Mr. Byrne

Technology

***Wood Framing Systems***

**Summary:** After this lesson, which includes an in depth look at the construction of wood framing. Students will understand how loads are transferred through the framing to the ground below. The lesson includes the different types of walls, parts of the wall frame, corner forming methods, Sheathing and insulation, and exterior wall finishing materials.

**Grade:** 11-12

**Time Frame:** 2-3 days

**Subject:** Technology

**Topics:** Wall framing, parts of the wall, how to form corners, exterior wall materials, insulation R value

**Notes: Even if foundation is not level make sure you level sill plate. ¼” here is 2 inches over there**

**Standards and Key Concepts:**

**Interdisciplinary Involvement:**

English: Vocabulary, listening comprehension,

Math: Math calculations, Area, perimeter,

Science: Material properties

Natural fibers, glue, manmade products, plywood, sheestrock,

**Understandings:**

**1.**Students will understand the wall framing transfers loads downward.

**2.** Students will understand the how each part of the wall frame has a vital role in distributing weight.

**3.** Students will understand that there are two types of walls (Load bearing and partitions)

**4.** Students will understand why certain being accurate and square is important.

5. Students will understand how to assembly the wall frames to form corners

6. Students will understand how to layout rough openings.

7. Students will understand how too calculate Area of a wall and floors.

8. Students will understand why it is important to estimate the amount of material needed and cost.

**Essential Questions:**

1. What does a wall frame consist of?
2. Why are all trimmer/jack studs the same length?
3. What is the spacing of the studs*\_\_\_\_\_\_\_16 on center*
4. How do we attach the wall studs to the top and bottom plate?
5. Where are headers found in the wall frame and what purpose do they serve?
6. What materials are used in wall construction?
7. IS there a difference between load bearing walls and partitions?
8. What type of blueprint are we looking at? How do you know?
9. What is the formula for Area? (L x W)

Can wall sheathing be “green”? renewable resource

Are windows cut in the sheathing before or after installation?

1. Which way do we orient the sheathing HORIZONTAL or vertical?

**Knowledge and Skills:**

1. Students will know all the parts that make up a wall frame.
2. Students will know why each part is needed and the purpose it serves.
3. Students will know how to design and assemble a wall frame.
4. Students will know loads are transfers through the wall frame to the ground.
5. Students will know how to install hurricane straps
6. Students will know how to calculate the area of a rectangle.
7. Students will know how to properly install wall sheathing.
8. Students will know why it is important to weather proof the exterior of the house( Rot, mildrew)
9. Students will know what a renewable raw material is.

10. Students will know the different nailing procedures for correct installation.

**Performance Tasks and Assessment:**

Do Now

Model House Construction

**Performance Prompt:**

Lets get our projects

**Assessments and Rubrics**

**Learning Experiences and Resources:**

**Sequence of activities:**

Have students enter classroom and sit in assigned seats

Take Attendance and record on eschool

Have students get notebooks out and perform Do Now

Give students 8 minutes to finish do now and collect.

Start Lesson on Wall Sheathing

1. Ask what the main reason is for wall sheathing
2. Define the different types of materials used for wall sheathing
   1. OSB( Oriented Strand Board)
   2. Plywood
3. Ask students to calculate the amount of material needed for a specific wall
4. Go over AREA (LxW) math formula
5. Explain the water proofing procedure and why it is necessary.
   1. More exterior drier warm sheathing
   2. More interior colder moist sheathing
   3. Explain what the R value rating is
   4. Types of insulation
      1. **Foam Boards exterior**
      2. Pink Panther fiberglass
      3. Spray insulation

Exterior Wall Coverings

* 1. Siding texture 111
  2. Cedar shingles
  3. Wood shingles
  4. Vinyl siding- use friendly, comes in any color and pattern easy to maintain
  5. Masonary brick
     1. Orbital sander
     2. Belt sander

**Differentiated Instruction:**

Visual aids

Demonstration

Assist students who need help

**HomeWork:**

none

**Resources:**

Demonstration lesson by Mr. Messina

Mr. Messina’s Lesson Plan (attached)

***Sheathing:***