Types of Wood Used in 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 different types of wood used in timber frame construction.

Objective: Students will be able to explain the differences between the types of wood most used in timber frame construction. Students will also research wood native to their place of residence to see what kind of wood timber framers would have used.

Teaching to the objective:

1. Have students research the four major types of wood used in timber frame construction.
2. Have students fill out attribute chart on wood characteristics.
3. Have students decide which wood type would best meet their needs in timber framing a barn based on the information they have learned.
4. Have students justify in a written paragraph why they would choose that particular type of wood to construct their barn.
5. Have students research the type of wood that is native to the area where they live.
6. Have students compare and contrast the differences using a Venn diagram.
7. Have students create a mortise and tenon joint using Styrofoam for the beams and toothpicks for the pins.
8. Have students create a nailed joint using Styrofoam and toothpicks.
9. 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.