**15 Minute Tip Talk – July 5, 2018**
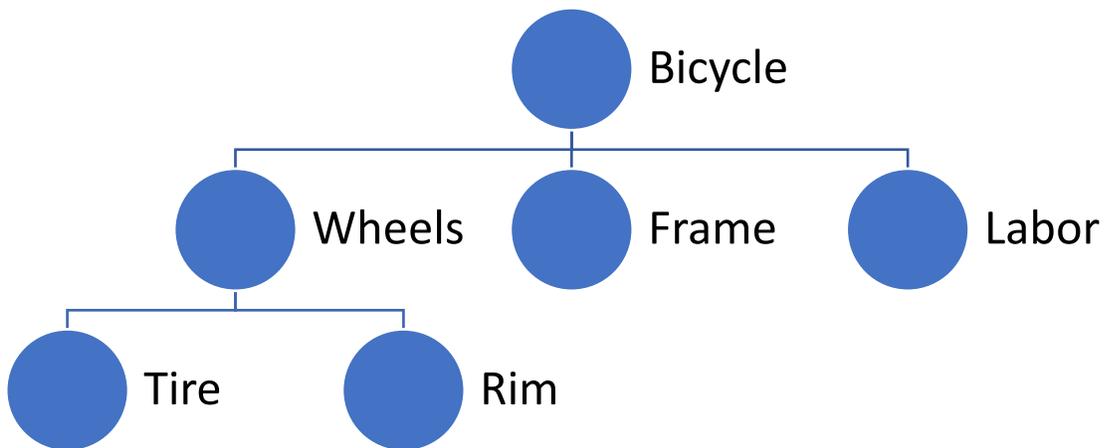**BoM 101**

**Background**

A bill of materials (BOM) is an extensive list of raw materials, components, and assemblies required to construct, manufacture, or repair a product or service. A bill of materials usually appears in a hierarchical format, with the highest level displaying the finished product and the bottom level showing individual components and materials. There are different types of bills of materials specific to engineering Used in the design process and specific to manufacturing used in the assembling process.

The below simplified example shows how a bill of materials looks like:

BoM components:

| Names | Functions |
|---|---|
| Bicycle | Finished Goods |
| Wheels | Phantom Item |
| Frame | Material |
| Labor | Resource |
| Tire | Material |
| Rim | Material |

**How BoM is used in production cycles and business in general**

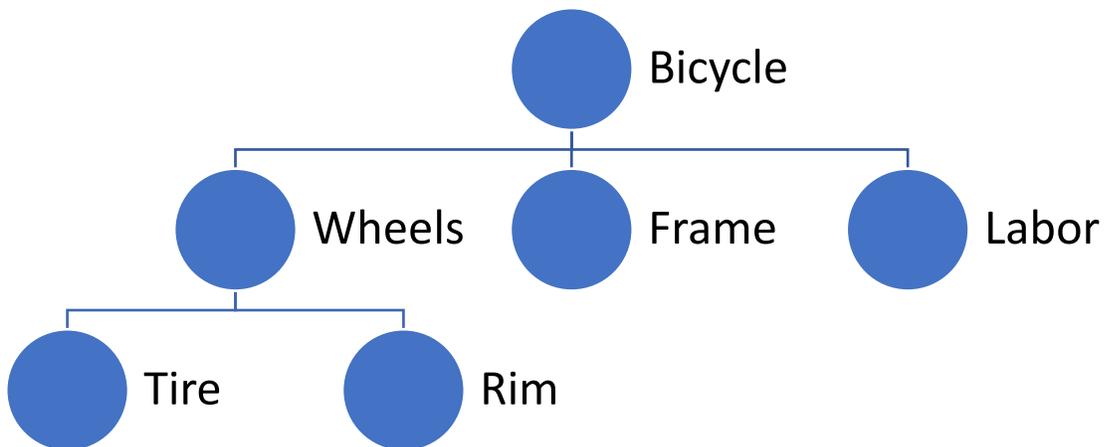| Raw Materials | ➡ | Bill of Materials | ➡ | Production Orders | ➡ | Finished Goods |
|---|---|---|---|---|---|---|

