

High School Woodworking Curriculum Essentials Document



Woodworking

Introduction to woodworking is an overview to the field of wood technology. This is an excellent foundation course for a career in woodworking or construction. It is designed to instruct students in the areas of reading project drawings, knowledge of woods and uses, calculations of materials, numerous joinery designs, wood lamination and project procedures. A major emphasis will be placed on shop safety, proper hand and power tool usage and wood processes. This course provides students with an in-depth introduction to the woodshop and the student will gain practical knowledge needed to work on their own projects or continue on with lifelong skills in woodworking and construction. Students will construct various teacher assigned projects as well as the opportunity to create, design and build personal projects of their choice with teacher guidance and close supervision.

Woodworking Overview

Course Description	Topics at a Glance
<p>This two semester course is designed to emphasize activities in planning, design and construction as applied to common forms of wood working. Accuracy, neatness, sound work habits and safety are stressed and form an important part of the evaluation criteria. Students acquire knowledge and skills through demonstrations, educational media and practice projects. Proper and safe use of tools, abrasives, adhesives, fasteners, finishes, is part of this curriculum.</p>	<ul style="list-style-type: none">• Demonstrate proper use of all tools• Pass the safety test with 100% on all tools• Initial woodworking project assigned to students• Additional choice projects selected and built by student• Encourage students to develop a spirit of "Craftsmanship" in all the work they do
Assessments	
<ul style="list-style-type: none">• Safety Quizzes• Safety Exams• Board Foot Measure Rule Quizzes• Final Exam	

Prepared Graduates

The preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must master to ensure their success in a postsecondary and workforce setting.

1. CTE Essential Skills: Academic Foundations

ESSK.01: Achieve additional academic knowledge and skills required to pursue the full range of career and postsecondary education opportunities within a career cluster.

Prepared Graduate Competencies in the CTE Essential Skills standard:

- Complete required training, education, and certification to prepare for employment in a particular career field
- Demonstrate language arts, mathematics, and scientific knowledge and skills required to pursue the full range of post-secondary and career opportunities

2. CTE Essential Skills: Communications Standards

ESSK.02: Use oral and written communication skills in creating, expressing, and interrupting information and ideas, including technical terminology and information

Prepared Graduate Competencies in the CTE Essential Skills standard:

- Select and employ appropriate reading and communication strategies to learn and use technical concepts and vocabulary in practice
- Demonstrate use of concepts, strategies, and systems for obtaining and conveying ideas and information to enhance communication in the workplace

3. CTE Essential Skills: Problem Solving and Critical Thinking

ESSK.03: Solve problems using critical thinking skills (analyze, synthesize, and evaluate) independently and in teams using creativity and innovation.

Prepared Graduate Competencies in the CTE Essential Skills standard:

- Employ critical thinking skills independently and in teams to solve problems and make decisions
- Employ critical thinking and interpersonal skills to resolve conflicts with staff and/or customers
- Conduct technical research to gather information necessary for decision-making

4. CTE Essential Skills: Safety, Health, and Environmental

ESSK.06: Understand the importance of health, safety, and environmental management systems in organizations and their importance to organizational performance and regulatory compliance

Prepared Graduate Competencies in the CTE Essential Skills standard:

- Implement personal and jobsite safety rules and regulations to maintain safe and helpful working conditions and environment
- Complete work tasks in accordance with employee rights and responsibilities and employers obligations to maintain workplace safety and health

5. CTE Essential Skills: Leadership and Teamwork

ESSK.07: Use leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives

Prepared Graduate Competencies in the CTE Essential Skills standard:

- Employ leadership skills to accomplish organizational skills and objectives

6. CTE Essential Skills: Employability and Career Development

ESSK.09: Know and understand the importance of employability skills; explore, plan, and effectively manage careers; know and understand the importance of entrepreneurship skills

Prepared Graduate Competencies in the CTE Essential Skills standard:

- Identify and demonstrate positive work behaviors and personal qualities needed to be employable
- Develop skills related to seeking and applying for employment to find and obtain a desired job

COLORADO COMMUNITY COLLEGE SYSTEM CAREER & TECHNICAL EDUCATION TECHNICAL STANDARDS REVISION & ACADEMIC ALIGNMENT PROCESS

Colorado's 21st Century Career & Technical Education Programs have evolved beyond the historic perception of vocational education. They are Colorado's best kept secret for:

- Relevant & rigorous learning
- Raising achievement among all students
- Strengthening Colorado's workforce & economy

Colorado Career & Technical Education serves more than 116,000 Colorado secondary students annually through 1,200 programs in 160 school districts, 270 High Schools, 8 Technical Centers, 16 Community Colleges & 3 Technical Colleges. One of every three Colorado high school students gains valuable experiences by their enrollment in these programs.

ALIGNMENT REQUIRED BY SB 08-212

22-7-1005. Preschool through elementary and secondary education - aligned standards - adoption - revisions.

2(b): In developing the preschool through elementary and secondary education standards, the State Board shall also **take into account any Career & Technical Education standards** adopted by the State Board for Community Colleges and Occupational Education, created in Section 23-60-104, C.R.S., and, **to the extent practicable**, shall **align the appropriate portions of the preschool through elementary and secondary education standards with the Career and Technical standards.**

STANDARDS REVIEW AND ALIGNMENT PROCESS

Beginning in the fall of 2008, the Colorado Community College System conducted an intensive standards review and alignment process that involved:

NATIONAL BENCHMARK REVIEW

Colorado Career & Technical Education recently adopted the Career Cluster and Pathway Model endorsed by the United State Department of Education, Division of Adult and Technical Education. This model provided access to a national set of business and industry validated knowledge and skill statements for 16 of the 17 cluster areas. California and Ohio provided the comparative standards for the Energy cluster

- Based on this review Colorado CTE has moved from program-specific to Cluster & Pathway based standards and outcomes
- In addition, we arrived at fewer, higher, clearer and more transferrable standards, expectations and outcomes.

