Learning Objectives:

- The features and benefits of the products you sell.
- How to answer your customers' product-related questions.
- How to help your customer choose the right products.
- How to increase transaction sizes by learning more about add-on sales and upselling techniques.

Chapter 1: Fasteners

Module 1: Screws

Before we get into the different types of screws, let's take a look at the different types of head styles and drive types. The head style refers to the shape of the head. The drive type refers to the type of driver needed to secure the fastener.

Here are the Head Styles:

 Flat

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- Oval
- Pan
- Truss



Here are the Drive Types:

- Phillips Slotted
- Combination





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Product Knowledge:



Sheet Metal Screw

- This screw fastens thin metal to thin metal.
- It is threaded its entire length.
- Can have flat, oval, round or binding heads.
- Typical lengths range from 1/8" to 2".
- Starting holes are either drilled or punched and should be slightly smaller than the screw diameter.



Machine Screw

- Intended to be screwed into pre-threaded holes in metal.
- Another type is a Thread-Cutting Machine Screw, which has a head that cuts its own threads as it goes into a hole.
- May look like a bolt, but user drives it with a screwdriver instead of a wrench.
- Thread is measured in threads per inch, or tpi. Comes in coarse (24 threads per inch) and fine (32 threads per inch) sizes.
- Can have round, oval, flat and fillister heads.
- They are sized according to diameter, thread and length. Example: a 6-32x3/4 means the screw has a 6-gauge diameter with 32 threads per inch and is 3/4" long.

Wood Screw

- Used to secure wood together.
- Usually made of unhardened steel, stainless steel, aluminum or brass.
- Steel screws can have a choice of several coatings: bright-finished, blued, or plated with zinc, cadmium or chrome.
- Threads on this screw run from the point along three-fourths of the length and heads are slotted.

Lag Screw

- Also called a lag bolt.
- Stronger than a wood screw, it is not threaded all the way up to the head and can come in large sizes and lengths.
- Lag screws are a sturdy fastener used to connect heavy lumber and other materials that must bear an intense load.
- Lag screws require a pre-drilled hole to install.
- They are used for wrenching into wood surfaces or inserting into lag shields in masonry.
- They have a hex head and coarse threads.

Structural Screw

- Structural screws are also known as construction screws. They are used in construction as an alternative to lag screws because they are easier and faster to install.
- They do not require pre-drilling to install. They are usually self-tapping, which means they have tips designed to remove wood as the screw spins, making it easier to install the screw.
- The tips are usually sharp to reduce wood splintering.
- They are thinner than a lag screw, but constructed from strong, heat-treated steel to meet engineering standards.
- Structural screws typically have drive heads with six or eight contact points to eliminate stripping and improved torque.
- They typically have a washer built in to the head.

Drywall Screw

- Drywall screws can be used on drywall, plywood, particleboard and other interior projects.
- They are used to install drywall in place of a nail.
- They are coated to prevent rust.
- They are available in fine or course threads.

Deck Screw

- Use on decking, fencing, siding and other exterior projects.
- Some screws have a self-countersinking feature so no screw heads are above the surface of the wood.
- Newer deck fastening systems use hidden fasteners so there are no visible screws for a clean installation.
- Coated to resist corrosion. Different types of coatings are available.
- Electrogalvanized screws have a thin zinc coating. This type is inexpensive and moderately effective at resisting corrosion.
- Some screws have a layer of epoxy or ceramic for reliable corrosion resistance.
- Hot-dipped galvanized screws have a coating of zinc and are more effective at resisting corrosion.
- Stainless steel screws have the best corrosion resistance, especially for areas exposed to saltwater.



Self-Tapping Screw

- Often used for attaching gutters, window frames, electrical fixtures or any material typically requiring a starter hole.
- Sharp point eliminates the need to pre-drill a starter hole.

