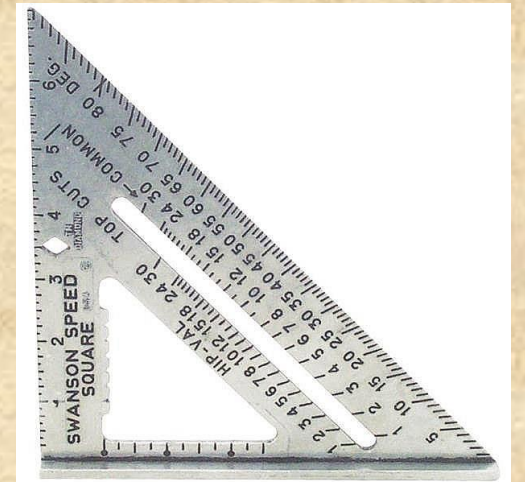
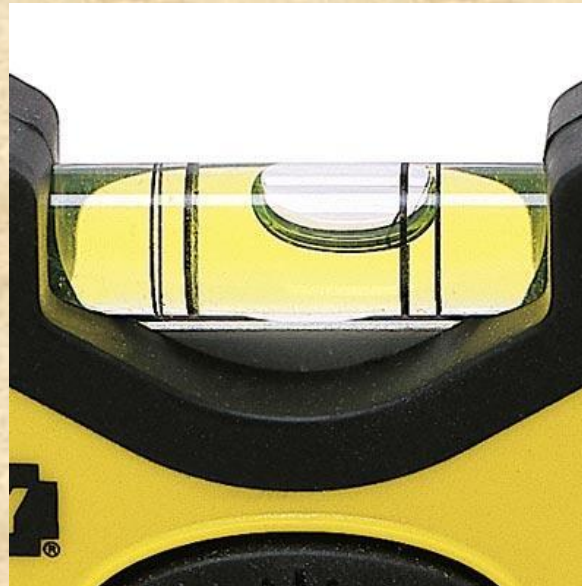


INDIAN THEATRE SHOP BASICS

Levels, Levels, Speed Squares, Carpenter Pencils, and Chalk Lines



Coach Ketcham
Productions

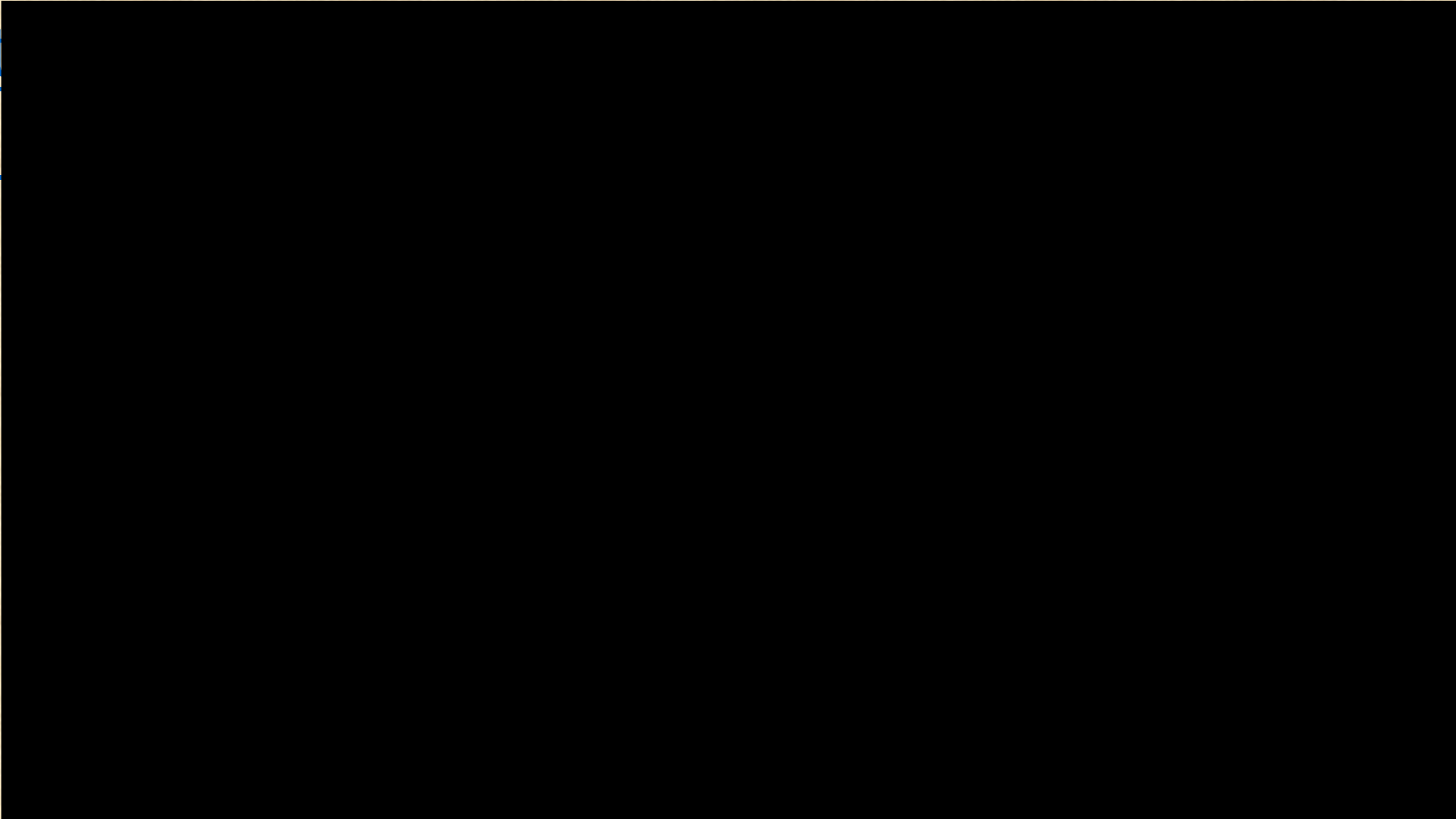
Square, Level, Plumb

- **What is the difference between level and plumb?**
- Carpentry projects must be square, **level**, and **plumb**.
- **Square** means corners are 90 degrees.
- **Level** is always gauged by a device, such as a carpenter's **level**; **level** is not always parallel to the ground.
- **Plumb** is vertical, most accurately gauged by a **plumb**bob



