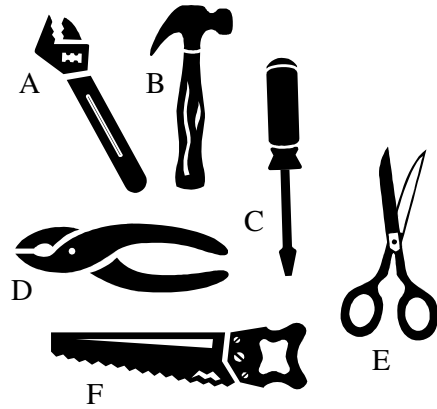


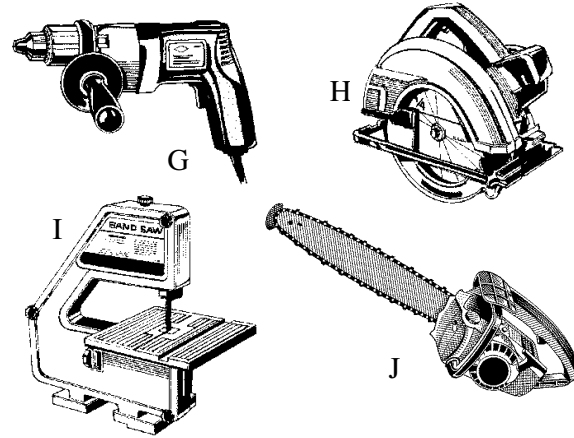
Tools

What is your hobby? What do you do in your free time? Do you have a workshop?

Manual tools



Power tools

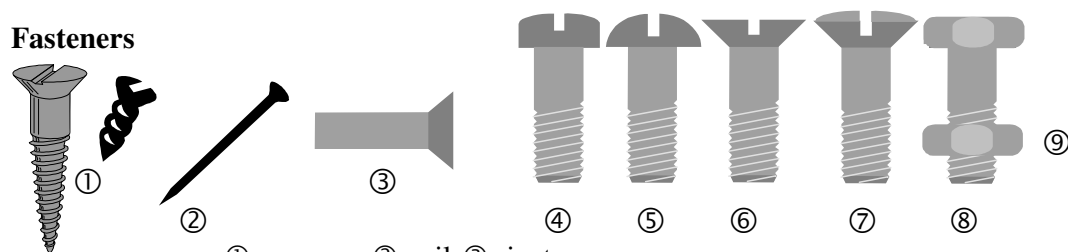


A – adjustable spanner (wrench) B – hammer C – screwdriver D – pliers/tongs
 E – scissors F – handsaw G – electric drill H – circular saw I – jigsaw
 J – chain-saw

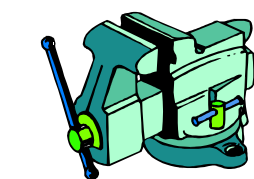
Basic tool types

HAMMER	PLIERS	FILE	SAW	SCREWDRIVER
ball-peen	needle-nose	flat	hacksaw	flat tip
carpenter's	combination	triangular	hand miter saw	Phillips tip
bricklayer's	mole wrench	round	coping saw	square-headed tip
mallet	multipurpose	sandpaper	rip saw	tester screwdriver

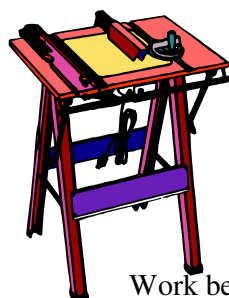
Fasteners



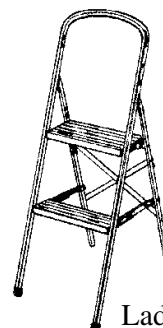
① screw ② nail ③ rivet
 Bolts with head: ④ cylinder head ⑤ round head ⑥ countersunk ⑦ raised head
 ⑧ hexagon head ⑨ hexagon nut