Screw Eye/Hook

- A screw eye consists of screw thread at one end and a ring or hook at the other.
- Use the hook to hang tools or utensils or for holding the eye and hook together.

Taking it to the Floor:

Frequently Asked Questions

Q: What do the numbers—such as 8-32—mean on a machine screw?

A: The first number is the diameter. The bigger the number the bigger the screw. The second number is the number of threads per inch.

Q: What screw do I use to anchor a knob onto a drawer?

A: If you do not have the knob to identify the size, it's probably an 8-32 screw. It may not be the right one, but it's the best guess that may keep you from making another trip.

Q: What is the difference between a sheet metal screw and a wood screw?

A: A sheet metal screw has threads along its entire length and has more threads per inch. A wood screw threads along about two-thirds of its length. A wood screw has a pointed tip to "bite" into the wood. A machine screw generally requires a pre-drilled hole and is usually self-tapping, which means it creates its own threads as it goes into the hole.

Q: What is the best screw to use outside?

A: Stainless steel screws are the most popular. They will not rust, but are more expensive and not as hard as galvanized steel screws. You can also use aluminum screws, which are softer but not as strong as stainless. They also provide some corrosion resistance when used in aluminum materials.

Q: Why would I use brass screws?

A: Brass is also softer than and not as strong as stainless, and its main use is when you want the decorative look of brass. It also will not rust.

Q: What is the difference between threads per inch and pitch?

A: Threads per inch, or TPI, is a measurement used to count the number of threads along the length of a standard fastener. Pitch measures the thread count on a metric fastener.

Module 2: Bolts, Nuts & Washers

Product Knowledge:



Carriage Bolt

- Has a square shoulder under the head that pulls into soft materials such as wood and prevents the bolt from turning while the nut is tightened.
- Has coarse, partial threads and a smooth, rounded head.



Machine Bolt

- Use with a nut or in a threaded hole.
- Comes with regular, square, hex, button or countersunk heads.
- Square heads fasten joints and materials where bolt requirements are not too severe.
- Button heads work best where smooth surfaces are necessary.
- Use countersunk heads for flush surfaces.
- Sometimes called a hex bolt or a machine screw.
- Some types are called a stove bolt.



Washer

- Small metal circles that provide a hard surface against which you tighten a screw.
- It matches the size of the screw it is being used with.
- Comes in flat, countersunk or flush shapes.
- A fender washer has a larger outside diameter for covering large holes.
- Use a lock washer to prevent nuts from loosening.
- Use a finishing washer on a surface where you want to obtain a finished look. Usually use with oval head screws.

Nut

- Screws onto the threaded end of a bolt to help tighten the bolt.
- Most common are hex and square nuts, also called full nuts.
- A **slotted nut** has slots at the top of the nut that can accommodate a cotter pin. This prevents the nut from easily loosening.
- Wing and knurled nuts are used where frequent adjustment or disassembly is necessary.
- The **locknut** type has a self-locking feature that allows it to be locked into position without additional lock washers, cotter pins or locking wire.
- Use a **tee nut** to fasten wood or composite materials together while leaving no fastener showing above the surface.
- The tee nut creates a threaded hole in the wood and the prongs keep it from moving.

Cotter Pin

- Versatile fastening device.
- Inserts into a hole in a bolt, shaft or similar part. An eye on one end prevents the pin from going through while prongs at the other end are bent back to lock the pin in place.

Сар

- Use this to cover fasteners while tightening them.
- Has a high crown, mainly for appearance.

Turnbuckle

- Used to tighten wire or for bracing doors. It is used to pull gates back to square alignment.
- Consists of a barrel-shaped metal device with a threaded rod inserted into each end.
- Rods have eyes at both ends, or some types have a hook on one end and an eye on the other.

Threaded Rod

- Rod with continuous thread from one end to the other.
- Available in different diameters.
- Used where extra-long bolts are required.
- Can be bent to make U-bolts, eye bolts and J-bolts.

