Picture Frame Project

CARPENTRY

GRADES	LEARNING OBJECTIVE	CONCEPTS
• Grade 7 • Grade 10	Students will accurately measure, cut, and glue material into a small picture frame.	• Angles • Parallel • Perpendicular • Angle bisectors • Measurement • Decimals • Fractions

Curriculum Connections

GRADE 7 MATH

General learning outcome: Students describe the characteristics of 3-D objects and 2-D shapes and analyze the relationships among them.

- Specific learning outcomes: Students perform geometric constructions, including perpendicular line segments, parallel line segments, perpendicular bisectors, and angle bisectors.

GRADE 10-3 MATH

Geometry

- Demonstrate an understanding of angles, including acute, right, obtuse, straight and reflex, by drawing, replicating and constructing, bisecting, and solving problems.

Description

Students will learn how to build a small picture frame using a handsaw, mitre box, and hot glue gun. They will understand the importance of precise measurements and proper assembly techniques. Additionally, students will have the opportunity to personalize and decorate their frames.

Carpenters often create custom frames for windows, doors, and artwork. Understanding the process of building a picture frame provides foundational skills for more complex carpentry projects.

TIME	MATERIALS
• 50–80 minutes depending on skill level and number of students	• Fiberboard trim provided (or wood you've sourced elsewhere) • Handsaw • Mitre box • Hot glue gun • Cardboard • Decorative materials (paint, markers, stickers, etc.) • Photographs or artwork to be displayed • Safety goggles • Clamps

Procedure

PREPARATION

- Watch the accompanying video (see link below).
- Plug in glue guns a few minutes before they're needed.

STEPS

Safety precautions

- Emphasize the importance of safety when working with tools.
- Instruct students to wear safety goggles throughout the project.
- Remind students to exercise caution while using the handsaw and hot glue gun.

Wood cutting and sanding

- Distribute wood boards to each student or group.
- Demonstrate how to use the mitre box and handsaw to make precise angle cuts for the frame corners.
- Encourage students to take their time and double-check their measurements.
- Instruct students to place the wood board in the mitre box and cut the desired angles for each corner.
- After cutting, students can use sandpaper to smooth the cut edges and ensure a proper fit.

Assembly

- Instruct students to gather the cut wood pieces and arrange them in the shape of a frame on a piece of cardboard. This will be the back of the frame. Using a pencil, have students trace the outline of their frame.
- Doing one piece at a time, demonstrate how to use a hot glue gun to apply a small amount of glue to the back of the pieces. Using the outline of their frame as a guide, place the piece on the cardboard and hold it in place. Repeat with all pieces.
- Encourage students to work carefully and align their pieces accurately with their outline.
- Cut off excess cardboard.

Decoration and personalization

- Provide various decorative materials such as paint, markers, stickers, etc.
- Encourage students to use their creativity to decorate and personalize their picture frames.

Attachment of photograph or artwork

- Instruct students to bring the photograph or artwork they wish to display in their frames.
- Demonstrate how to secure the photograph or artwork to the cardboard back of the frame using tape or slide the edges of the artwork in place using the edge of the trim to hold it in place.
- Encourage students to make sure the picture or artwork is centered and properly secured.

Reflection and showcase

- Have students reflect on their experience building the picture frame.
- Ask them to share their favorite part of the project or any challenges they encountered.
- Provide an opportunity for students to showcase their finished picture frames to the class.

Assessment suggestions

PRACTICAL SKILL ASSESSMENT

- Assess the accuracy of students' cuts during the construction of their project.
- Evaluate students' ability to measure and mark materials accurately, as well as their precision in executing the cuts.

- Consider the straightness, cleanliness, and overall quality of their cuts as indicators of their proficiency in using tools and following instructions.

REFLECTION AND SELF-ASSESSMENT

Ask students to reflect on their experience and assess their own work. Provide guiding questions such as the following:

- How well do you think you measured and cut the angles?
- Did you encounter any challenges during the construction process? How did you overcome them?
- How satisfied are you with the overall quality of your joints and the appearance of your finished frame?
- What would you do differently if you were to repeat this project?

Web resources

- Mitre box kit: Picture frame project

Contributors

Colton Garner, Warren Anderson, Joelle Reynolds