**Lesson Information**

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| Lesson: (4 of 5) Lighting Length: 90 minutes  Unit: (2 of 3) System Elements  Course: Electrical |

**Content Assumptions**

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**Essential Questions**

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| 1. How do the elements of lighting systems (i.e., lighting fixtures, lamps, ballasts, and control devices) work together? 2. How are lighting systems chosen to suit their locations? |

**Objectives Assessments**

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| After completing this lesson, students will be able to:   1. Demonstrate their knowledge of terms associated with lighting. 2. Identify different kinds of lamps and light fixtures, their advantages and disadvantages, and appropriate settings. | 1. Crossword puzzle — key 2. Infographic — rubric |

**Activities/Instruction**

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| **Illumination** (20 minutes)  Using visual aids of choice (as described in the Materials section), Instructor explains the characteristics of light pertinent to electricians. Students ask questions and complete [LIGHTING CROSSWORD].  **Insight** (40 minutes)  Instructor assigns each student a type of lighting fixture (i.e., surface-mounted, recessed, suspended, or track-mounted) and a type of lamp (i.e., incandescent, halogen, fluorescent, or high-intensity discharge). Using manufacturers’ catalogues and Internet resources (such as those listed in the Materials section), students are to design infographics about their lighting fixtures and lamps, including such information as the application, advantages, and disadvantages of each; a ballast (if applicable) and a control device (i.e., a basic occupancy sensor, photoelectric sensor, or timer) for the system; and an appropriate place for the system to be installed (e.g., residences, office buildings, schools, theaters, hazardous areas, etc.).  **Enlightenment** (30 minutes)  When students have completed their infographics, Instructor groups them according to what type of lighting fixture and lamp they researched (arranging students so that each group has each type of lighting fixture and lamp represented). Students take turns presenting their infographics to their groups. |

**Materials**

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| For students:   * [LIGHTING CROSSWORD] * Various manufacturers’ catalogues for lighting fixtures, lamps, ballasts, and control devices * Internet resources for creating infographics, such as: * http://www.makeuseof.com/tag/awesome-free-tools-infographics/ (List of infographic makers and tutorials)   For Instructor:   * Visual aids for teaching the characteristics of light, such as: * Source of white light and a prism * Diagram of the human eye * Graphics depicting reflection, refraction, etc. * Charts/graphs representing the light spectrum in wavelengths, Kelvins, etc. * [LIGHTING CROSSWORD KEY] * [LIGHTING INFOGRAPHIC RUBRIC] |