COLORADO CONTENT TEAMS REVIEW

The review, benchmarking and adjusting of the Colorado Cluster and Pathway standards, expectations and outcomes was through the dedicated work of Content Teams comprised of secondary and postsecondary faculty from across the state. Participation by instructors from each level ensured competency alignment between secondary and postsecondary programs. These individuals also proposed the draft academic

alignments for math, science reading, writing and communication, social studies (including Personal Financial Literacy) and post secondary and workforce readiness (PWR.)

ACADEMIC ALIGNMENT REVIEW

In order to validate the alignment of the academic standards to the Career & Technical Education standards, subject matter experts in math, science, reading, writing and communication, and social studies were partnered with career & technical educators to determine if and when a true alignment existed.

CURRENT STATUS

- One set of aligned Essential skills to drive Postsecondary and Workforce Readiness inclusion in all Career & Technical Education programs.
- 52 pathways with validated academic alignments
- 12 pathways with revised standards ready for alignment (currently there are no approved programs in these pathways)
- 21 pathways where no secondary programming currently exists. Standards and alignments will be developed as programs emerge.
- Available for review at: www.coloradostateplan.com/content_standards.htm

Colorado Career & Technical Education Standards Academic Alignment Reference System

The Career & Technical Education standards have been organized by Career Cluster (17) and Pathway (81). In addition, a set of “Essential Skills” was developed to ensure the Postsecondary and Workforce Readiness within any cluster or pathway. These workforce readiness skills are applicable to all career clusters and should form the basis of each CTE program.

Organization

Essential Skills

There exists a common set of knowledge and skills that are applicable to all students regardless of which cluster or pathway they choose. This set of standards, is meant for inclusion in each program to enhance the development of postsecondary and workforce readiness skills.

Career Cluster

A Career Cluster is a grouping of occupations and broad industries based on commonalities. The 17 Career Clusters organize academic and occupational knowledge and skills into a coherent course sequence and identify pathways from secondary schools to two- and four-year colleges, graduate schools, and the workplace. Students learn in school about what they can do in the future. This connection to future goals motivates students to work harder and enroll in more rigorous courses.

Career Pathway

Pathways are sub-groupings of occupations/career specialties used as an organizing tool for curriculum design and instruction. Occupations/career specialties are grouped into Pathways based on the fact that they require a set of common knowledge and skills for career success.

Prepared Completer Competency

This level targets the “big ideas” in each pathway. These are the competencies that all students who complete a CTE pathway must master to ensure their success in a postsecondary and workforce setting. Prepared Completer Competencies will not usually be “course” specific but grow with the student’s progression through the sequence of courses.

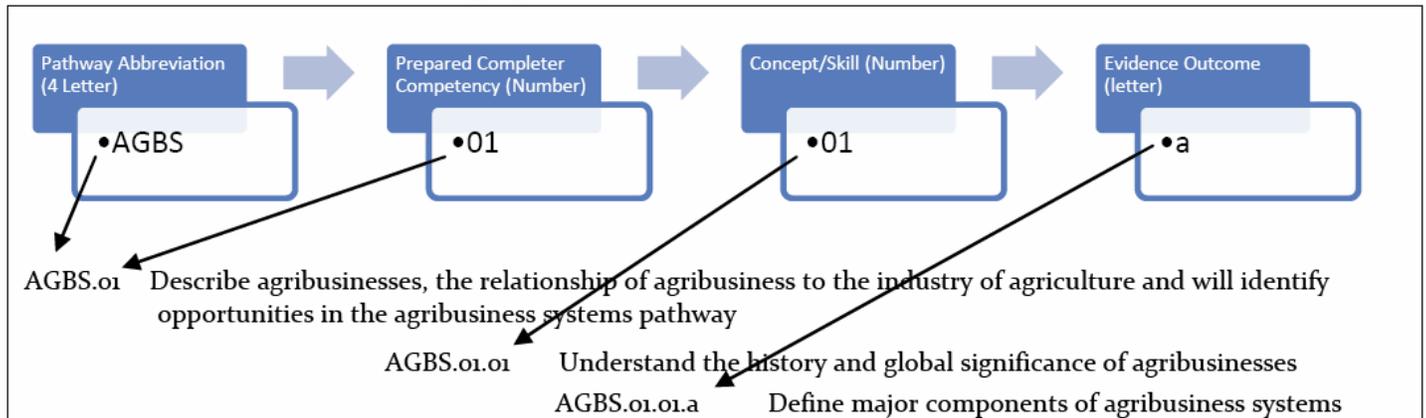
Concept/Skill

The articulation of the concepts and skills that indicates a student is making progress toward being a prepared completer. They answer the question: *What do students need to know and be able to do?*

Evidence Outcome

The indication that a student is meeting an expectation at the mastery level. *How do we know that a student can do it?*

CTE Standards Numbering System



Academic Alignments

Academic alignments, where appropriate in Math, Reading, Writing and Communication, Science and Social Studies (including Personal Financial Literacy) were defined by CTE and academic subject matter experts using the following criteria:

- It was a point where technical and academic content naturally collided;
- The student must demonstrate adequate proficiency with the academic standard to perform the technical skill; and
- It could be assessed for both academic and technical understanding.