The production process starts with adding a production order and releasing it to production. Production order is the main document in the production process. It records the progress of the production process for each item produced. The production order is based on the bill of materials. Once the production work is done, the completion of the production order is reported and the finished goods/items are received into the warehouse.
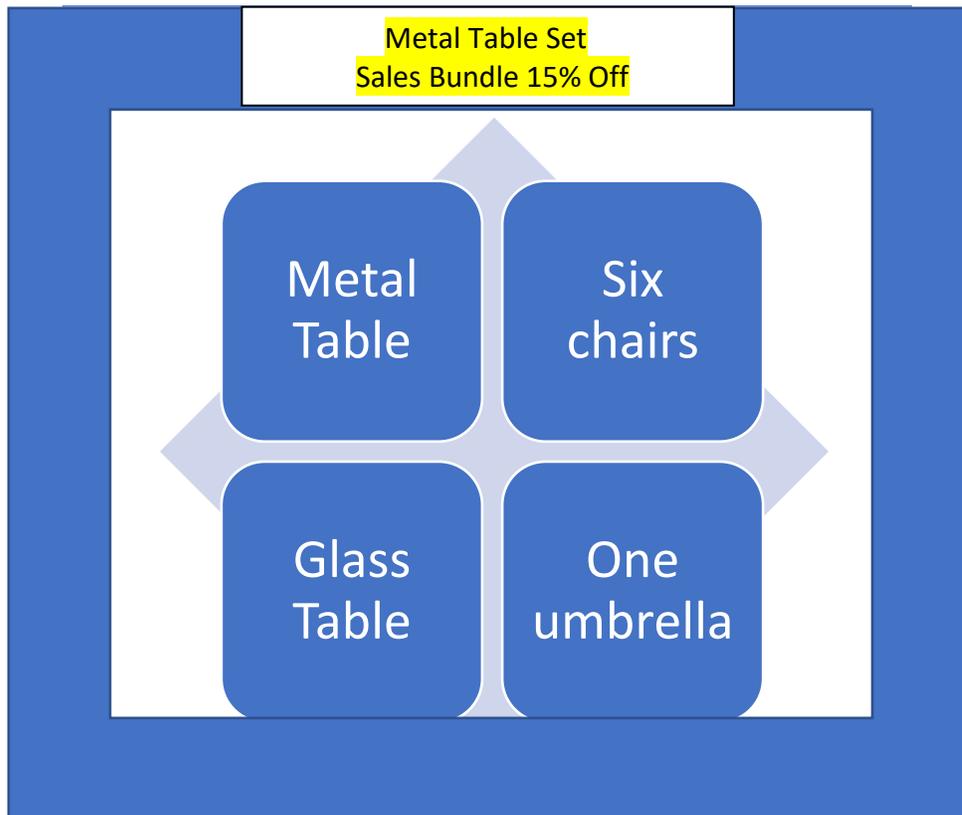
**Different Types of Bill of Materials**

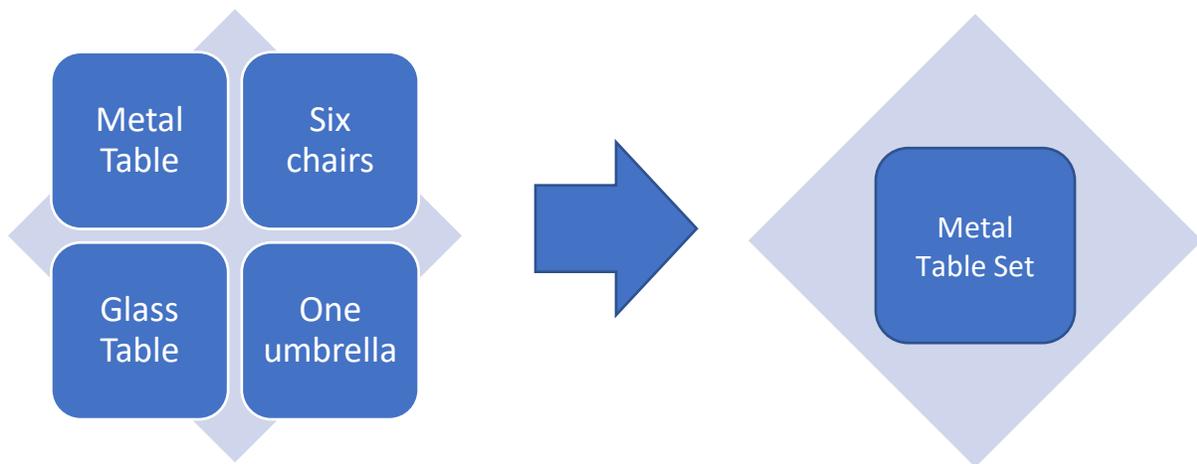| Type |
|------|
| Production BoM |
| Sales BoM |
| Assembly BoM |
| Template BoM |

**1. Production BoM**



- Represent a finished product (parent item) made up of different inventory components (children item) and during the production process, you turn the components into the finished product.
- Components are physical items or hours.
- Both finished product and materials are considered inventory item.