Taking it to the Floor:

Frequently Asked Questions

Q: I've broken the head off a bolt. Is there some way I can get it out?

A: You should use a bolt extractor kit. It has a tap and an insert with a left-hand thread so that it can be turned to remove the bolt.

Q: Even with a lock washer, I continue losing the nut off my mower.

A: Use a lock nut with a nylon insert. This arrangement will not vibrate loose as easily.

Q: What is the meaning of USS and SAE as it pertains to bolts?

A: USS are coarse threads, while SAE are fine threads.

Q: I have a bolt that is not threading in properly. Can I fix this?

A: Yes, a thread repair kit allows you to retap it, put in an insert and rebuild it.

Q: What do the marks on the head of a bolt mean?

A: The marks on the head of a bolt indicate the hardness or strength of the bolt. No marks indicates the least hard, three marks is medium hardness and bolts with six marks are the hardest.

Q: What can I use to tighten up a sagging clothesline?

A: A turnbuckle installed at one end permits you to tighten the line to the desired tautness.

Q: How can I square up my wooden screen door? It is rubbing on the sill.

A: A screen door turnbuckle, applied diagonally, will raise the sagging edge.

Module 3: Anchors

Product Knowledge:



Hollow Wall Anchor

- For medium- to heavy-duty applications.
- Also known as Molly bolt.
- Consists of a screw in a metal sleeve.
- When the sleeve is inserted into a pre-drilled hole and the screw is turned, the sleeve spreads.
- Screw can be removed and inserted in the fixture to be mounted and replaced.



Toggle Bolt

- For heavy items.
- Requires a pilot hole. The holding arms open after the screw and holder are inserted into the hole, gripping the wall as the screw is tightened.
- Select bolts according to the thickness of the diameters from 1/8" to 1/2".
- Fixture to be mounted must be assembled with screw and holder before inserting it into the wall.



Wall Driller Anchor

- For medium-duty applications.
- Fastener makes its own hole in the drywall.
- May be made of plastic, nylon or metal.



Plastic Screw Anchor

- For light-duty applications.
- Use with wood or sheet metal screws.
- Insert the anchor into a pre-drilled hole. User drives the screw through the anchor into the wall.
- Sizes range from 3/4" to 1-3/8" long.



Toggle Anchor

• The toggle anchor is a plastic anchor that functions like a toggle fastener with sizes from 3/4" to 3-1/2".

Zip Toggle

- A zip toggle anchor is used to anchor into drywall.
- It is easier to use than a toggle anchor.
- It is designed for fast installation.
- It is self-drilling so there is no need to pre-drill a hole.
- It also requires a smaller hole than other toggle bolts.

Strike Anchor

- A strike anchor is used to anchor an item into solid concrete.
- It must be inserted into a pre-drilled pilot hole. When the nail is struck, the anchor expands, locking it in place.
- It is made of carbon steel, with a drive pin of hardened steel.

Self-Tapping Concrete Screw

- Hardened steel screws designed to cut threads in pre-drilled holes.
- Holes can be drilled through the item to be fastened without moving the fixture.
- Head styles are Phillips, flat or hex-washer.
- Used in poured concrete, concrete block or masonry.
- Pull-out resistance of concrete screws is much greater than in plastic screw anchors because they bite directly into the concrete.

Drop-In Anchor

- Expandable concrete anchors set in pre-drilled holes.
- Accepts standard coarse thread bolts or threaded rod.
- Drop-in style anchors do not require patching after sinking.
- Comes in sizes to fit 1/4" to 3/4"

Wedge Anchor

- Has a shank similar to a sleeve anchor—a solid shank, threaded at the top and with a cone-shaped plug at the bottom.
- Shank is grooved on opposite sides.
- As the nut on top is tightened, the washer pushes the rectangular shank down and spreads the wedges over the plug.

