Reading Standards for Literacy in Science and Technical Subjects.

### RESOURCES:

#### Resources

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THEME: UNIT 2. MATERIALS – IDENTIFICATION AND USE

ENGAGING TITLE:

ESSENTIAL QUESTION: *Enter Essential Question*

INSTRUCTIONAL HOURS: LEVEL 1 = 10 HOURS; LEVEL 2 = 5 HOURS

### Common Core Unit Objective

At the conclusion of this unit students will understand materials by identification and their uses when constructing their Straight Lead projects using information learned from classroom lectures, demonstrations, handouts and video.

### Key Assignments

Students will identify and use the appropriate materials during construction of their Straight Lead projects.

### Anchor Standards

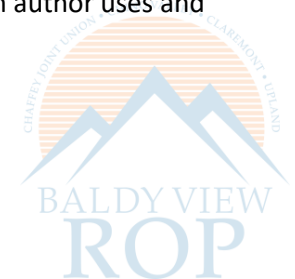
- 6.0 **Health and Safety:** Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Building and Construction Trades sector workplace environment.
- 6.2 Use health and safety practices for storing, cleaning, and maintaining tools, equipment, and supplies
- 6.9 Locate, and adhere to, Material Safety Data Sheet (MSDS) instructions

### Pathway Standards

- B10.0 Recognize the variety of building phases, systems, and techniques used in engineering and heavy construction.
- B10.2 Know the appropriate processes and materials in architectural design, project development, and engineering and heavy construction (e.g., structural, electrical, mechanical, and finish phases)

### Common Core Standards

- RS 11-12.4 Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text



**RESOURCES:**

**Resources**

*Resources*



**THEME: UNIT 3. CONSTRUCTION MATHEMATICS**

**ENGAGING TITLE:**

**ESSENTIAL QUESTION:** *Enter Essential Question*

**INSTRUCTIONAL HOURS:** LEVEL 1 = 10 HOURS; LEVEL 2 = 5 HOURS

**Common Core Unit Objective**

At the conclusion of this unit students will understand how to correctly measure and calculate measurements by constructing an accurately measured Sample Panel project using information from classroom lectures, demonstrations, handouts and video.

**Key Assignments**

Students will measure and correctly layout and construct a Sample Panel project.

**Anchor Standards**

- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Building and Construction Trades sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

**Pathway Standards**

- B1.0 Understand soil characteristics and properties
- B2.0 Demonstrate the use of survey and mapping equipment
- B3.0 Demonstrate a basic understanding of grading and drainage
- B4.0 Demonstrate understanding of water and wastewater systems
- B7.0 Demonstrate basic concrete maintenance and repair methods
- B8.0 Understand project management procedures and processes as they occur in an engineering and heavy construction project.
- B8.9 Solve common construction problems (e.g., grading, drainage) by using commercial construction codes, building standards, and appropriate mathematical calculations.

**Common Core Standards**

- SEP 5. Using mathematic and computational thinking



**RESOURCES:**

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THEME: UNIT 4. MORTAR

ENGAGING TITLE:

ESSENTIAL QUESTION: *Enter Essential Question*

INSTRUCTIONAL HOURS: LEVEL 1 = 10 HOURS; LEVEL 2 = 5 HOURS

### Common Core Unit Objective

At the conclusion of this unit students will understand the different types of Mortars and their uses by correct mixing procedures during the construction of their Corner Lead projects using information from classroom lectures, demonstrations, handouts and video.

### Key Assignments

Students will correctly mix mortar using a cement mixer and by hand as they construct a Corner Lead project.

### Anchor Standards

- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Building and Construction Trades sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 6.0 **Health and Safety:** Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Building and Construction Trades sector workplace environment.
  - 6.2 Use health and safety practices for storing, cleaning, and maintaining tools, equipment, and supplies.
  - 6.6 Maintain a safe and healthful working environment.

### Pathway Standards

- B2.0 Demonstrate the use of survey and mapping equipment.
- B7.0 Demonstrate basic concrete maintenance and repair methods.
  - B7.4 Mix concrete.

### Common Core Standards

- N-Q- 2. Define appropriate quantities for the purpose of descriptive modeling.



**RESOURCES:**

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THEME: UNIT 5. USE OF TOOLS AND EQUIPMENT

ENGAGING TITLE:

ESSENTIAL QUESTION: *Enter Essential Question*

INSTRUCTIONAL HOURS: LEVEL 1 = 10.00 HOURS; LEVEL 2 = 5 HOURS

### Common Core Unit Objective

At the conclusion of this unit students will understand the proper care and operation of a cement mixer and hand tools by demonstrating their uses as they construct their Sample Panel projects using information from classroom lectures, demonstrations, handouts and videos.

### Key Assignments

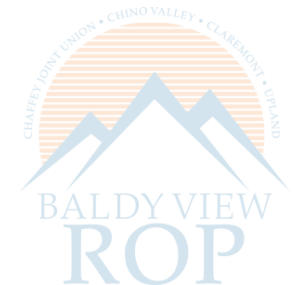
Students correctly use cement mixer and hand tools during the construction of their Sample Panel Projects

### Anchor Standards

- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Building and Construction Trades sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 6.0 **Health and Safety:** Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Building and Construction Trades sector workplace environment.
  - 6.10 Maintain proper use of safety apparel at all times, including but not limited to, eye protection, hearing protection, skin protection, head protection, footwear and protection from airborne particulate matter.
- 10.0 **Technical Knowledge and Skills:** Apply essential technical knowledge and skills common to all pathways in the Building and Construction Trades sector, following procedures when carrying out experiments or performing technical tasks.
  - 10.5 Demonstrate the basic care, proper maintenance, and use of hand, portable, and stationary tools related to the Building and Construction trades.