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Standard / Carpenter's / Mason's Level



- Most Common Level
- **For:** General-purpose leveling—hanging pictures and shelves, installing cabinets and rain gutters, or plumbing posts. Too short for decks, walls, trim, or concrete slabs.
- They range from 24 to 96 inches in length and are available in a wide variety of materials such as wood, aluminum or ABS (high impact resin).
- Can be named Box Beam or I-Beam (If viewed from the end, a box beam looks like a rectangular box and an I-beam looks like the letter "I".)

What Are The Outer Lines For?

- Many level vials have two sets of lines.
- When the bubble is centered between the inside pair, it indicates level.
- When it touches one of the outer lines, it means the level is pitched at a 2-percent grade (about $\frac{1}{4}$ inch per foot of run), the slope required for waste lines, sidewalks, and rain gutters to drain properly.



Torpedo Level



- **For:** Small jobs like hanging pictures and shelves, or working in tight spaces, as when doing plumbing installations.
- Measures level / plumb / diagonal in tight spaces.
- Range from 6 to 9 inches; designed to fit in a tool belt or pocket.

Post Level



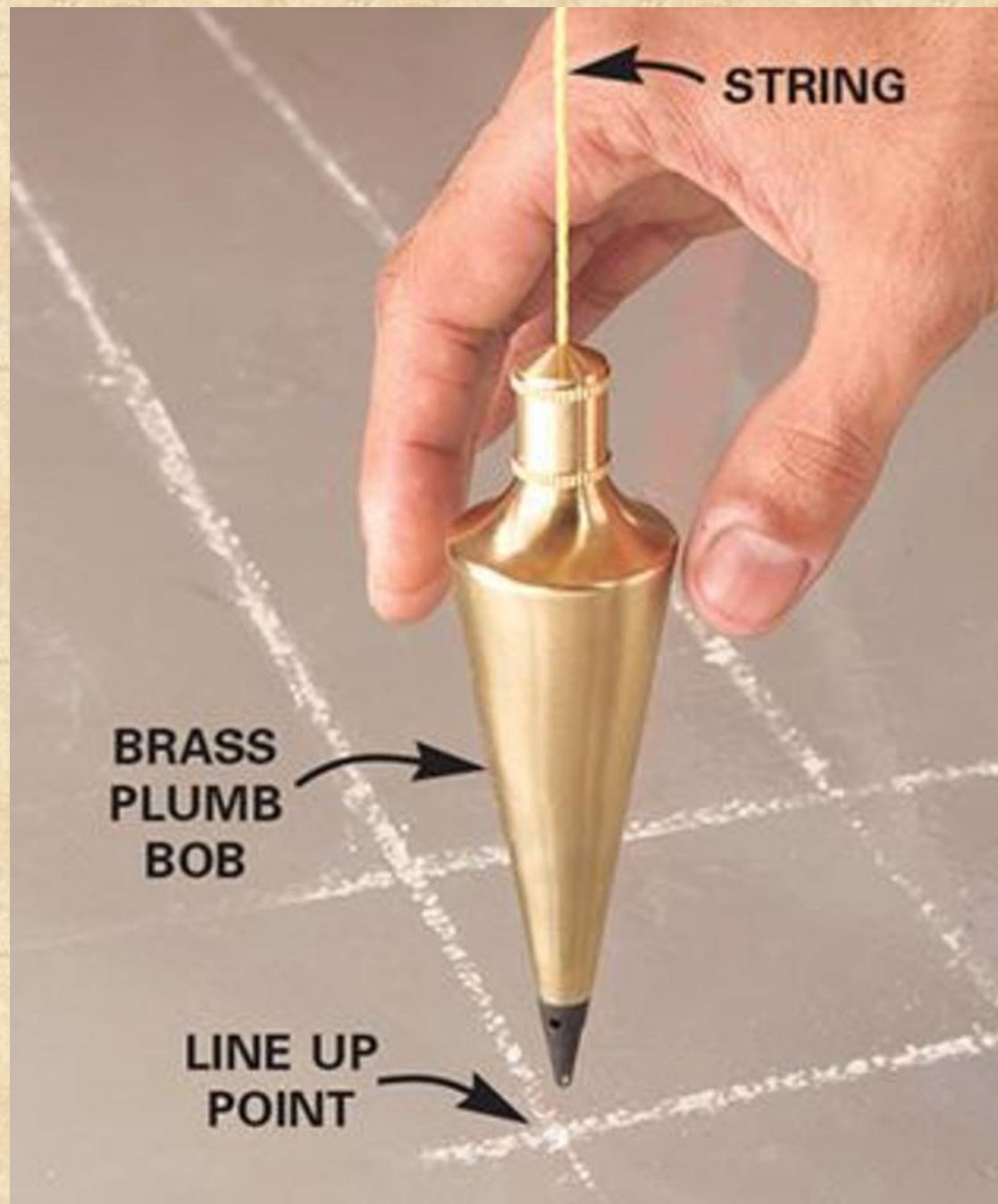
- **For:** Setting posts and columns plumb.
- Finds level and plumb simultaneously
- Used to plumb posts, flag poles, water pipes, railings, and decks.

