**Lesson Information**

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| Lesson: (1 of 3) Heating Length: 90 minutes  Unit: (1 of 3) System Basics  Course: HVAC |

**Content Assumptions**

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| Prior to this class, students have taken electrical courses. |

**Essential Questions**

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| 1. How do different types of furnaces work? 2. How can furnaces be installed and maintained to perform at their best? |

**Objectives Assessments**

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| After completing this lesson, students will be able to:   1. Describe different types of furnaces, including how they operate and are installed and maintained. | 1. Infographic — rubric Peer learning — Instructor observation |

**Activities/Instruction**

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| **Show and Tell** (30 minutes)  Using samples or photos (as listed in the Materials section), Instructor explains the basics of heating, including heat transfer methods, combustion and its byproducts, different types of furnaces and their components, and test equipment (e.g., manometers, manifold pressure gauges, etc.).  **Research and Development** (30 minutes)  Instructor divides students into three groups and assigns one type of furnace to each group (i.e., induced-draft, condensing gas, or electric). Using classroom, library, and/or Internet resources, students are to create infographics about their assigned furnace type, including how it works, what fuels it uses, components and accessories and their functions, factors to be considered when installing, and preventative maintenance procedures.  **Teach Each Other** (30 minutes)  Instructor divides class into groups of three (each group containing one member from each of the previous three groups). Using their infographics, students teach each other what they learned. Instructor observes, asking questions as necessary to ascertain student understanding. |

**Materials**

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| For students:   * Classroom/library resources (e.g., textbooks) * Internet resources for creating infographics, such as: * http://www.makeuseof.com/tag/awesome-free-tools-infographics/ (List of infographic makers and tutorials)   For Instructor:   * Samples/photos of furnaces, furnace components, and accessories * [FURNACE INFOGRAPHIC RUBRIC] |