What is Timber Frame Construction?

Purpose: For students to understand the important of timber frame construction and its value in architectural history. Students will also be able to compare timber frame construction and methods used today to evaluate which is better, more cost efficient, etc. Students will experience putting together a mortise and tenon join and a nail and beam joint.

Objective: Students will be able to explain mortise and tenon joints. Students will be able to develop a working definition of timber frame construction. Students will be able to explain a beam joint using hardware nails to hold the joint in place.

Teaching to the objective:

1. Have students read information about timber frame construction.
2. Have students view examples of mortise and tenon joints
3. Have students view examples of two by four joints that are nailed.
4. Have students compare and contrast the differences using a Venn diagram.
5. Have students create a mortise and tenon joint using Styrofoam for the beams and toothpicks for the pins.
6. Have students create a nailed joint using Styrofoam and toothpicks.
7. Discuss which joint they prefer and which one makes more economic sense in the construction of barns today.

Assessment: Students will be able to develop and write a working definition of timber frame construction. Students will use a Venn diagram to compare and contrast a mortise and tenon joint and a nailed joint. Students will evaluate each joint as to which one they think will last longer and what the cost of each joint would be to a builder. Students will also discuss why mortise and tenon joints were used for a long time in construction.

Extension: Ask a builder to visit the class and demonstrate an actual mortise and tenon joint and a nail joint. Have him/her present information to the class on cost and the life of each type of joint in the construction project. Find a builder who has done timber framing and ask that person to share their expertise.