Sleeve Anchor

- Has a steel sleeve on the shank, split at the bottom so it can expand.
- The bolt has a cone-shaped plug at the base and a nut at the top.
- When the user places the anchor in the hole and tightens the nut, it draws the bolt upward, pulling the plug into the sleeve and expanding it against the hole.



Lag Screw Shield

- Used inside drilled holes to provide anchors in the hole for lag bolts as they are wrenched into the shield.
- As the screw enters the shield, the shield expands and grips the interior.
- Horizontal fins prevent the shield from turning in the hole while tapered ribs ease insertion and ensure against slips.







Expansion Shield

- ELECTERES
- Also known as lead shield.
- Used with lag and machine bolts.
- As the bolt is tightened, the cone draws up through a slotted sleeve and expands against the interior of the drilled hole with great force.
- Requires no caulking and is excellent for heavy holding of problem material such as cement, cinder blocks, hollow tile and other concrete mixes.
- Requires a large hole. Use a power drill and masonry bit.

Split-Drive Anchor

- A split-drive anchor is made of high-strength steel for driving in hard material, such as solid concrete or stone.
- It is driven into a pre-drilled hole where it is compressed and forced against the wall of the hole.
- It comes in three head styles: round, countersunk and duplex. The duplex type provides a temporary attachment of items that must later be removed.

Taking it to the Floor:

Frequently Asked Questions

Q: What can I use to anchor a drapery rod on drywall?

A: A plastic anchor will support a lighter rod. Rods supporting heavier weights will need a molly wall grip. To install the molly wall grip, drill the proper size hole to insert the molly. Turn the screw head until you feel the molly expand and grip the drywall. Next, remove the screw for intended use. Some plastic wall anchors can be installed without pre-drilling a hole.

Q: How do I install a toggle bolt?

A: Drill a proper size hole and insert the bolt. Don't forget that you have to insert the bolt through the item you are fastening to the wall. Collapse the toggle and push the bolt through the hole until the toggle springs open. Now, tighten the bolt to complete the anchoring.

Q: Is a toggle bolt a good choice for anchoring something to my wall?

A: Yes, a toggle bolt is a hollow wall anchor. It is designed to disperse the weight of the item being hung over a larger area. Use of a toggle bolt instead of a plastic anchor is largely dependent on the weight of the object being hung.

Q: What kind of anchor should I use if I'm attaching conduit to a foundation wall?

A: Use either hammer drive anchors or a concrete/masonry screw.

Q: What kind of anchor should I use to attach machinery to a concrete floor?

A: Use a heavy expansion anchor such as a sleeve or wedge anchor.

Add-on Items

- Suggest the proper size drill bits to make a hole for inserting the anchor.
- Your customer will need a **hammer** for setting the anchor in the hole, and a **screwdriver** for tightening the screw in the anchor.
- Help your customer find the proper size **bolt** or **screw** to go with the anchor.
- Suggest a measuring tape and level for determining the right place in the wall where the anchor should go.
- Always remind customers to use safety glasses and gloves when using a drill to make a hole for the anchor.

Module 4: Nails

Product Knowledge:

These three nails are used in general construction applications:

Box Nail

- Box nails have a smooth, thin shank to prevent wood splitting.
- They are used for lighter structural loads in general carpentry and for making boxes or crates. They can also be used for framing and light duty construction.

Duplex Nail

- Has a double head to allow for easy removal in temporary construction applications.
- Used for concrete forming and scaffolding.

Common Nail

- Common nails have larger shank diameters than other nails, making them the strongest and stiffest type of nail.
- They are available in a variety of sizes and finishes.
- Common nails are general purpose nails that can be used where shear strength is needed, such as in framing and general construction.

These nails are used for finish work:

Casing Nail

- A casing nail is similar in appearance to a finishing nail, but is thicker.
- Casing nails are used for case molding, exterior trim and window frames, or wherever trim requires additional strength. They are often used in exterior applications.
- Casing nails have a small head so they can be countersunk beneath the wood surface so the hole can be filled and finished.