Colorado's CTE programs have had academic alignments dating back to the early 1990's. While these alignments resulted in an increase in academic focus in CTE programs, the reality is that a true transformation in intentional teaching toward the academic standard was limited.

With these alignments comes a new expectation: If a CTE instructor is teaching a CTE concept that has an identified alignment, they must also be intentional about their instruction of the academic standard. CCCS will be providing professional development and instructional resources to assist with the successful implementation of this new expectation. In addition, this expanded expectation will require increased collaboration between CTE and academic instructors to transform teaching and learning throughout each school.

For each set of Cluster and Pathway standards, the academic alignments have been included and are separated by academic area. CCCS chose to align at the "Evidence Outcome" level. The aligned academic evidence outcome follows the CTE evidence outcome to which it has been aligned. For a sample, see Illustration A.

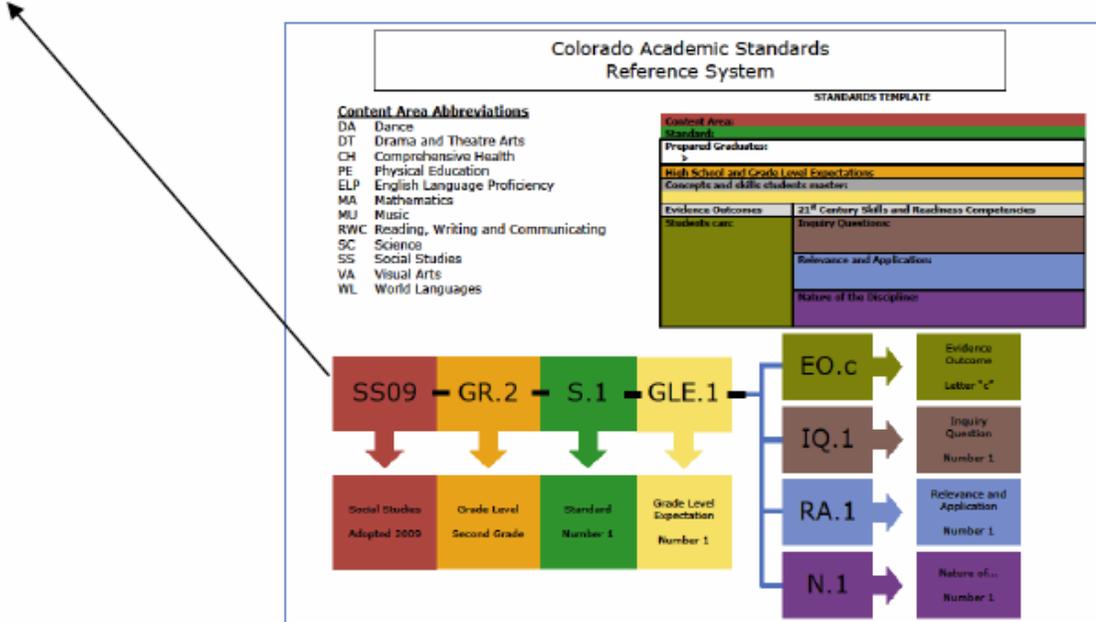
Illustration A

AGBS.01 The student will describe agribusinesses, the relationship of agribusiness to the industry of agriculture and will identify opportunities in the agribusiness systems pathway

AGBS.01.01 The student will understand the history and global significance of agribusinesses

AGBS.01.01.b Define the major trends and relationship of agribusiness to global agriculture production

MA10-GR.HS-S.1-GLE.2-EO.a Reason quantitatively and use units to solve problems (CCSS: N-Q)



The academic standard number used in the alignments matches the Colorado Department of Education standards numbering convention.

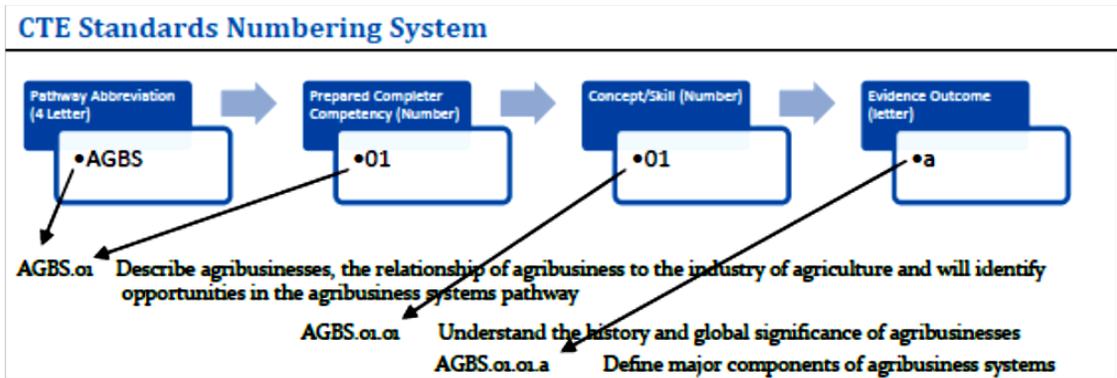
Career Pathway Abbreviations

Sector	Career Cluster	Career Pathway	Abbreviation
Agriculture, Natural Resources and Energy	Agriculture and Natural Resources Cluster	Agriculture and Natural Resources Cluster	AGCL
	Agriculture and Natural Resources Cluster	Agribusiness Systems Pathway	AGBS
	Agriculture and Natural Resources Cluster	Animal Science Pathway	ANSC
	Agriculture and Natural Resources Cluster	Food Products and Processing Systems Pathway	FPPS
	Agriculture and Natural Resources Cluster	Natural Resources and Environmental Systems Pathway	NRES
	Agriculture and Natural Resources Cluster	Plant Science Pathway	PLSC
	Agriculture and Natural Resources Cluster	Power Structural and Technical Systems Pathway	PSTS
	Energy Cluster	Energy Efficiency & Environmental Technology	EEET
	Energy Cluster	Renewable Energy Production	RNEP