Plumb Bob



- **For:** Finding a point vertically above or below another point, as when positioning columns, building stairs or decks, or aligning framing.
How it works: By gravity—once fixed to a spot, the sharp-pointed weight hangs perfectly plumb on the string. This one attaches to the wall with a built-in punch pin.
- This is not a traditional level with liquid-filled vials, but a tool that uses gravity to find plumb. Normally used to locate post

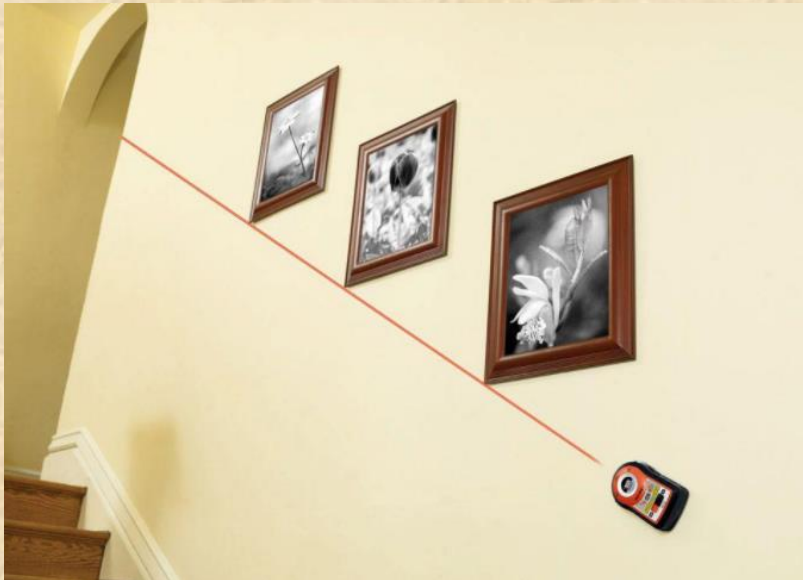






Laser Level

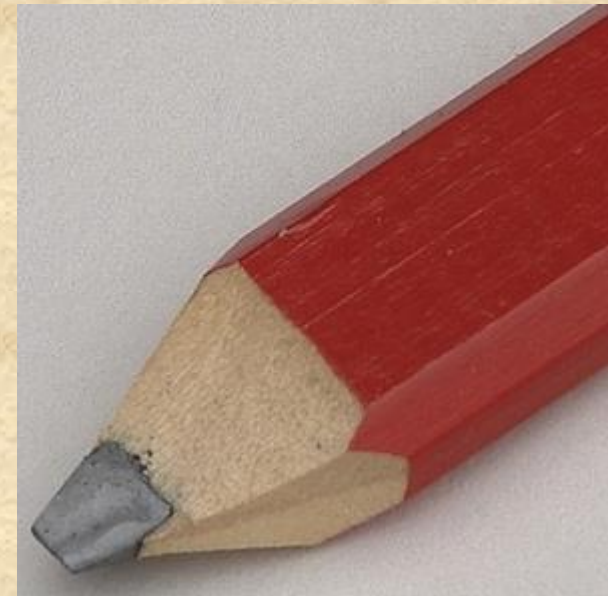
- **For:** Establishing a level reference line for trim, cabinets, tile, shelves, or pictures.
- **How it works:** Held up to a wall or fixed in place, tool projects level or plumb laser lines (or both); some units are self-leveling, and some include a stud finder.



Carpenter Pencils

- **Advantages:**
- Harder Core
- Less Likely to Break
- Won't roll off table
- Easier to grip

