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| Module 2, Task 2 | Course of Study Crosswalk: | BLK 3 |
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| Module | Blocklaying, Jointing, and Pointing |
| Task / Topic | Apply process and formulas for admixtures |
| Content Standard | The student will apply process and formulas for mixing mortar. |
| Evaluation | Given manufacturer specifications, materials, tools, and equipment, and the necessary information, the student will apply the process and formulas for adding admixtures to mortar. Admixtures must be added with 100% accuracy. |
| Resources (Materials, Equipment, Technology) | Handouts Manufacturer's specifications Various types of admixtures Mortar |
| Lesson Length | |
| Instructional Method | |
| <input type="checkbox"/> Lecture <input type="checkbox"/> Class Discussion <input type="checkbox"/> Team Work <input type="checkbox"/> Review <input type="checkbox"/> Demonstration <input type="checkbox"/> Multimedia <input type="checkbox"/> Individual Work <input type="checkbox"/> Other | |
| Assessment Strategy | |
| <input type="checkbox"/> Homework <input type="checkbox"/> Written Test <input type="checkbox"/> Teacher Observation <input type="checkbox"/> Other <input type="checkbox"/> Class work <input type="checkbox"/> Performance Test <input type="checkbox"/> On-Task Ability <input type="checkbox"/> Other | |
| Integrated Content Code | |
| <input type="checkbox"/> R <input type="checkbox"/> SS <input type="checkbox"/> IR <input type="checkbox"/> PS <input type="checkbox"/> VSO <input type="checkbox"/> MS Other <input type="checkbox"/> W <input type="checkbox"/> M <input type="checkbox"/> CL <input type="checkbox"/> CT <input type="checkbox"/> LD <input type="checkbox"/> WA _____ <input type="checkbox"/> C <input type="checkbox"/> S <input type="checkbox"/> DM <input type="checkbox"/> IM <input type="checkbox"/> ES <input type="checkbox"/> TW _____ | |

1. Explain the relevant safety precautions.
 - a. Wear proper safety equipment such as safety glasses, safety shoes, and a hard hat.
 - b. Wear gloves to protect your hands when handling blocks and bricks and cutting materials.
 - c. Wear a filter-type respirator when working in masonry dust.
 - d. Check equipment before you use it. Be sure that hoists, scaffolds, and ladders are properly assembled and secured before using them.
 - e. Stack masonry materials carefully, especially block and brick because they fall easily.
 - f. When operating masonry machinery, be certain all guards are in place and if a mixer is electric, that it is properly grounded.
 - g. Use extreme care with chemicals such as muriatic acid and trisodium phosphate. Wear rubber gloves to avoid damaging your skin.
 - h. Check all concrete forms for strength and safety before use.
 - i. Place tools for working convenience but never where any worker would be endangered.
 - j. Wash immediately if mortar is accidentally splashed in the eyes.
2. Define admixtures.

Admixtures are materials which are added to mortar mix in small amounts to achieve a particular result.
3. Explain the purpose of admixtures.
 - a. Increased workability
 - b. Added color
 - c. A stronger bond between the mortar and masonry units
 - d. Acceleration in setting time
4. Explain the importance of following manufacturer's directions for mixing admixtures into mortar and the consequences of improper mixing.
5. Explain the process of mixing color into mortar.
 - a. Add colored aggregates or mortar pigments to the mixture
 - b. Use only the minimum amount of pigment
 - c. Color pigments of metallic oxide composition should not exceed 15% of the Portland cement content
 - d. Carbon black used as a coloring agent should not exceed 3% of cement weight of the mix
 - e. Coloring agents that have not been tested commercially should not be used
6. Explain the process of mixing air-entraining agents into mortar.
 - a. Air-entraining admixture traps microscopic air bubbles in the mix to allow mortar to contract and expand, preventing cracking/breaking during freezing and thawing
 - b. Mortar with air content over 12% by volume will weaken the bond strength of the mortar mix
7. Explain the process of mixing waterproofing agents into mortar.
 - a. Waterproofing additives are added to mortar to prevent moisture from penetrating the masonry wall
 - b. Bags of masonry cement or Portland cement which contain waterproofing agents are marked as such
 - c. These are recommended as a waterproofing coating for basement walls

Module 2, Task 2**Lab Demonstration (*Procedures/Activities/Learning Experiences*)**

Demonstrate the processes and formulas for using admixtures by having students work out problems involving percentages of admixtures to mortar, then mixing admixtures into mortar.

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| Module 2, Task 2 | Provision for Individual Differences |
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| <input type="checkbox"/> Check work in progress | <input type="checkbox"/> Monitor Assignments | <input type="checkbox"/> Multi-sensory Approach |
| <input type="checkbox"/> Immediate Feedback | <input type="checkbox"/> Review Sessions | <input type="checkbox"/> Modified Content |
| <input type="checkbox"/> Pre-teach Content | <input type="checkbox"/> Review Directions | <input type="checkbox"/> Study Partner |
| <input type="checkbox"/> Oral Reminders | <input type="checkbox"/> Provide Lecture Notes | <input type="checkbox"/> Personalized Examples |
| <input type="checkbox"/> Extension of Time | <input type="checkbox"/> Other | <input type="checkbox"/> Other |

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| Extension | |
| Remediation | |
| Accommodation | |
| Modification | |