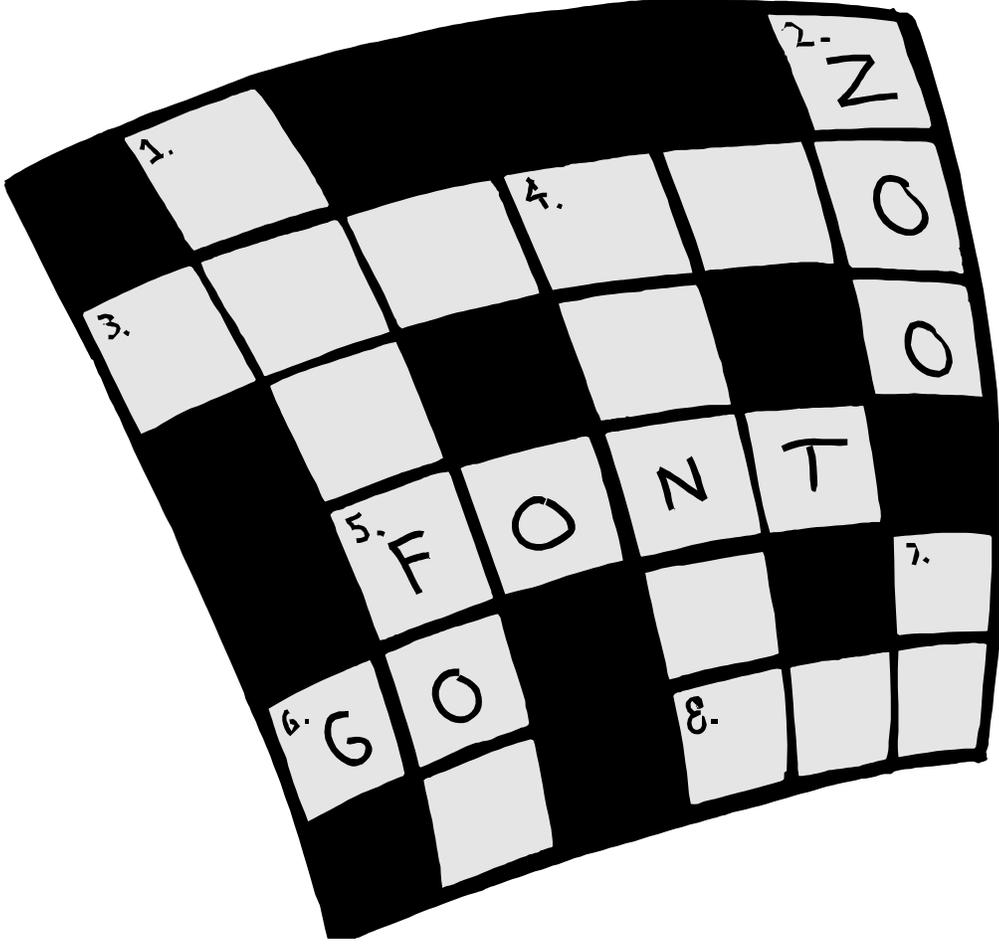
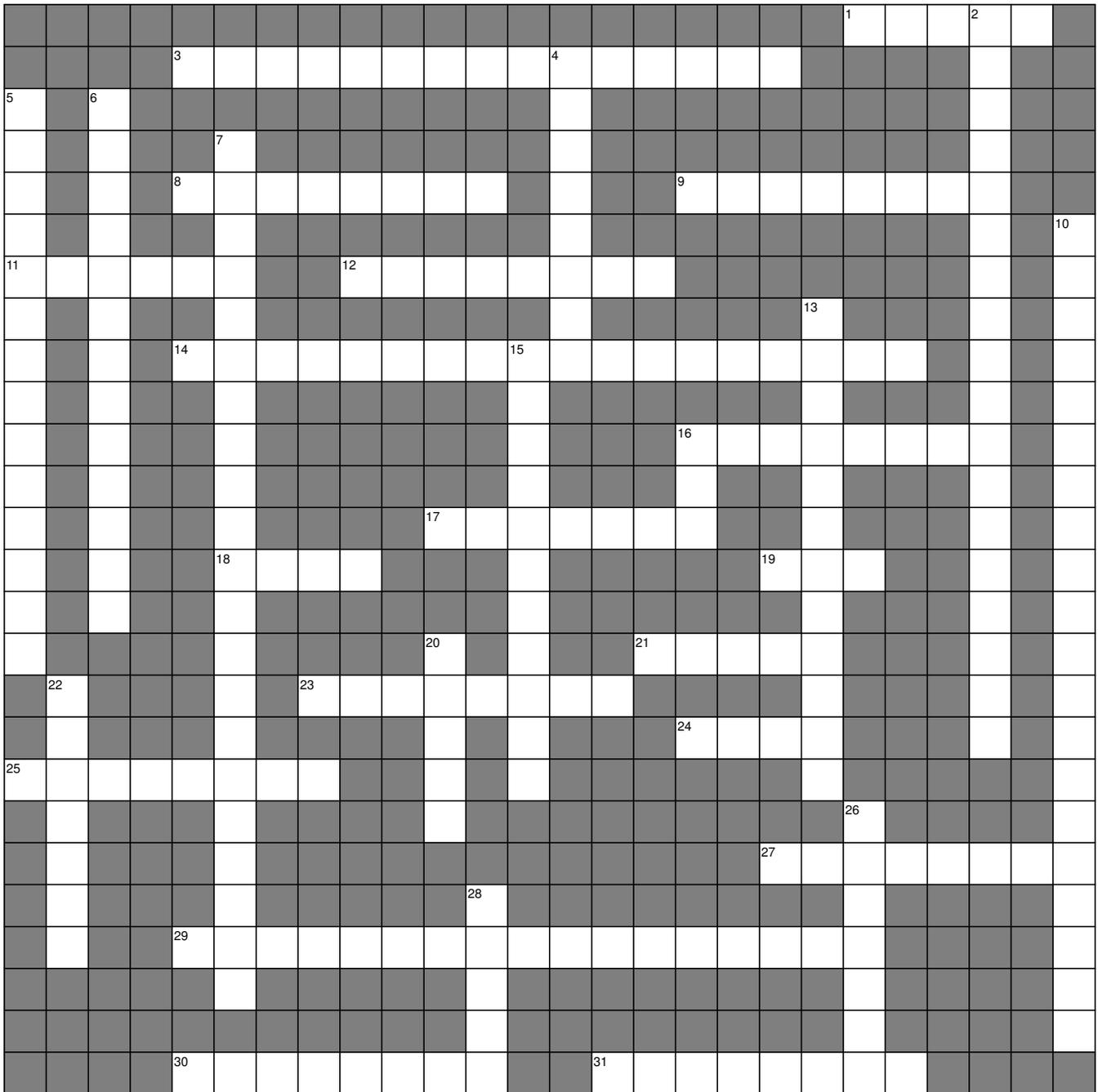