- **Disadvantages:**
- Line isn't as fine as regular pencil



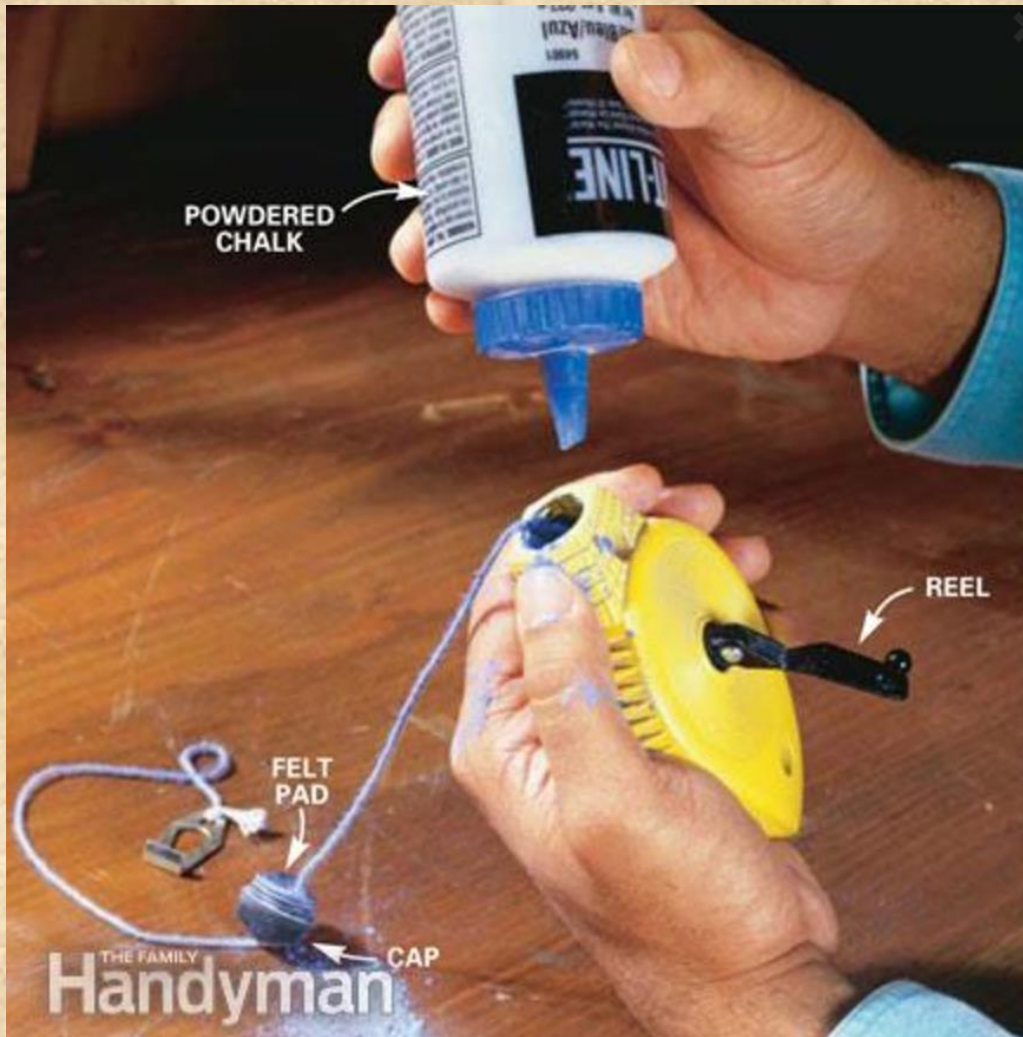


Chalk Line



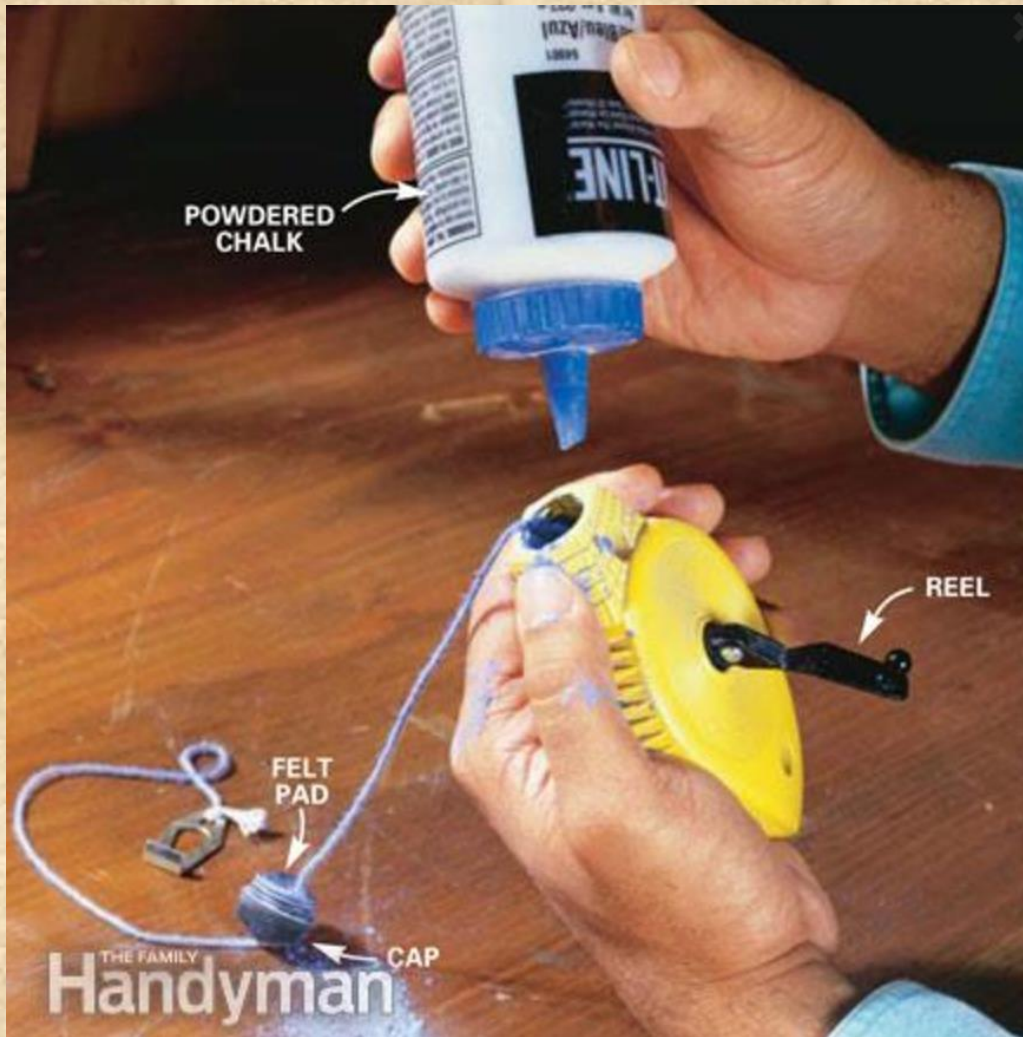
- There's something almost magical in the way a simple chalk box creates a crisp, perfectly straight line in the blink of an eye.
- No other tool, except an expensive laser, makes a perfectly straight line over a long distance so quickly and reliably.
- Today in my class I'll show you how to use a chalk line and provide tips that will make it easier to get good results.