	Energy Cluster	Electrical Energy Transmission & Distribution	ELTD
	Energy Cluster	Electromechanical Generation & Maintenance	EMGN
	Energy Cluster	Fossil Energy Extraction, Processing & Distribution	FSEP
Business, Marketing, Government and Public Administration	Finance Cluster	Accounting Pathway	FIAC
	Finance Cluster	Banking Services Pathway	FIBS
	Finance Cluster	Corporate Finance Pathway	FICF
	Finance Cluster	Insurance Pathway	FIIN
	Finance Cluster	Securities and Investments Pathway	FISI
	Government and Public Administration Cluster	Foreign Service Pathway	GPFS
	Government and Public Administration Cluster	Governance Pathway	GPAG
	Government and Public Administration Cluster	Planning Pathway	GPAP
	Government and Public Administration Cluster	Public Management and Administration Pathway	GPMA
	Government and Public Administration Cluster	Regulation Pathway	GPAR
Government and Public Administration Cluster	Revenue and Taxation Pathway	GPRT	
Management and Administration Cluster	Administrative Services Pathway	MAAS	
Management and Administration Cluster	Business Information Technology Pathway	MAIT	
Management and Administration Cluster	Corporate/General Management Pathway	MAGM	
Management and Administration Cluster	Human Resource Management Pathway	MAHR	
Management and Administration Cluster	Operations Management Pathway	MAOM	
Marketing Cluster	Marketing Communications Pathway	MKTC	
Marketing Cluster	Marketing Management Pathway	MKMN	
Marketing Cluster	Marketing Research Pathway	MKMR	
Marketing Cluster	Merchandising Pathway	MKME	
Marketing Cluster	Professional Sales/Sales Management Pathway	MKPS	
Postsecondary and Workforce Readiness	Academic & Career Success	ACE	ESSK
	Academic & Career Success	World of Work	WOWR
Health Science, Criminal Justice and Public Safety	Health Science Cluster	Therapeutic Services Pathway	THSR
	Law, Public Safety, Corrections, & Security	Emergency and Fire Management Services Pathway	EMFM
	Law, Public Safety, Corrections, & Security	Law Enforcement Services Pathway	LEAS

Hospitality, Human Services and Education (Family and Consumer Sciences)	Education & Training Cluster	Teaching and Training Pathway	TCTR
	Hospitality and Tourism Cluster	Restaurants and Food and Beverage Services Pathway (Culinary Arts)	CULA
	Hospitality and Tourism Cluster	Restaurants and Food and Beverage Services Pathway (Catering)	CATR
	Human Service Cluster	Early Childhood Development Pathway (Child & Adolescent Development)	CADV
	Human Service Cluster	Family and Community Services Pathway (Nutrition and Wellness)	NUWL
	Human Service Cluster	Family and Community Services Pathway (Food Science, Dietetics and Nutrition)	FSDN
	Human Service Cluster	Family and Community Services Pathway (Life Management)	LMGT
	Human Service Cluster	Family and Community Services Pathway (Relationships)	RELA
	Human Service Cluster	Personal Care Services Pathway (Cosmetology)	PCSP
Skilled Trades and Technical Sciences	Architecture and Construction Cluster	Construction Pathway	CONP
	Architecture and Construction Cluster	Design and Pre-Construction Pathway	DPCP
	Architecture and Construction Cluster	Maintenance and Operations Pathway	MOPP
	Manufacturing Cluster	Maintenance, Installation and Repair Pathway	MIRP
	Manufacturing Cluster	Manufacturing Production Pathway	MPRP
	Transportation, Distribution, and Logistics Cluster	Facility and Mobile Equipment Maintenance Pathway	FEMP
	Transportation, Distribution, and Logistics Cluster	Logistics, Planning and Management Services Pathway	LPMP
	Transportation, Distribution, and Logistics Cluster	Sales and Service Pathway	TSSP
	Transportation, Distribution, and Logistics Cluster	Transportation/Systems Infrastructure Pathway	TROP
	Transportation, Distribution, and Logistics Cluster	Warehousing and Distribution Center Operations Pathway	WDOP
STEM, Arts, Design and IT	Arts, A/V Technology and Communication Cluster	ARTS CORE CLUSTER	ARCO
	Arts, A/V Technology and Communication Cluster	Audio/Video Technology and Film Pathway	AVTF
	Arts, A/V Technology and Communication Cluster	Journalism and Broadcasting Pathway	COJB
	Arts, A/V Technology and Communication Cluster	Performing Arts Pathway-Dance, Music, Theatre & Playwriting	ARPA
	Arts, A/V Technology and Communication Cluster	Performing Arts Pathway-Technical Theatre Design & Production	ARTT

	Arts, A/V Technology and Communication Cluster	Printing/Publishing Pathway	COPP
	Arts, A/V Technology and Communication Cluster	Visual and Design Arts Pathway	ARVD
	Arts, A/V Technology and Communication Cluster	Visual and Design Arts Pathway (Interior Design)	INTD
	Arts, A/V Technology and Communication Cluster	Visual and Design Arts Pathway (Fashion Design and Merchandising)	FDAM
	Information Technology Cluster	IT CORE CLUSTER	ITCO
	Information Technology Cluster	Interactive Media Pathway	ITIM
	Information Technology Cluster	Network Systems Pathway & Telecommunications	ITNT
	Information Technology Cluster	Programming and Software Engineering Pathway	ITPR
	STEM Cluster	STEM Cluster Standards	STCO



Woodworking Standards

Technical Skills: Use the technical knowledge and skills required to pursue the targeted careers for all pathways in the career cluster, including knowledge of design, operation, and maintenance of technological systems critical to the career cluster.