## 2. Sales BoM



- Represent a finished product which is assembled at the sales stage
- Both the finished product and the components appear as separate items in the sales order document
- Do not manage the finished product as an inventory item, but rather as a sales item
- The components for sales bill of materials must be sales items
- Sales BoM is used where there's a fixed combination of components and the customer needs confirmation of each item
- Use a Sales BOM where there is a fixed combination of components and the customer needs confirmation of each item. The component items cannot be altered or removed from a sales order. Other items cannot be inserted between the parent and component items in the sales order. However, the quantities of the component items can be modified.

**3. Assembly BoM**



- The Sales BOM and the Assembly BOM represent a finished product assembled at the sales stage, that is, the finished product is composed of its component items only when the parent product is actually sold. The component items are stored and tracked individually in the warehouse.
- Do not manage the finished product as an inventory item, but rather as a sales item
- The components for sales bill of materials must be sales items
- Use the assembly BoM when you would not expect the customer to check each component in the order, such as six charirs or an umbrella.
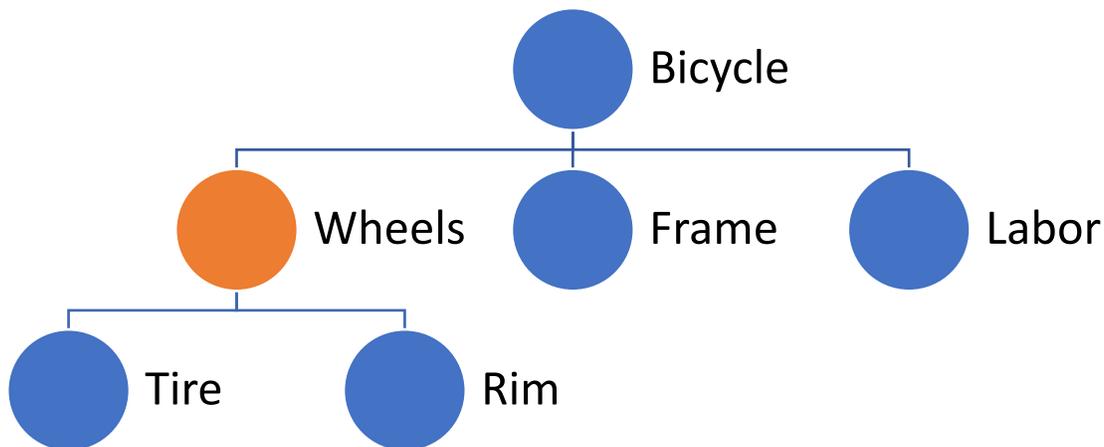
**4. Template BoM**

The template BoM is a bundle of items, where the parent product is the first item on the list. It does not act as a BoM once it is added to the sales document, but rather as a list of items brought together at the same time. You can update the quantity of those items, swap items, or delete them in the BoM or the sales order. The components appear below the parent as a list of items in a sales document. Use the template BoM when you require flexibility in selecting components for a product.

Example,
Computers can be sold as a standard unit, in which case the production or sales BoM is appropriate. However, to customize a sales order, use the template BoM to allow for DVD burners, speakers, ergonomic keyboards, and so on.

**What is a Phantom Item?**



Phantom Item. (Does not appear in production orders)

- A phantom item is a sub-assembly in the *Bill of Materials* that does not actually exist in inventory. It is used to simplify the *Bill of Materials*. Although the phantom item appears in the *Bill of Material*, the *Production Order* will show the components needed to make the phantom item rather than the phantom item itself.
- In the graphics we see a Bicycle Bill of Materials. The 4 wheels of the bicycle are a phantom item. When the **Bicycle** *Bill of Materials* will be copied into the *Production Order,* the components: **tire**, and **rim** will appear, but not the **wheels**.