### Pathway Standards

- B7.0 Demonstrate basic concrete maintenance and repair methods.
  - B7.1. Identify and use appropriate concrete tools



### Common Core Standards

RS 11-12.4 Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text

### RESOURCES:

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THEME: UNIT 6. BASIC BLUE PRINT READING

ENGAGING TITLE:

ESSENTIAL QUESTION: *Enter Essential Question*

INSTRUCTIONAL HOURS: LEVEL 1 = 10 HOURS; LEVEL 2 = 5 HOURS

### Common Core Unit Objective

At the conclusion of this unit students will understand how to read basic prints by drawing a basic drawing of a block wall footing using information from classroom lectures, demonstrations, handouts and video.

### Key Assignments

Students will draw a basic blue print drawing of an 8" block wall.

### Anchor Standards

- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Building and Construction Trades sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 4.0 **Technology:** Use existing and emergency technology to investigate, research, and produce products and services, including new information, as required in the Building and Construction Trades sector workplace environment.
- 4.5 Research past, present, and projected technological advances as they impact a particular pathway.

### Pathway Standards

- B1.0 Understand soil characteristics and properties.
- B2.0 Demonstrate the use of survey and mapping equipment
- B10.0 Recognize the variety of building phases, systems, and techniques used in engineering and heavy construction.
  - B10.1 Understand the development of building plans and schedules using processes common to engineering and heavy construction.

### Common Core Standards

Reading Standards for Literacy in Science and Technical Subjects



**RESOURCES:**

**Resources**

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THEME: UNIT 7. REINFORCING STEEL (REBAR)

ENGAGING TITLE:

ESSENTIAL QUESTION: *Enter Essential Question*

INSTRUCTIONAL HOURS: LEVEL 1 = 5 HOURS; LEVEL 2 = 5 HOURS

### Common Core Unit Objective

At the conclusion of this unit students will understand the importance of reinforcing concrete by constructing a rebar cage using information from classroom lectures, demonstrations, handouts and video.

### Key Assignments

- Students will fabricate a rebar cage.

### Anchor Standards

- 5.0. **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Building and Construction Trades sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques

### Pathway Standards

- B2.0 Demonstrate the use of survey and mapping equipment  
B3.0 Demonstrate a basic understanding of grading and drainage  
B4.0 Demonstrate understanding of water and wastewater systems  
B7.0 Demonstrate basic concrete maintenance and repair methods.  
B7.3 Understand the use and need for reinforcing concrete.

### Common Core Standards

- SEP 2. Developing and using models

### RESOURCES:

#### Resources

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THEME: UNIT 8. INDIVIDUAL PROJECT

ENGAGING TITLE:

ESSENTIAL QUESTION: *Enter Essential Question*

INSTRUCTIONAL HOURS: LEVEL 1 = 30.00 HOURS; LEVEL 2 = 20.00 HOURS

### Common Core Unit Objective

At the conclusion of this unit students will understand individual decision making by constructing an individual Long Wall projects using information from classroom lectures, demonstrations, handouts and video.

### Key Assignments

- Students work on straight lead, sample panel and corner leads using newly acquired skills.

### Anchor Standards

- 5.0. **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Building and Construction Trades sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 6.0 **Health and Safety:** Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Building and Construction Trades sector workplace environment

### Pathway Standards

- B1.0 Understand soil characteristics and properties
- B2.0 Demonstrate the use of survey and mapping equipment
- B3.0 Demonstrate a basic understanding of grading and drainage
- B8.0 Understand project management procedures and processes as they occur in an engineering and heavy construction project.
- B8.8 Construct projects accurately from commercial specifications and technical drawings ensuring compliance with state and local building codes.

### Common Core Standards

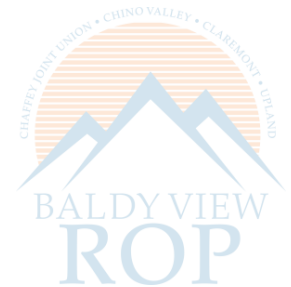
RLST 11.12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.



**RESOURCES:**

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THEME: UNIT 9. GROUP PROJECT

ENGAGING TITLE:

ESSENTIAL QUESTION: *Enter Essential Question*

INSTRUCTIONAL HOURS: LEVEL 1 = 30.00 HOURS; LEVEL 2 = 20.00 HOURS

### Common Core Unit Objective

At the conclusion of this unit students will understand the importance of group dynamic and team decision making by constructing a 6' x 16' block wall in a group setting using information from classroom lectures, demonstrations, handouts and video.

### Key Assignments

Students work on individual long wall from start to finish.

### Anchor Standards

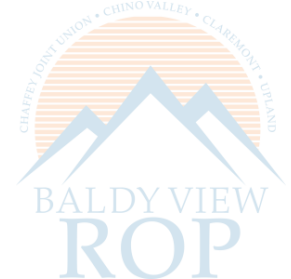
- 5.0. **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Building and Construction Trades sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 6.0 **Health and Safety:** Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Building and Construction Trades sector workplace environment

### Pathway Standards

- B1.0 Understand soil characteristics and properties
- B2.0 Demonstrate the use of survey and mapping equipment
- B3.0 Demonstrate a basic understanding of grading and drainage
- B8.0 Understand project management procedures and processes as they occur in an engineering and heavy construction project.
  - B8.8 Construct projects accurately from commercial specifications and technical drawings ensuring compliance with state and local building codes

### Common Core Standards

Reading Standards for Literacy in Science and Technical Subjects





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