- DPCP.01.01** Read, interpret, and use technical drawings, documents, and specifications to plan a project.
- DPCP.01.01.a** Interpret drawings used in project planning.
 - DPCP.01.01.b** Describe written standards and those specifications that apply.
 - DPCP.01.01.c** Recognize how specifications and standards are arranged for proper access.
 - DPCP.01.01.d** Use architect's plan, manufacturer's illustrations and other materials to communicate specific data and visualize proposed work.
- DPCP.01.02** Use and maintain appropriate tools, machinery, equipment, and resources to accomplish project goals.
- DPCP.01.02.a** Select tools, machinery, equipment and resources that match requirements of the job.
 - DPCP.01.02.b** Identify sources of information concerning state of the art tools, equipment, materials, technologies and methodologies.
 - DPCP.01.02.c** Demonstrate use of tools, machinery, equipment and other resources commonly used in design and construction.
- DPCP.01.03** Develop technical drawings drafted by hand and computer generated plans to design structures.
- DPCP.01.03.a** Identify client requirements.
 - DPCP.01.03.b** Use communication skills and strategies to work effectively with people. (including clients, team members, and others).

- DPCP.01.03.c Draw and sketch by hand to communicate ideas effectively.
- DPCP.01.03.d Learn to read and produce technical drawings, understanding the significance of each line in a drawing.
- DPCP.01.04 Employ appropriate representational media to communicate concepts and design.
 - DPCP.01.04.a Convey graphic information using multi dimensional drawings.
 - DPCP.01.04.b Build models using referenced drawings and sketches.
 - DPCP.01.04.c Utilize computer technology when communicating concepts and designs.
- DPCP.01.05 Employ principles, conventions, standards, applications and restrictions pertaining to the manufacture and use of construction materials, components and assemblies to incorporate into project design.
 - DPCP.01.05.a Select building materials and assemblies upon evaluation that meet project specifications.
 - DPCP.01.05.b Use appropriate combinations of building materials and components that satisfy the requirements of building programs.
- DPCP.01.06 Apply basic organizational, spatial, structural and constructional principles to the design of interior and exterior space so that design plans are effective.
 - DPCP.01.06.a Develop design alternatives that address a given problem.

Woodworking Glossary

- **Adhesive**

A substance that is capable of bonding material together by surface attachment.

- **Air Dried**

Lumber stacked and stored so that it is dried naturally by the exposure to air.

- **Aliphatic Resin**

The adhesive ingredient in yellow wood glue such as Elmer's Carpenter's Glue.

- **Allen Head**

A screw head with a recess requiring a hexagon shaped key, used mainly on machinery. These may be in metric or SAE sizes.

- **Annual Growth Ring**

The layer of growth to the circumference of a tree in a season, easily recognizable in many woods by the difference in cells formed during the early and late parts of the season.

- **Applied Carving**

Background which is worked separately and then applied, rather than being worked in place.

- **Apron**

A frame around the base of a table to which the top and legs are fastened.

- **Arbor**

A stub shaft on a machine to turn blades or other cutting wheels.

- **ATB**

Alternate Top Bevel, where the teeth on a saw blade are angled in alternating opposite directions.

- **Awl**

Pointed instrument that looks like an ice pick, useful for marking positions when laying out a project.

- **Back Saw**

A handsaw with a rectangular blade with a reinforcing rib along the back for stability, types include razor saws, veneer saws, dovetail saws, and miter box saws.

- **Band Clamp**

Also known as a web clamp, a flexible strap connected to a ratchet device to clamp irregular shaped objects.

- **Band Saw**

A saw with a looped blade running around two or three wheels. Used with narrow blades for cutting freehand shapes, and with wider blades and a guide for resawing material.

- **Bark**

The outer protective layer of a tree.

- **Barrel Hinge**

A type of hinge for a box and its lid, consisting of two small cylinders that are recessed into holes drilled into those components in order to make the connection nearly invisible.

- **Bead**

A semicircular piece of moulding.

- **Beading Tool**

A tool to create one or more beads, may be referred to as a scratch stock.

- **Bench Dogs**

Pegs which go into holes in the top of a workbench that work with a vise to hold wide material.

- **Birds-eye Figure**

A figure on wood, usually maple and a few other species, composed of many small rounded areas resembling a birds eye.

- **Biscuit Joint**

An oval shaped disk that when inserted in a slot with glue swells to form a tight bond. A special tool is required to cut the slot.

- **Blade Stabilizers**

Metal disks approx. 3 1/2" in diameter that go on each side of a saw blade to minimize flexing and rim vibration.

- **Block Plane**

A small plane designed for cutting across end grain.

- **Board Foot**

Measurement of lumber equal to one square foot an inch thick or 144 cubic inches. Multiply width in inches X length in inches X thickness in inches, divide by 144 for total board feet.

- **Bookmatch**

Successive layers of veneer are arranged side by side to resemble a mirror image of each other.

- **Bow**

A warp along the length of a board.

- **Box Joint**

Square shaped finger joints used to join pieces at right angles.

- **Brace and Bit**

This is a hand drill with a crank shaped handle with a flat knob on the end, special auger bits with a square tapered shank fit into a two jaw chuck. This is an ancient system but still works well when jobs are done by hand.