Finish Nail

- A finish nail is used for finish work around window and door frames, trim, paneling or anywhere nails cannot show.
- They may also be referred to as trim nails. Some trim nails are pre-painted to match standard colors.
- Finish nails have a small head so they can be countersunk beneath the wood surface so the hole can be filled and finished.

These nails are used for flooring applications:

Flooring Nail

- Screw-shanked.
- Used for laying tongue-and-groove hardwood flooring.

Underlayment Nail

- Bright-finished, ring-shanked.
- For laying plywood or composition subflooring over existing wood floors or floor joists.

The following nails are used for exterior construction.

Roofing Nail

- Has large heads and diamond points.
- Galvanized to resist corrosion.
- Barbed shank for greater holding power.
- Nails for a new roof are typically 7/8" long with 7/16" head.
- Carefully choose size to match the thickness of the roofing.
- Sealing roofing nails have a plastic or rubber washer under the nail head for watertight seal.

Decking Nail

- Has a spiral shank to enhance holding power.
- For use with pressure treated lumber.
- Decking nails are typically galvanized or stainless steel to resist corrosion. Some types have a ceramic coating.

Siding Nail

- Galvanized or with some other non-staining finish.
- For applying residential wood lap siding to plywood or fiberboard sheathing.

Capped Nail

- Has a plastic or metal flat cap at the head.
- Used for installing house wrap, roofing underlayment and foam insulation to exterior surfaces.
- Some types are made for hammering into masonry.

Drywall Nail

- Ring-shanked nail used for attaching sheets of drywall gypsum board to interior wood wall studs.
- They are coated to prevent rust.
- Flat, slightly countersunk head permits driving just below the surface, forming a depression that can be covered with drywall joint compound or spackling.



Masonry Nail

- Made of hardened and tempered steel.
- Shank comes round, flat, fluted or square.
- Often used to fasten framing parts such as sills, furring strips, window and door trim to masonry and concrete.



Wire Brad

• Used for household jobs requiring small fasteners where heads will be concealed.



Rivet



- Securely fastens something that can be reached from just one side.
- The multi-grip type expands to fill over-sized and irregular holes and self-adjusts for misaligned holes.
- Used in metal, plastic and composite materials.
- Ideal for installing gutters and drop ceilings or repairing large appliances.
- Available in 1/8", 3/32", 3/16" and 1/4" diameters.
- Can have dome, countersunk and large flange head styles.

Collated Fastener

- Collated fasteners are designed specifically for use with pneumatic power tools.
- Collated fasteners are essentially fasteners, such as nails, screws or staples, that are collated, or connected to each other. Fasteners may be collated in coils, sticks or with paper tape. The type of fastener and way they are collated must be chosen to match the tool.
- Many styles and finished of fasteners are available collated. The main types are deck, framing, drywall and finish.

Taking it to the Floor:

Frequently Asked Questions

Q: How long of a nail should I use?

A: If the board you are fastening to another is not going to bear weight, the nail should be 1/2" longer than the board is thick. If it is going to bear weight, it should be 2-1/2 times the thickness of the material to be fastened.

Q: What is the advantage of cement-coated nails?

A: Friction heat from driving the nail softens the cement coating and causes the nail to adhere to wood more firmly.

Q: When would I use a galvanized nail?

A: Galvanized nails resist rust, and you should use them whenever you are building a project that will be exposed to the elements. Aluminum nails are rustproof but must be thicker to prevent them from bending.

Q: Are there nails that match my walnut paneling?

A: Yes, paneling nails come in a variety of colors.

Q: Is there a nail I can use that is less likely to split my wood?

A: Pointless nails or thin shank nails protect against wood splitting because they cut through fibers rather than following the grain of the wood. You can also pre-drill the holes to help prevent the wood from splitting.

