

**Course Title – Home Improvement**

**Implement start year – 2017-2018**

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**Unit #4 - Plumbing Unit**

**Transfer Goal –**

Students will be able to independently apply essential technical skills to install and repair plumbing in real world situations.

**Stage 1 – Desired Results**

**Established Goals**

**2009 NJCCC Standard(s), Strand(s)/CPI #**  
(<http://www.nj.gov/education/cccs/2009/final.htm>)

**Common Core Curriculum Standards for Math and English**  
(<http://www.corestandards.org/>)

8.2 Technology Education, Engineering, and Design

**21<sup>st</sup> Century Themes**

**( [www.21stcenturyskills.org](http://www.21stcenturyskills.org) )**

- Global Awareness
- Financial, Economic, Business and Entrepreneurial Literacy
- Civic Literacy
- Health Literacy
- Environmental Literacy

All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.

G. The Designed World: The designed world is the product of a design process that provides the means to convert resources into products and systems.

- 8.2.12.G.1 Analyze the interactions among various technologies and collaborate to create a product or system demonstrating their interactivity.

CCSS.ELA-LITERACY.RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

CCSS.ELA-LITERACY.WHST.9-10.2.F Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

9.1 21st-Century Life & Career Skills All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.

9.1.12.A.1  
Apply critical thinking and problem-solving strategies during structured learning experiences.

**21<sup>st</sup> Century Skills**

- Learning and Innovation Skills:
- Creativity and Innovation
  - Critical Thinking and Problem Solving
  - Communication and Collaboration
- Information, Media and Technology Skills:
- Information Literacy
  - Media Literacy
  - ICT (Information, Communications and Technology) Literacy
- Life and Career Skills:
- Flexibility and Adaptability
  - Initiative and Self-Direction
  - Social and Cross-Cultural Skills
  - Productivity and Accountability
  - Leadership and Responsibility

**Enduring Understandings**<sup>[CK2]</sup>:

*Students will understand that . . .*

*EU 1*

potable water enters the building through the main.

*EU 2*

waste water leaves the building through a sewer pipe.

**Essential Questions:**

*EU 1*<sup>[CK4]</sup> <sup>[CK5]</sup>

- How has modern indoor plumbing changed society?
- The water supply in the United States is still undrinkable in several cities (ie: Flint, MI). What caused this?

*EU 2*

- How has modern waste systems altered the health of society?
- Why is gravity important to consider when planning waste water systems?
- Why is it important to consider sewer locations when remodeling a home?

**Knowledge:**

Students will know . . .

**EU 1**

- the various types of pipes and fittings available.
- the various techniques used to connect pipes.
- how water is mapped through a building.

**EU 2**

- the various types of pipes and fittings available.
- how the waste water is mapped through a building.
- the terms used for drain, waste, and vent.
- the purpose and operation of traps and vents
- how to specify the pipe slopes needed for waste flow.

**Skills:**

Students will be able to . . .

**EU 1**

- select the proper pipe and fitting for a given job.
- calculate lengths of pipe with fitting allowances.
- solder a copper pipe.
- join a plastic pipe with fittings.
- find and repair minor water leaks.
- fix common faucet problems.

**EU 2**

- install a toilet.
- fix common toilet problems.
- find and repair minor water leaks.

**Stage 2 – Assessment Evidence**

**Other Recommended Evidence:** *Tests, Quizzes, Prompts, Self-assessment, Observations, Dialogues, etc.*

- Quiz/Test
- Discussions

### Stage 3 – Learning Plan

**Suggested Learning Activities to Include Differentiated Instruction and Interdisciplinary Connections:** *Each learning activity listed must be accompanied by a learning goal of A= Acquiring basic knowledge and skills, M= Making meaning and/or a T= Transfer.*

- Teacher led discussions on potable and waste water systems. (A)
- Teacher led discussions on safety with glues and tools used in plumbing (A)
- Teacher/ Student led demonstration on using torches (M,T)
- Teacher/ Student led demonstration on cutting various materials (M,T)
- Teacher/Student led demonstration on connecting various materials (M,T)
- Teacher/ Student led demonstrations on repairing toilets (M,T)
- Teacher/ Student led demonstrations on installing toilets (M,T)
- Teacher/ Student led demonstrations on repairing faucets (M,T)
- Teacher/ Student led demonstration on finding leaks. (M,T)
- Videos on plumbing which can be found on youtube.com, home time, and this old house. (A)