- **Brad Point Bit**

Similar to twist drill but with a flat bottom and sharp point.

- **Butt Joint**

A joint where the edges of two boards are against each other.

- **Branding Iron**

A tool for burning a name or logo on to wood, electric or flame heated.

- **Calliper**

An instrument with two legs, one of them sliding, used to measure the thickness of objects.

- **Carbide Tipped**

Extremely hard steel pieces with sharp cutting edges fastened to cutting tools such as saw blades, and router bits.

- **Card Scraper**

A flat blade with a burred edge used for smoothing.

- **Carcass**

The case or box of a piece of furniture, it is the rough framework and structure of the item.

- **Carpenter's Pencil**

Rectangular shaped pencil, about 1/4" X 1/2", with a 1/16" X 3/16" lead.

- **Chamfer**

To bevel the corner of a board at a 45° angle.

- **Check**

A defect caused by uneven shrinking of the wood during drying, a checked board has splits which develop lengthwise across the growth rings.

- **Chuck**

An attachment to hold work or a tool in a machine, lathe chucks and drill chucks are examples.

- **Closed-Coat**

When the grit on sandpaper covers 100% of the backing paper it is referred to as closed-coat. This is used for sanding hardwood and fine finishing.

- **Collet**

A type of chuck that accepts a fixed shaft size, commonly used on routers.

- **Combination Square**

A square that measures both 90 degree and 45 degree angles.

- **Common Grade Lumber**

Lumber with obvious defects, used in construction framing.

- **Compass**

An instrument for drawing circles consisting of two legs joined at a pivot hinge.

- **Compound Miter**

An angled cut to both the edge and face of a board, most common use is with crown moulding.

- **Countersink**

A special drill bit that allows a screw head to sit flush with the face of the material it is driven into.

- **Cross Cut**

A cut which runs across the board perpendicular to the grain.

- **Cupping**

This is when the edges of a board bend with the grain away from the center to form a concave shape.

- **Curl**

A term to describe what happens to wood as it grows. Curly wood looks like sand on the beach or river bottom with repeated ripples in the grain. The grain goes up and down causing the unusual look in the wood. Also called "tiger" grain or "fiddleback".

- **Dado**

A groove in the face of a board, usually to accept another board at 90 degrees as in shelf uprights.

- **Deciduous**

Trees that shed their foliage annually, commonly referred to as hardwood.

- **Dial Gauge**

This measuring instrument has a circular graduated face and a pin which activates a rotating pointer to measure variation in movement in thousandths of an inch.

- **Dovetail Joint**

A joint where the fingers are shaped like a doves tail, used to join pieces at 90 degrees.

- **Dowel**

A wood pin used to align and hold two adjoining pieces.

- **Dowel Center**

Metal buttons that go into a predrilled dowel hole to mark the position for drilling the second piece.

- **Dressed Size**

The dimension of lumber after being surfaced by a planer.

- **Epoxy Glue**

A two part glue that practically glues anything to anything, including metal to metal.

- **European Hinge**

A hidden style hinge fastened to the door with a cup hole.

- **Face**

When a board has one side that is wider than the other, the wider side is referred to as the face (as opposed to the edge). May also refer to the side that is to be visible in the finished item.

- **Face Frame**

A flat frame attached to the front of a cabinet, usually to conceal the exposed edges of the plywood panels used to build the carcass.

- **Featherboard**

Pieces of wood with fingers used to hold material against a fence and or down against the table on power tools such as a table saw.

- **Fence**

A straight guide on a tool such as a table saw or router table to keep the material a set parallel distance from the blade or cutter.

- **Fiddleback**

Describes wood, usually maple or mahogany but can be any wood, with Curl or Tiger grain material with fine grain used in the manufacture of violins, hence the name.

- **Figure**

A naturally occurring decorative patterns in wood, usually due to medullary rays.

- **Filler**

A substance that is used to fill pores and irregularities on the surface of material to decrease the porosity before applying a finishing coat.

- **Finger Joint**

Long tapered fingers used to join material lengthwise, often used in manufacturing moulding to join short lengths.

- **Flat-sawn**

A method of sawing lumber where the log is cut tangential to the growth rings, also called plain-sawn.

- **Flush**

When two adjoining surfaces are perfectly even with one another. See Proud and Shy.

- **Fret Saw**

A saw with a very fine toothed blade used for delicate cuts in thin material.

- **Forstner Bit**

These have a center spur and circular rims with cutting teeth that cut clean flat bottomed holes.

- **Good One Side**

Plywood with one side patched solid and sanded, the other side will be rough and have open knot holes.

- **Gouge**

A chisel like tool with a curved cutting edge.

- **Grain**

The appearance, size and direction of the alignment of the fibres of the wood.

- **Green Lumber**

Freshly cut lumber that has not been dried.

- **Grit**

The grade of particles in sandpaper or sharpening stones which determines the aggressiveness of the cut.

- **Gum Pocket**

An excessive local accumulation of resin or gum in the wood.

- **Hand Plane**

A tool to smooth and true wood surfaces, consisting of a blade fastened in frame at an angle with hand grips to slide it along the board.

- **Hardboard**

A manufactured board similar to particle board but with a much smoother surface, commonly referred to as

Masonite, a popular brand.

- **Hardwood**

Lumber from the group of trees with broad leaves, this has no reference to the actual hardness of the wood.

- **Heartwood**

The wood from the pith extending to the sapwood, darker in colour due to gum, resins, and other materials which make it less susceptible to rot.

- **Hinge**

A mechanical device that connects two solid objects, allowing rotation between them.