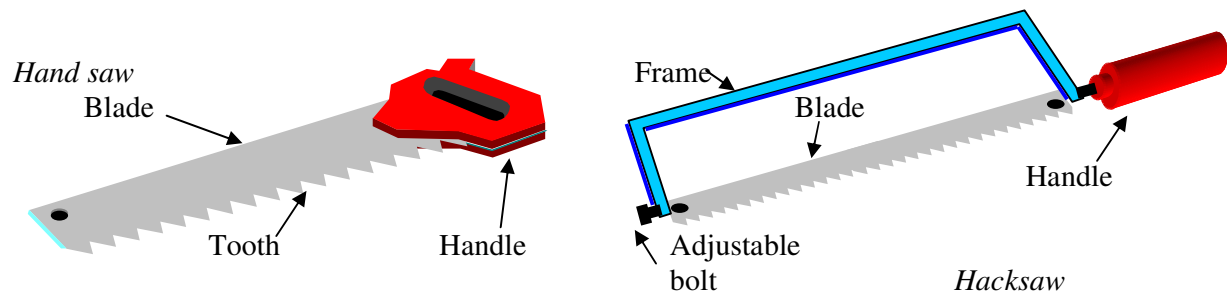
Vice



Work bench

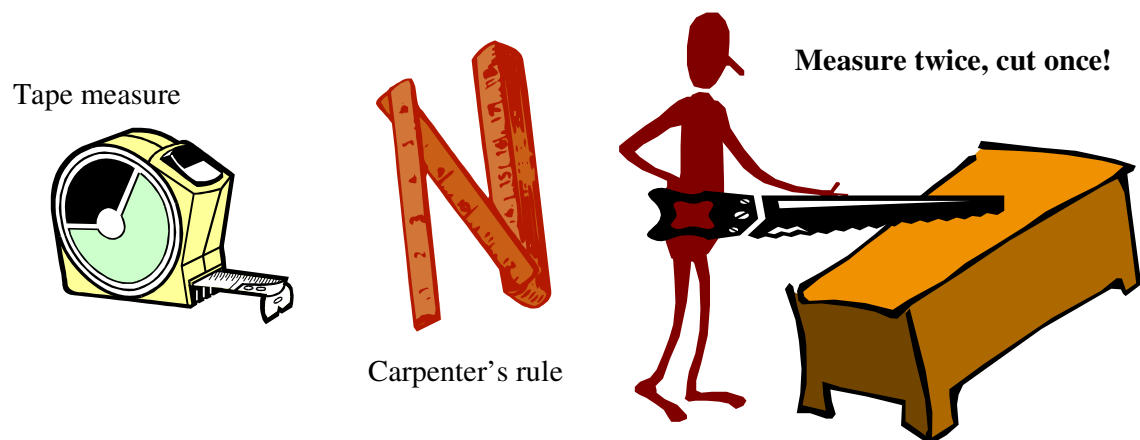


Ladder



Warning:

Please use caution when using power tools. Failure to obey safety rules can result in personal injury.



Measuring material

Products and their parts have to be measured before, during and after the manufacturing process to comply with the prescribed measurement dimensions. Various measuring tools are used to measure things, such as carpenter's rule, measure tape, calliper and micrometer. These measurement tools must be calibrated to be precise. Incorrect measurement methods or uncalibrated measurement tools yield defective products.

To unify and standardize measurement units, an agreement was reached and an international system of measurements SI was put in place. In industrial and mechanical engineering the metre is used to measure distance. In some countries (ex. United Kingdom, USA,...) the imperial units are used, such as inch ($1'' = 25,4 \text{ mm}$).

Slide rule's precision is to the nearest 0,1mm while micrometer can measure to the nearest 0,01 mm.

My first workshop

Shop-assistant: How can I help you?

Joshua: I would like to set up a small workshop at home. What tools would you recommend?

Shop-assistant: What tools do you already have?

Joshua: None, I am starting from scratch.

Shop-assistant: As far as hand tools, you should get a set of screwdrivers including with both flat and Phillips heads, pliers and a wrench, set of files, hammer, hacksaw and a handsaw.

Joshua: Do you sell a universal saw with exchangeable blades for different types of material?