All chalk lines work well



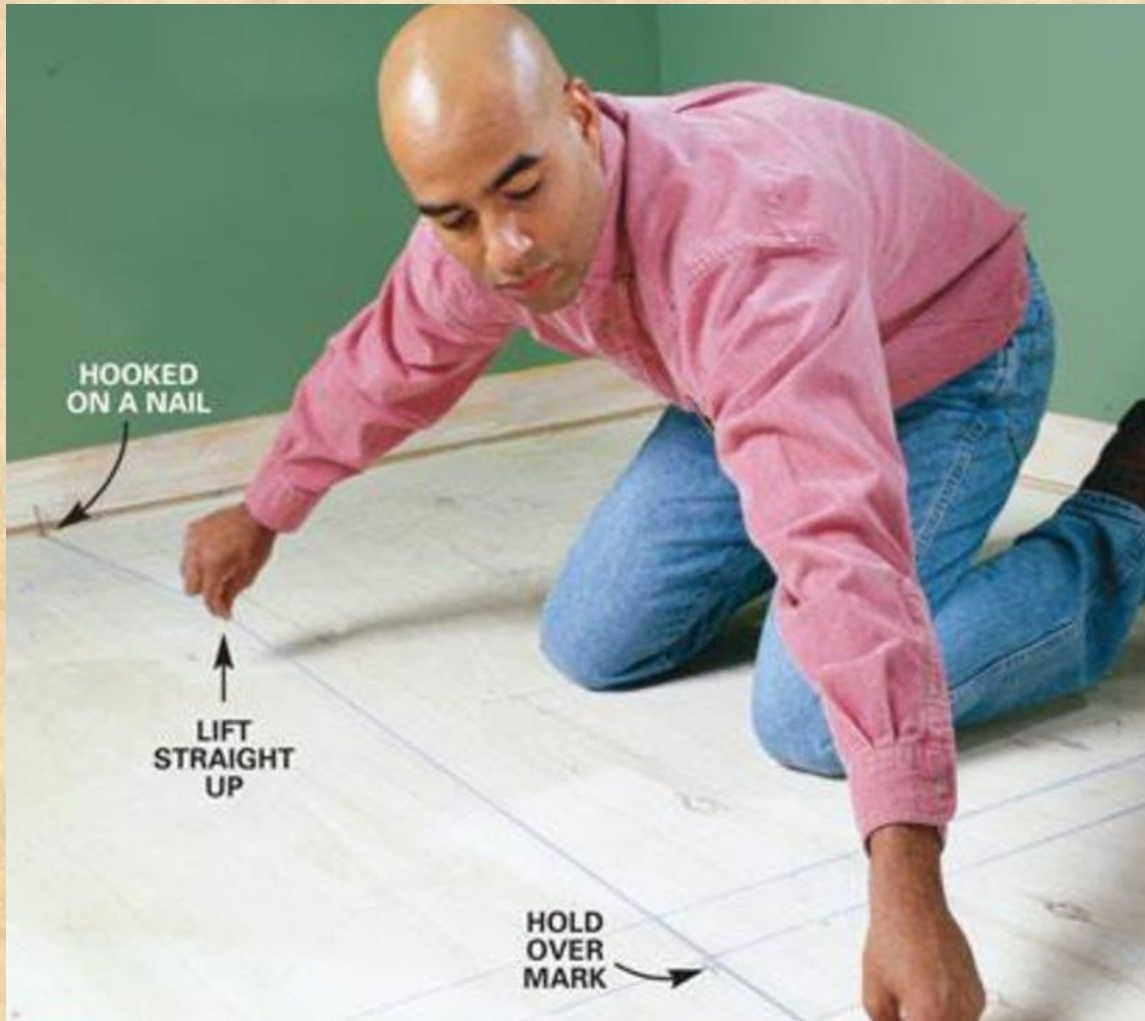
- Fill the chalk box about half full with powdered chalk from a squeeze bottle. Tap the chalk box occasionally to settle the chalk.
- Chalk boxes, whether they cost \$5 or \$12, all make straight lines. More expensive chalk boxes are sturdier and will last a lifetime.
- If you chalk a lot of lines, save time by using geared boxes that rewind the string about three times faster. Check the label for this “speed wind” feature.

All chalk lines work well



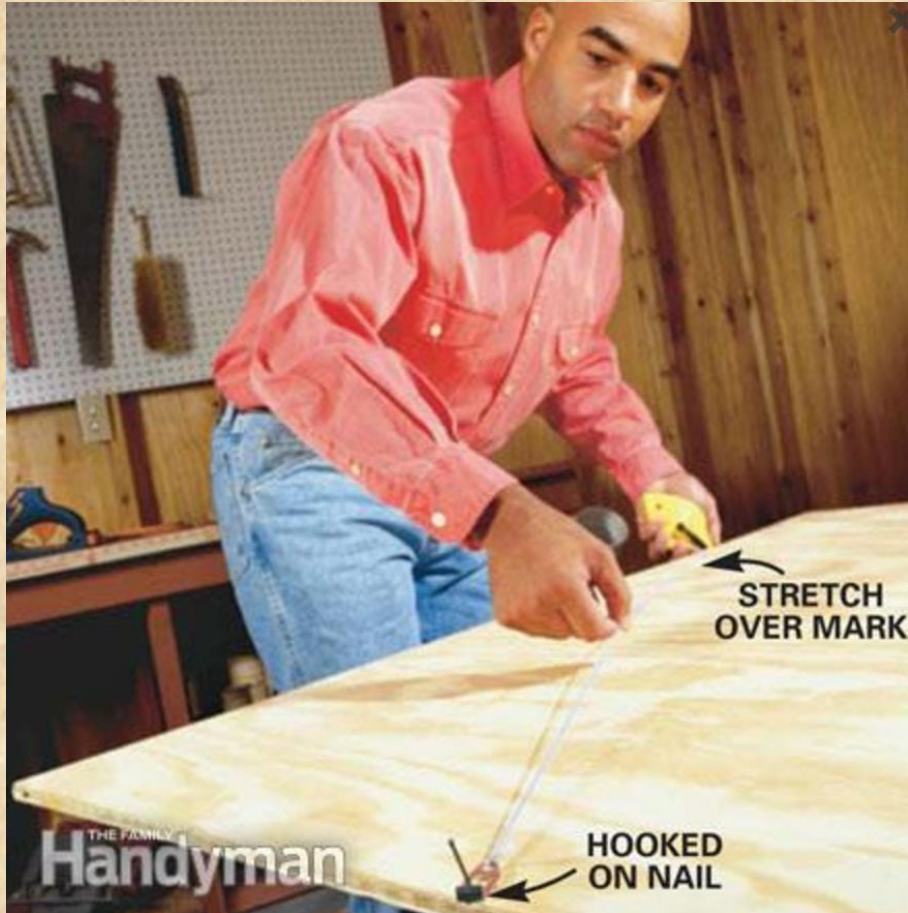
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Snap a basic line



- Hook the end and stretch the string tight so it crosses directly over your mark.
- Reach out as far as you can and grab the string between your forefinger and thumb.
- To chalk a line, lift the string straight up about 4 in. and release it (it'll snap to the floor).