- **Hold Down**

A type of iron clamp, fitting into a hole in a bench, tightened or loosened by hammer taps.

- **Hollow Grinding**

A concave bevel on a chisel, gouge, or knife.

- **Horned Dado**

This is caused by the outside blades of a stacked dado head cutting deeper than the chipper blades.

- **Infeed**

The side of a power tool where a board enters.

- **Janka Test**

A hardness test, usually for wood flooring, rating is pounds of pressure required to press a steel ball .444 inches in diameter one half way into the wood.

- **Jig**

A device used to hold work or act as a guide in manufacturing or assembly.

- **Jig Saw**

A power tool that cuts by moving a blade up and down as it is guided through the cut.

- **Joiner**

A joiner is a type of a carpenter that cuts and fits joints in wood.

- **Joint**

The point at which two or more peices of wood are joined together.

- **Jointer**

A machine to true the edges of boards usually in preparation for gluing.

- **Kerf**

The width of a saw cut, determined by the thickness and set of the blade.

- **Kick Back**

This is when a workpiece is thrown back by a cutter, prevented using anti-kick back devices on power tools such as table saws.

- **Kiln**

A heated chamber for drying lumber where the air flow, heat and relative humidity can be controlled.

- **Kiln Dried**

Lumber dried in a kiln.

- **Knockdown**

A furniture design that allows it to be easily disassembled by the use of special hardware or joinery.

- **Knot**

The portion of a branch or limb that is embedded in the wood.

- **Laminate**

The product of bonding layers together as in beams or plywood.

- **Linseed Oil**

Is an amber-colored, fatty oil extracted from the cotyledon and inner coats of the linseed. The raw oil extracted from the seeds by hydraulic pressure is pale in color and practically without taste or odor. When boiled or extracted by application of heat and pressure, it is darker and has a bitter taste and an unpleasant odor.

- **MDF**

Medium density fiberboard, very stable underlay for counter tops etc. to be covered with laminate.

- **Milk Paint**

A paint made with milk solids, chemically akin to casein glue, often the original finish on antique furniture.

- **Mission Style**

Mission Style is a design that emphasizes simple horizontal and vertical lines and flat panels that accentuate the grain of the wood (usually oak). Gustav Stickley produced Arts and Crafts furniture often referred to as being in the Mission Style.

- **Miter Box**

An apparatus to guide a saw to make miter joints.

- **Miter Gauge**

A guide with an adjustable head that fits in a slot and slides across a power tool table to cut material at an angle.

- **Miter Joint**

Pieces are cut on an angle to make a joint.

- **Molding (Moulding)**

A strip of material with a profile cut on the facing edges, used for trimming.

- **Morse Taper**

The standard for the taper on the shanks of drill chucks, drill bits and lathe centers. The different size tapers are designated by numbers, #1 being the smallest, #3 is common for drill chucks.

- **Mortise**

A cavity or hole cut to allow a tenon to pass through to make a joint.

- **Muntin**

A strip of wood or metal separating and holding panes of glass in a window or door.

- **Nominal Size**

The rough sawn dimension a finished piece of material is referred to, for example what is referred to as a 2 X 4 is actually 1 1/2" X 3 1/2".

- **Ogee**

An S shape that is made by making one cut to produce two identical pieces.

- **Open-Coat**

Grit covering 70% or less of the surface backing of sandpaper is referred to as open-coat. This is used on softer wood or paint removal because the chips will not clog the sandpaper as easily.

- **Outfeed**

The side of a power tool where the board exits.

- **Particle Board**

A generic term for material manufactured from wood particles and bound together with glue.

- **Phillips Head**

A type of screw head requiring a driver in the shape of +.

- **Pilot Bit**

A router bit with a bearing at the end of the cutter that rides against the edge the material or a template to guide the cut.

- **Pitch**

The number of teeth on a saw blade per inch.

- **Pith**

The soft core in the center of a log.

- **Plain Sawn**

Boards are sliced from the log with the cut tangent to the growth rings.

- **Plane**

Also referred to as a bench plane, a tool for smoothing and flattening boards

- **Plumb**

A term used to describe something that is perfectly perpendicular to the earth relative to gravity. A plumb bob on the end of a string will give you a line that is plumb or straight up and down.

- **Plunge Router**

A router in which the motor can slide down into the base to insert the bit in the material.

- **Plywood**

A glued wood panel usually 4' X 8' made up of thin layers of wood laid at right angles to each other.

- **Pocket Hole**

A hole drilled on an angle with a step bit to make a butt joint. The larger hole is for the screw head to enter, and the smaller hole is for the shank.

- **Primary Wood**

This is the wood that is on the main or primary surfaces of a piece of furniture. These are the premium or money woods of the cabinet. Woods of lesser value, that are on the sides or not seen is called Secondary Wood.

- **Proud**

To just protrude above the surface so it is sticking out a bit.

- **Quarter Sawn**

Boards which have been cut so that the wide surfaces are approximately 90 degrees to the annual growth rings, this type of cut reduces cupping of the boards.

- **Rabbet**

A groove in the edge or face of a board, usually a rabbet is referred to on the edge, a dado is referred to on the face.

- **Rack and Pinion**

A system using two gears, one round, one flat to move a part, an example would be a drill press, a round gear connected to a handle works with a flat gear on the column to raise and lower the table.

- **Radial Arm Saw**

Circular saw that runs on an overhead track, the track mechanism swings in relation to the table to make miter cuts.

- **Radial Drill Press**

A drill press with the head mounted on a tube which is laterally and vertically adjustable, this type gives greater throat clearance but is not as solid as a conventional drill press so run out can be a problem.