Shop-assistant: We sell a frame saw with blades suited for wood, metal and concrete.

Joshua: I would also like a electric drill.

Shop-assistant: What kind of drill bits will you need for the drill?

Joshua: Wood drill bits with diameter of 4; 6; 8 and 10 mm, metal drill bits of 3; 4; 5 and 6 mm and concrete drill bits of 8 a 10 mm.

Shop-assistant: Would you also like to buy some fasteners such as screws?

Joshua: I would like that variety set of screws and nails you have in your window display.

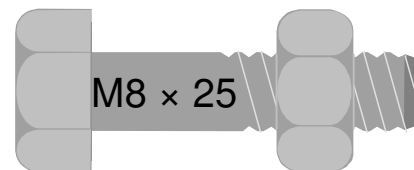
Thread types

Metric – Whitworth – power screw – Edison

M – G – Tr – E

8 mm diameter

25 mm length



Metric thread is mostly used in mechanical engineering.

Unit of measurement is millimeter.

Whitworth's thread is measured in inches. It is used in plumbing.

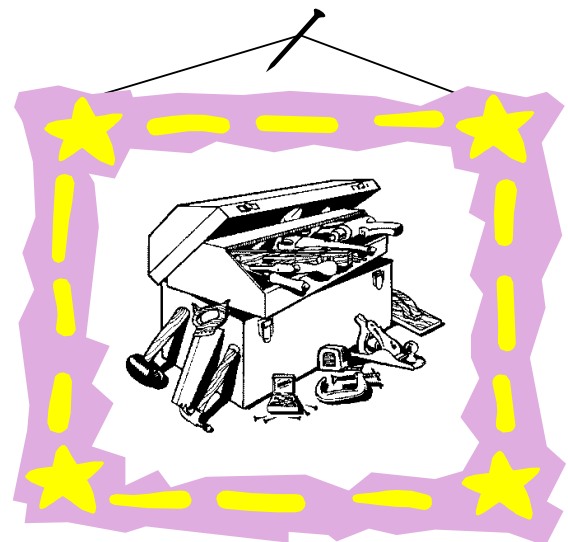
Power screw threads are used to transfer radial or linear motion.

Edison's (oval) thread is used for example in light bulbs.

Prices of electrical tools used in a workshop.

The Prices of hobby tools are cheaper than the prices of professional tools.

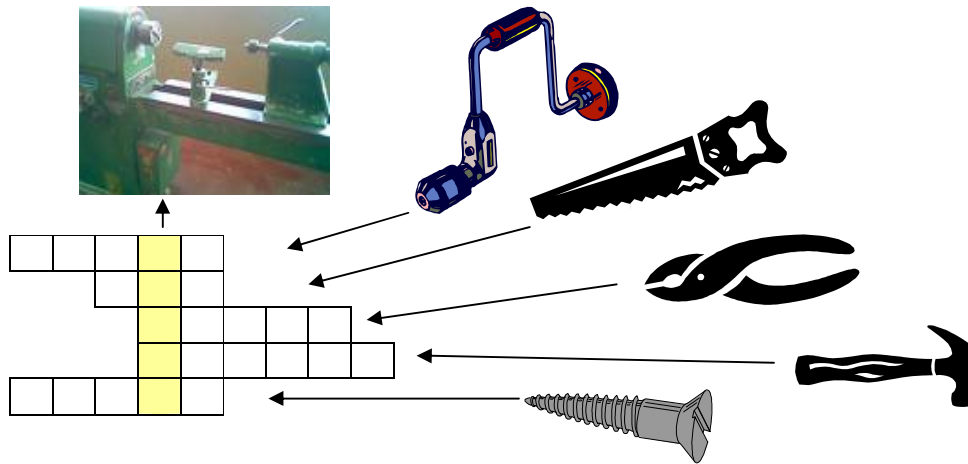
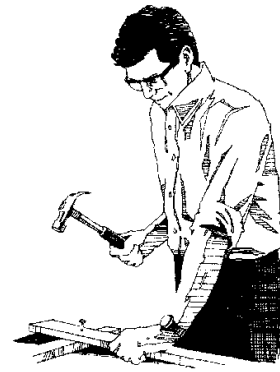
Electric drill	17 €
Circular saw	65 €
Jigsaw	16 €
Chain saw	95 €
Sander	25 €
Angle grinder	33 €
Random orbit sander	25 €
Plane	55 €
Heat gun	50 €
Soldering gun	5 €