Add-on Items

- If a customer is buying finishing or casing nails, recommend a **nail set** for sinking the heads of the nails.
- Also recommend **wood putty** for filling in the holes left by the nail set.
- Ask if the customer has a good hammer suited for the project.
- Recommend **safety glasses** and gloves when nailing into any surface.
- Ask if the customer needs a **nail pouch** for carrying nails.



Module 5: Framing Straps & Ties

Product Knowledge:



Joist Hanger

- This tie connects two framing members, usually a joist
- This type of connection is an improvement over the traditional way of attaching two framing members, which was to nail them together. A joist hanger provides more support and can better resist the strong forces of high winds and earthquakes.
- Has pre-drilled holes for nails or screws.
- Sized according to the size of the framing member used with it.



Hurricane Tie

- This tie connects the roof framing to the wall framing.
- It helps the structure resist the strong forces of hurricane wind.
- Has pre-drilled holes for nails or screws.



Tie Plate

- Use this tie to splice or reinforce wood-to-wood connections on flat surfaces.
- Often used for home repair.
- Has pre-drilled holes for nails or screws.



Nail Plate

- The nail plate stops nails from accidently being nailed into a framing member, and then into a pipe or wire.
- Has pre-drilled holes for nails or screws.



Plywood Clip

- Use these clips to support the edges of a panel that are not supported by a framing member, typically on a roof.
- The sheathing clip must match the thickness of the panel.

Strap

- Use this tie to reinforce connections between two pieces of wood.
- Available in a variety of shapes, including L, T and straight (shown here).
- Has pre-drilled holes for nails or screws.



Post Base

- Use this tie to anchor a post to a concrete floor. The tie also helps the post resist lateral and uplift loads, which are forces inflicted on the post by high winds.
- Because it raises the post off of the concrete base (referred to as the Standoff), it helps reduce decay at the bottom of the post.
- Sized according to the size of the framing member used with it.

Taking it to the Floor:

Frequently Asked Questions

Q: Why should I use a framing connector?

A: Framing connectors, also called structural connectors, are used to connect and strengthen the frame of a home. These help the home resist the damage caused by earthquakes, high winds and hurricanes.

Q: Why is using straps better than the traditional way of building a house?

A: The traditional way of connecting framing materials was by nailing them together in what is known as a toe-nailing connection (two nails nailed together in opposite directions). However, nails are likely to pop out during severe weather. Framing connectors, such as straps and ties, can better resist the various forces nature puts on it.

Q: Can I retrofit my home with framing straps?

A: It's possible to retrofit some parts of your home with framing straps. A good example would be joist hangers, but you need a basement or crawlspace with easy access to floor joists. Always check with your local building codes to find out the requirements for your area.

Q: Should I use framing straps and ties when I'm building my deck?

A: Yes. A deck built with framing straps and ties is much safer than one without. There are three types of pressures on a deck, and framing straps and ties help strengthen the deck against those pressures:

- Gravity, a downward pressure caused by people standing on it;
- Lateral pressure, the horizontal motion caused by people walking back and forth on it or leaning on a railing, or from wind and earthquakes; and
- Uplift pressure, caused by wind flowing under the deck and from people standing on the overhand of the deck.

Q: Can I use a galvanized nail with a stainless steel framing strap?

A: No, you should only use stainless steel fasteners with stainless steel framing straps. Mixing galvanized with stainless steel will cause corrosion.

Q: What type of fastener should I use with treated wood?

A: You may use either galvanized, ceramic coated or stainless steel fasteners with chemically treated wood.

Add-on Items

- Ask the customer if he or she has enough **nails** or **screws** for the project.
- Recommend galvanized fasteners for using outdoors.
- Recommend **stainless steel fasteners** for using with stainless steel straps and ties.
- Ask the customer if he or she needs a **hammer**.
- Always recommend the customer use **safety glasses** and **gloves** when using a hammer to fasten framing straps.