Snap angle lines on wood

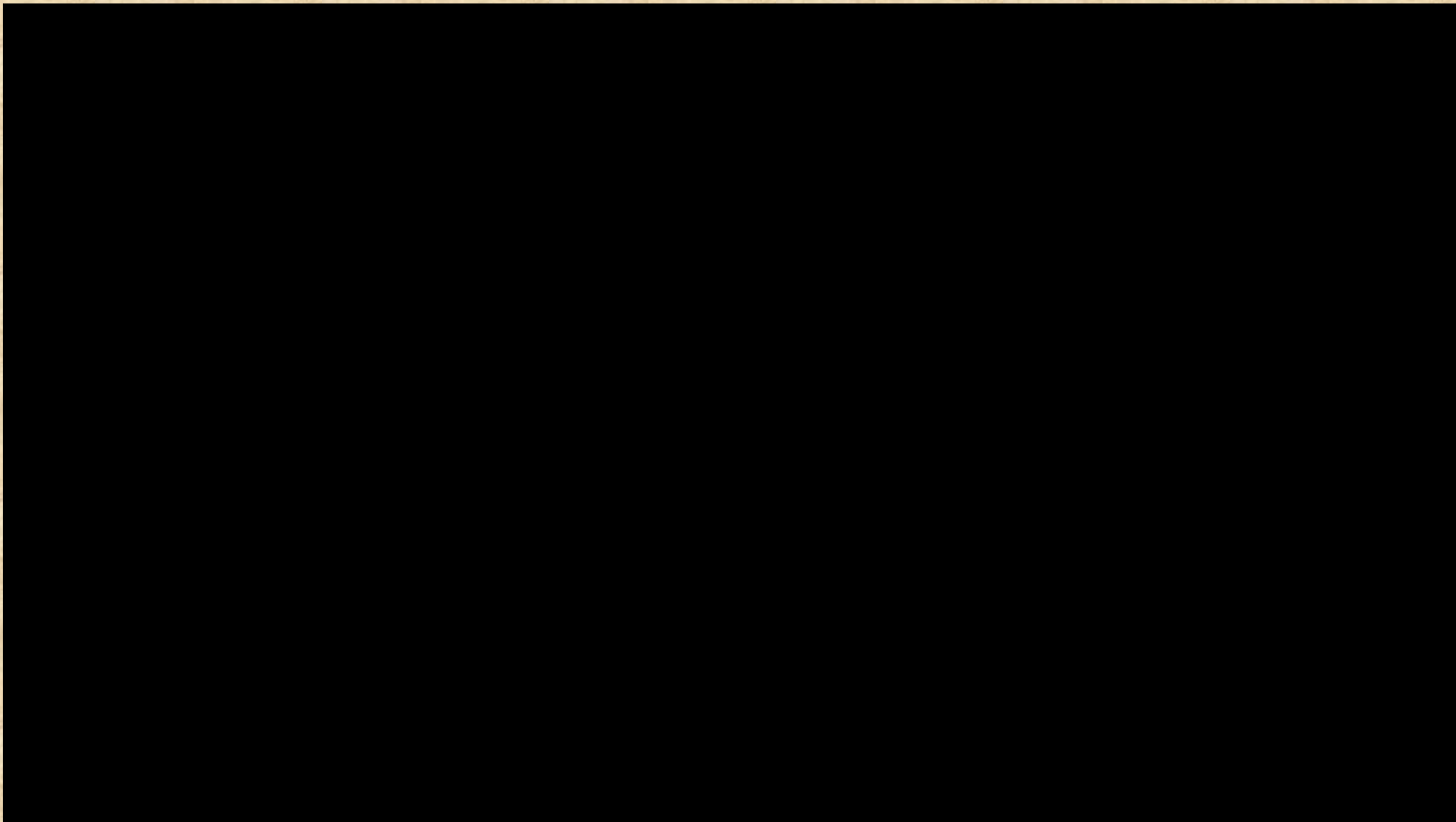


- Mark angles on plywood by tacking a small nail to your mark.
- Then hook the end of the string on it and stretching the string to the other mark.