Still life of Tools box

Do it yourself

The old picture frame is beautiful but broken. We will put it on our work desk to examine it and fix it. The wooden planks forming the frame can be reinforced using nails. To hang the picture on the wall, we will mount a hook to the back of the frame. We will apply paint or lacquer to the frame. After letting the paint or lacquer dry, we will put a picture into the frame and hang it on the wall.



VOCABULARY

claw hammer – tesárske kladivo s pazúrom
carpenter's hammer – tesárske kladivo
ball-peen hammer – zámočnické kladivo
mallet – drevené kladivo
screwdriver – skrutkovač
flat tip screwdriver – plochý skrutkovač
cross-headed tip (phillips) screwdriver –
krížový skrutkovač
square-headed screwdriver – imbusový
skrutkovač
tester screwdriver – napäťová skúšačka
v skrutkovačom vyhotovení
pliers – kliešte
tongs – kliešte
needle-nose pliers – ploché kliešte
cutter pliers – štípacie kliešte
combination pliers – kombinované kliešte
multipurpose tool – univerzálne kliešte
slip joint pliers – kliešte s posuvným čapom
water pumps pliers – nastaviteľné (posuvné)

nail – klinec
common nail – stavebný klinec
finishing nail – kolársky klinec
spiral nail – točený klinec
tack – obuvnícky/čalunický klinec
cut nail – tesársky klinec
screw – skrutka (do dreva)
countersunk head screw – skrutka so
zapustenou hlavou
round head screw – skrutka s pologuľovou
hlavou
cylinder head screw – skrutka s valcovou
hlavou
one way head screw – skrutka s bezpeč-
nostnou hlavou
cross head screw – skrutka s krížovou hlavou
raised head screw – skrutka so šošovkovou
hlavou
bolt – skrutka (s maticou)
nut – matica

kliešte
adjustable spanner (or wrench) – francúzsky
kľúč
mole wrench – nastaviteľné pákové kliešte
open ended spanner – vidlicový kľúč
ring spanner – prstencový (očkový) kľúč
ratchet socket wrench – rapkáčový kľúč
sawing tools – nástroje na pílenie
handsaw – ručná píla
hacksaw – rámová píla (na železo)
hand mitre saw – ručná uhlová píla
coping saw – lupienková píla
jigsaw – priamočiara píla
circular saw – kotúčová píla
electric drill – elektrická vŕtačka
cordless drill – akumulátorová vŕtačka
chuck key – upínací kľúč
twist drill – skrutkovicový vrták
masonry drill – frézovací vrták
spirit level – vodováha
tape measure – meracie pásmo
folding rule (carpenter's rule) – skladací
meter
soldering iron – spájkovačka
soldering gun – pištoľová spájkovačka
heat gun – teplomet
lathe – sústruh

thread – závit
hexagon nut – šesťhranná matica
wing nut – krídlová matica
washers – podložky
flat washer – plochá podložka
spring washer – perová podložka
blade – pílový list (aj čepel)
circular saw blade – pílový kotúč
file – pilník
sandpaper – brúsny papier
wood chisel – dláto na drevo
scissors/sheers – nožnice/veľké nožnice
paintbrush – maliarsky štetec

plane – hoblík
grinder – brúska
angle grinder – rozbrusovačka
random orbit sander (or just sander) –
vibračná brúska
vice – zverák
G-clamp – zvierka
work bench – pracovný stôl
tool box – skrinka na náradie
stepladder – rozkladací rebrík
platform ladder – plošinový rebrík
extension ladder – vysúvací rebrík
calliper – posúvne meradlo