- **Rail**

A horizontal member between chair legs or between styles or vertical members of a door frame.

- **Raised Grain**

The roughened condition of sanded wood when the hard latewood rises above the soft earlywood when moisture is applied.

- **Rake**

The angle at which the leading edge of the teeth are cut on a saw blade.

- **Rasp**

A long and flat steel tool with raised teeth for shaping wood, some rounded on one side.

- **Rip Cut**

A cut which runs through the length of a board parallel to the grain.

- **Robertson Head**

A screw head requiring a driver with a square tip, also referred to as a socket head.

- **Rotary Planer**

A power hand tool with rotating blades that smooths the surface of material.

- **Rough Lumber**

Boards which are sawn, edged and trimmed but not run through a planer.

- **Router**

Basically a high speed motor with handles and an adjustable base with a collet that accepts profile bits to cut dados, rabbets, or shapes.

- **Sandpaper**

A form of paper where an abrasive material has been fixed to its surface.

- **Sapwood**

The wood lighter coloured wood on the outside of a log, this wood is more susceptible to rot than heartwood.

- **Sawhorse**

A trestle usually used in pairs to hold wood for cutting.

- **Seasoning**

The time it takes for wood to dry. Wood air-dries and takes one year for every inch of thickness. It refers to a year, a season.

- **Secondary Wood**

This is the material used in furniture that is not seen or on the sides or back of an object. These are the materials that make up the drawer sides, dust panels, backs and other hidden parts.

- **Set**

The teeth are offset on each side of the blade to allow clearance for the thickness of the blade.

- **Shaper**

A machine with an interchangeable rotary cutter head to cut profile shapes on the edge or face of material.

- **Shellac**

Resin flakes dissolved in alcohol used as a finish for wood.

- **Shy**

A term for an adjoining object being below the object it is next to. This means a little below the surface. See Proud and Flush.

- **Snipe**

The tendency to gouge the trailing end of material when running it through a joiner.

- **Softwood**

Wood manufactured from trees with needles or scalelike leaves, has no reference to actual hardness of the wood.

- **Spade Bit**

These are an inexpensive bit, suitable for general use, they get their name from their shape.

- **Splating**

A change in the texture, strength and color of wood caused by colonies of fungus growing within the dead wood.

- **Spline**

A thin strip of wood fitted between two grooves to make a joint.

- **Spokeshave**

Used to shape curved surfaces, consists of a blade fastened between two handles, blades come in straight,

concave and convex curves.

- **Square**

An instrument used to lay out or test right angles, with two arms at 90 degrees to each other, the longer and wider arm is the blade, the shorter narrower arm is the tongue.

- **Stacked Dado Head**

This style of dado cutter has two outside saw blades, the width of the dado is set using a combination of chipper blades and shims between them.

- **Stickers**

Strips placed between layers of lumber for drying.

- **Story Stick**

A "Story Stick" or "Story Pole" is a scrap strip of wood used to record dimensions for a project on site, then the dimensions are used in the shop to build the project. This method reduces the chance of error due to misreading numbers etc.

- **SWMBO**

"She Who Must Be Obeyed"

- **Style or Stile**

A vertical member of a door framework attached to the horizontal rails.

- **T - slot**

A slot milled in the shape of an upside down T to hold special bolts for clamps or jigs.

- **Table Saw**

A circular saw mounted under a table with height and angle adjustments for the blade.

- **Tack Cloth or Tack Rag**

A cloth permeated with a sticky substance to wipe up the dust from sanding when finishing a project.

- **Taper Cut**

A cut where the width decreases from one end to the other, these are usually done on a table saw with a jig.

- **Tearout**

The tendency to splinter the trailing edge of material when cutting across the grain.

- **Template**

A pattern to guide the marking or cutting of a shape, often a router is used with a piloted bit.

- **Tenon**

A projection made by cutting away the wood around it to insert into a mortise to make a joint.

- **Thickness Planer**

A power-fed rotary planer that trims the surface of a board to a certain thickness.

- **Toggle Clamp**

Clamps which can be attached to a base or table to hold work.

- **Tongue and Groove**

A joinery method where a board has a protruding tongue on one edge and a groove on the other, the tongue of one board fits into the groove of the next.

- **Torx Head**

A screw head requiring a driver in the shape of a star.

- **Try Square**

A square with a steel tongue in a wooden handle.

- **Turning**

An ornamental or functional part formed by rotating it on a lathe and shaping it with a chisel pointed tool.

- **Twist**

A longitudinal twisting of wood due to uneven seasoning or grain.

- **Varnish**

A liquid preparation that dries to a hard lustrous coating.

- **Vee Joint**

Tongue and groove boards with their top corners beveled so when the two boards come together a V is formed.

- **Veneer**

A thin layer of expensive wood bonded to a thicker piece of cheaper plywood to give the appearance of the

expensive wood but at a reduced price.

- **Warp**

To bend or twist to the pull of the grain in the wood.

- **Winding Sticks**

Two narrow, thin, pieces of material whose edges are perfectly parallel which are placed on each end of a workpiece. The worker then sights across the top of them to determine if the piece is flat.

- **Witness Marks**

These are marks put on boards or pieces to keep them in order during gluing, joining and assembly.

- **Wobbly Dado Head**

A single blade dado cutter where the blade is adjusted to wobble the width of the cut.

- **X-Acto Knife**

This is a razor like blade in a handle, the blades come in various shapes, very handy for fine work.

- **Yardstick**

A wooden rule 36" long.

- **Zero Clearance Insert**

A blank insert for a table saw, the blade is raised up through it to create a kerf close to the sides of the blade.