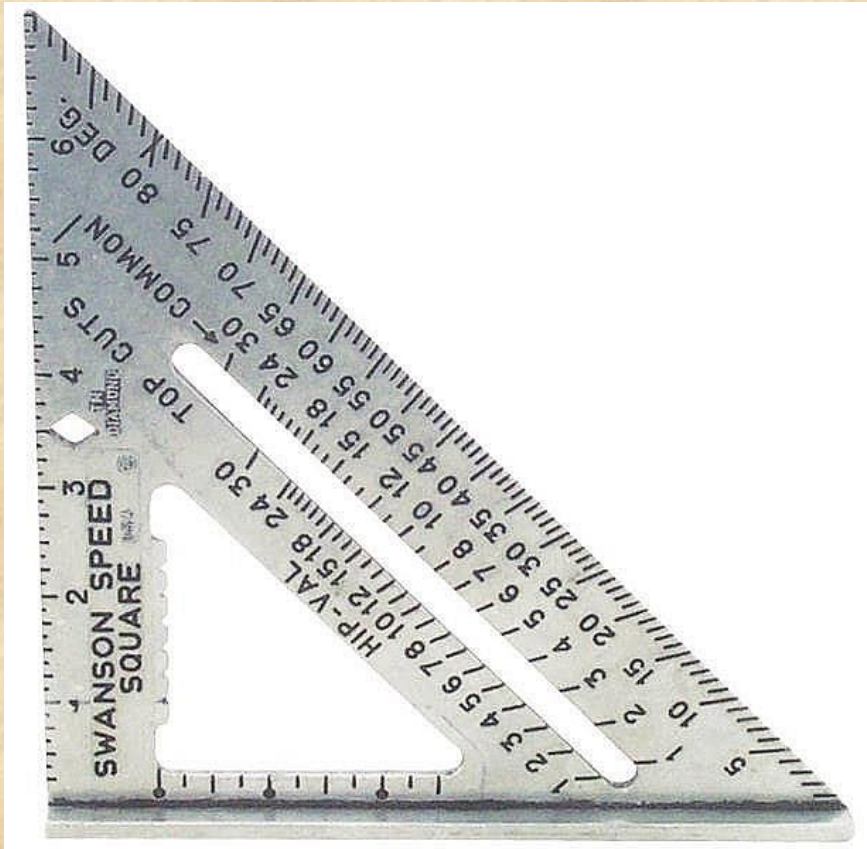
Snap long lines accurately



- Stretch the string taut.
- Use a friend or another nail to hold the chalk-box end of the string.
- Press down on the string about midway between the ends with your thumb or finger and hold it.
- Lift and snap the string on one side and then the other using the technique shown.
- This technique is good for irregular surfaces and will help prevent unwanted double lines.

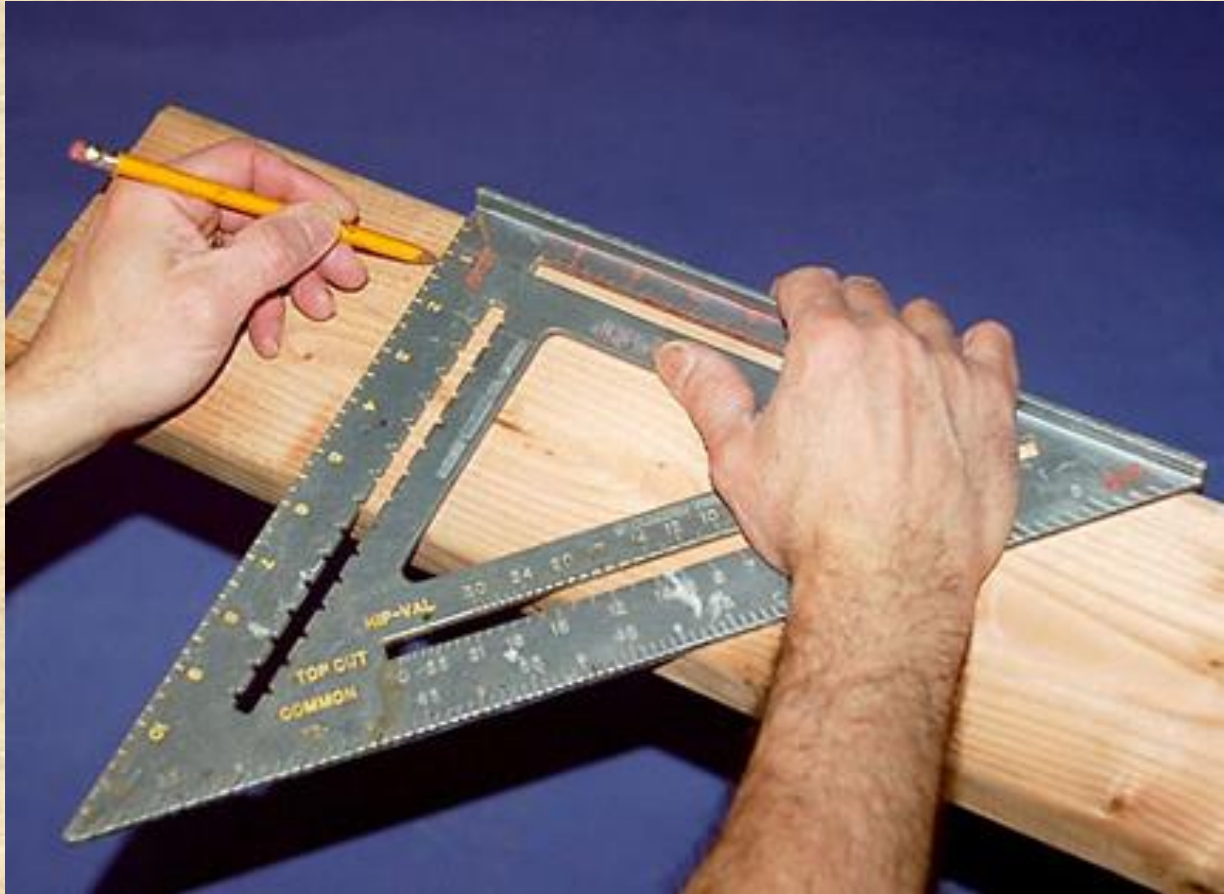


Coach Ketcham's Favorite The Humble Speed Square



- Speed squares aren't just for marking 90- and 45-degree angles when you're cutting 2x4s.
- You can use a speed square to find roof pitches
- As a guide your circular saw
- You can mark any angle from 0 to 90 degrees.

Marking!



