Hardy's Awesome Woodwork Adventure: Building a Wooden Robot Friend

Materials Needed:

- **Wood Pieces:** A small assortment of pre-cut, soft wood blocks in various shapes (squares, rectangles, small cylinders). Craft stores sell bags of these. Aim for 5-7 blocks per robot.
- **Sandpaper:** One small sheet of fine-grit sandpaper (e.g., 220-grit), cut into a smaller, hand-friendly square.
- **Kid-Safe Wood Glue:** A small bottle of non-toxic PVA wood glue.
- **Decorating Supplies:** Washable markers, crayons, or kid-safe paint. Googly eyes, buttons, or yarn can also be fun additions.
- **Work Surface Protector:** An old newspaper, a plastic tray, or a craft mat.
- **Damp Paper Towel:** For wiping up any excess glue.

Lesson Plan

1. Learning Objectives (The Goal of Our Mission!)

By the end of this lesson, Hardy will be able to:

- Safely handle basic woodworking materials (wood blocks, sandpaper, glue).
- Follow a sequence of steps to assemble a simple 3D object.
- Use sandpaper to smooth wood edges (developing fine motor skills).
- Make creative choices to design and personalize his own unique robot.

2. Introduction & Safety Briefing (5 minutes)

The goal here is to spark excitement and establish clear, simple rules.

1. **The Inventor's Workshop:** "Welcome to the workshop, Inventor Hardy! Today, your mission is to create a brand new robot friend out of wood. First, every great inventor needs to know their tools and rules. Let's look at what we have."
2. **Tool Introduction:** Show Hardy each material.
    - **Wood:** "This is our building material. Feel it. Sometimes wood can have rough spots called splinters, which can poke us."
    - **Sandpaper:** "This is sandpaper. It feels rough, like a cat's tongue! Its special job is to smooth the wood so we don't get splinters. Rule #1: Sandpaper is for wood only, not for skin or clothes."
    - **Glue:** "This is our super-strong wood glue. It's like sticky magic that holds our robot together. Rule #2: A little dot of glue is all we need. We'll keep it on the wood and wipe up any drips right away."

3. The Main Activity: Building Your Robot Friend (25-30 minutes)

This is the hands-on creation phase. Guide Hardy through each step, but let him make the decisions.

Step A: The Smooth-Down (Sanding)

"First, we need to make sure all our robot parts are safe and smooth. Pick up a piece of wood and gently rub the sandpaper on its sharp edges. Feel how it changes from rough to smooth?"

- Let Hardy spend a few minutes sanding the edges of his chosen wood blocks. It doesn't need

to be perfect; the goal is the sensory experience and practice.

Step B: The Blueprint (Planning)

"Great! Now that the parts are smooth, let's design your robot. Before we use any glue, arrange the blocks on the table to see what your robot will look like. Where will the head go? Does it have long arms or short legs? You are the inventor!"

- Encourage Hardy to stack and arrange his blocks. Ask questions like, "How will you make sure he can stand up and not fall over?" This introduces a simple engineering problem.

Step C: The Assembly (Gluing)

"Your blueprint looks amazing! It's time to build. Remember Rule #2: just a dot of glue. Pick up the first two pieces you want to connect. Put a small dot of glue on one piece, and then press them together firmly. Let's count to 10 while we hold it."

- Guide Hardy as he glues his robot together, piece by piece, based on his plan. Help him hold the pieces as needed while the glue sets.
- Use the damp paper towel to wipe away any large drips.
- **Important:** The robot will need to dry completely before being handled roughly.

Step D: The Decoration (Personalizing)

"While the glue is setting, we can give your robot its personality! You can draw a face, add buttons for controls, or give it colorful patterns with the markers."

- This step can happen while the robot is lying down to dry, or after the glue is mostly set. Markers are often easiest at this stage. If painting, it's best to wait until the glue is fully dry (which may be a separate session).
- Adding googly eyes is a classic, fun final touch.

4. Clean-Up & Show and Tell (5-10 minutes)

This phase reinforces responsibility and celebrates the accomplishment.

1. **Workshop Clean-Up:** "Every great inventor cleans their workshop. Let's put the cap back on the glue, throw away the used paper towel, and put our tools away."
2. **Meet the Robot:** Set the finished robot in a safe place to dry completely.
3. **Inventor's Presentation:** "Inventor Hardy, please introduce your creation! What is your robot's name? What is its special power or job?" This celebrates his work and connects it to storytelling and imagination.

Teacher's Guide & Differentiation

- **Key Focus:** The primary goal is a positive, safe, and creative first experience with woodworking. Focus on the process and fun, not on a perfect final product. Praise his effort and choices.
- **Support for Hardy:** If applying glue from the bottle is tricky, squeeze a small puddle of glue onto a paper plate and let him use a Q-tip or a small craft stick to apply it. This gives more control.
- **Extension for Hardy (For More Challenge):**
  - **Storytelling:** Write down the story he tells about his robot. He can draw a picture of the robot's home planet or its best friend.

- **Advanced Building:** If he's ready for more, introduce a more complex challenge for next time: "Can you build a robot that has a moving part?" (e.g., an arm attached loosely with a screw and nut, with adult supervision).
- **Measure & Math:** Introduce a simple ruler. "How tall is your robot's body? How long is its arm?" This integrates simple math concepts naturally.