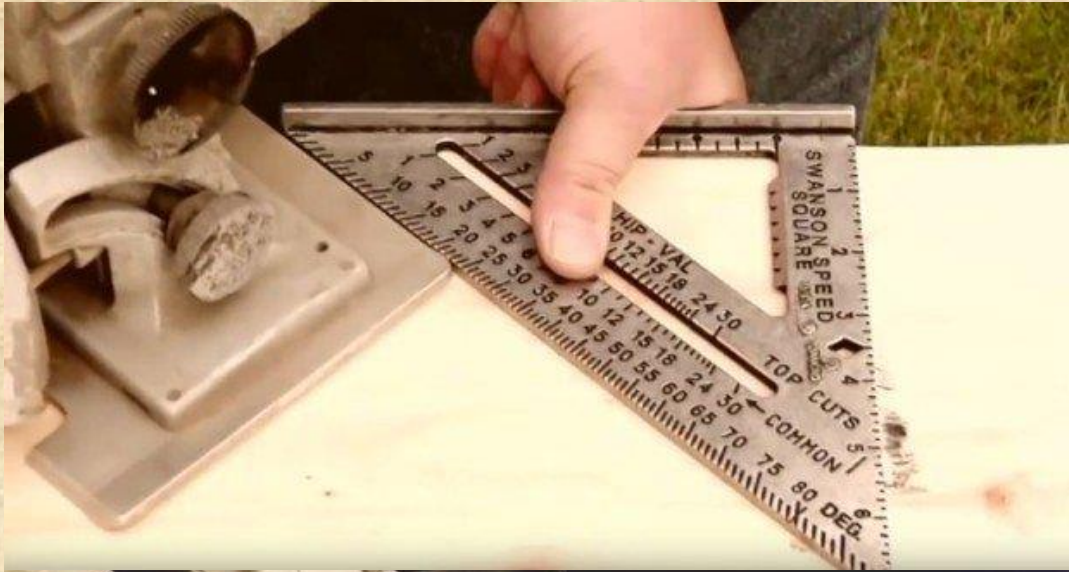
- **Marking** – The most commonly used application of the speed.
- It has a lipped fence along one right-angled edge that allows you to hold the square firmly against a board.
- From there, you can easily and accurately scribe a line.
- You can also use it in this mode to scribe 45° angles along the angled edge of the tool

Measuring



- This ruler is used for measuring cuts. Below this ruler, in a triangular cut-out, is something called the “scribe bar,” a series of notches at $\frac{1}{4}$ ” intervals.
- To easily scribe a rip or trim line along a board, you simply hold your pencil in the desired notch and run the fence along the edge of the board to make an accurate mark down its length.

Saw Guide



- Use it as a guide for cross-cutting lumber at an accurate 90° or 45° angle.
- By firmly holding the fence against the edge of a board, you can use the other right-angle or 45° angle edge as a fence for your hand or circular saw.

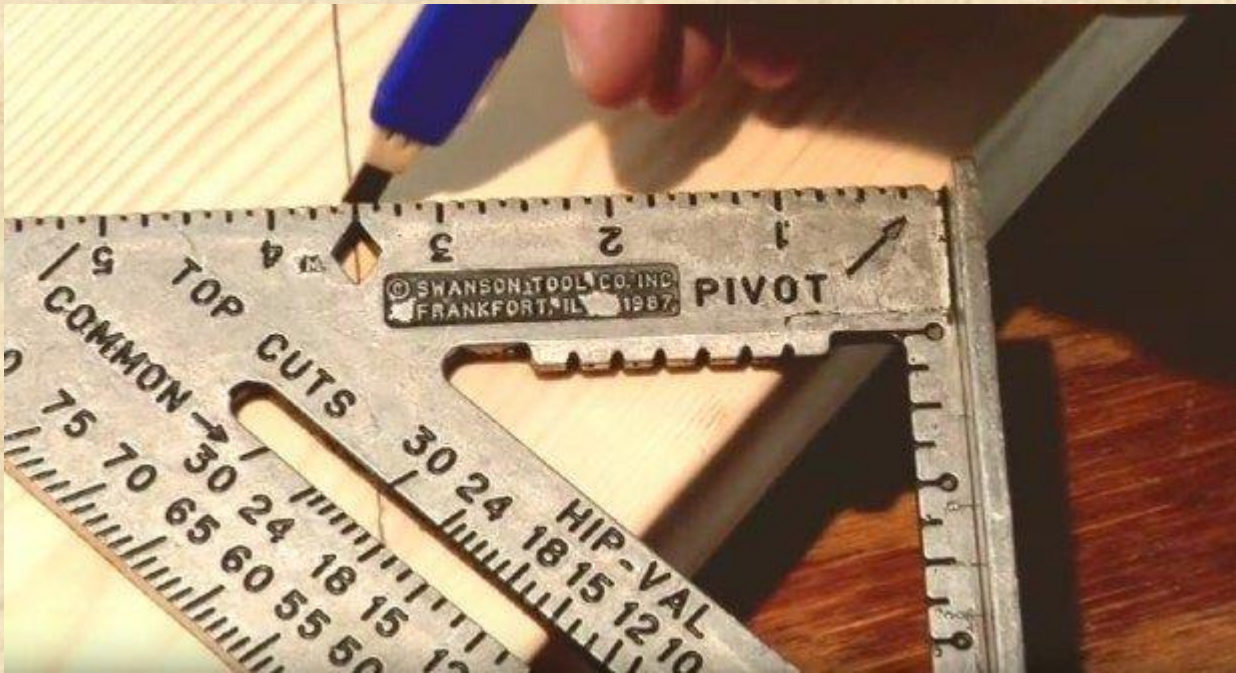
Protracting



- To use the protractor feature, you first find the Pivot point marked in the 90° corner of the square. With the Pivot mark on the factory edge of your board, you pivot the bottom of the tool (where the protractor degrees are marked) and move it to the desired degree (let's say 45°) on the same factory edge.
- The pivoting edge of your square is now at a 45° angle to the factory edge. Mark that angle and you're ready to cut.

Bonus Feature

- Some Speed Squares have a diamond-shaped cut-out on the ruler edge of the tool.
- This is used for squaring on a line scribed across the board so that you can then make a perfect 90° line from your scribed angled to the edge of the board.





Today's Assignment

- Get into Groups of 4
- You will be given a 3' or 4' Piece of scrap 2"x4".
- Everyone need to measure a from the end of the board, and use a speed square to draw a line across the 2"x4".
- Every member of the team will, usng a speed square draw AND label an angle on a 2"x4" (Can't be 90 or 45)
- Every member of the team will use a speed square to draw a line, the length of the board, 1" from the edge.
- Each team will get a chance to use a Caulk line.