Crosswords Booklet



Computers



Computers

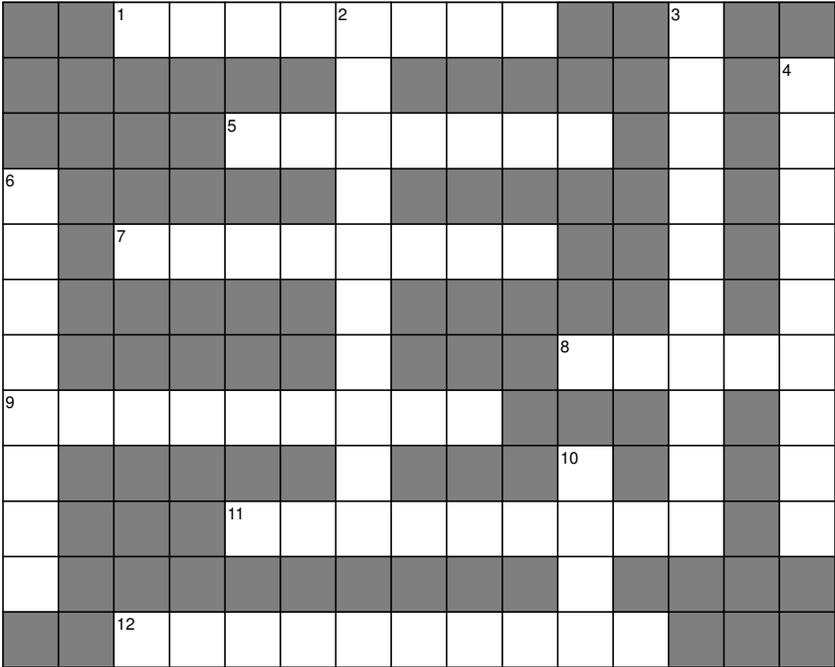
Across

1. Devices the user uses to give the computer information. (5)
3. The programme that interacts with the physical parts of the computer and the general computer programmes. (15)
8. What does MB stand for ? (8)
9. What does GB stand for ? (8)
11. Devices the computer uses to give the user information. (6)
12. The physical parts of a computer system. (8)
14. What does RAM stand for ? (18)
16. Computer controlled Lathe. (8)
17. Computer device for copying documents and pictures. (7)
18. Abbreviation for a Compact Disk that can be written to many times and erased. (4)
19. Short for Binary Digit. (3)
21. Device for moving the pointer around the screen. (5)
23. Main internal storage area of a computer. (8)
24. Eight bits (4)
25. A world wide network of computers. (8)
27. What does KB stand for ? (8)
29. What does VDU stand for ? (17)
30. Device that the computer uses to output sound. (8)
31. Device for inputting text into the computer. (8)

Down

2. What does USB stand for ? (18)
4. The programmes that run on a computer. (8)
5. What does ROM stand for ? (14)
6. Device for taking photos and inputting them to the computer. (13)
7. The 'brain' of the computer. (21)
10. What does DVD stand for ? (20)
13. What does WWW stand for ? (12)
15. Full name for a large circular storage device. (11)
16. Abbreviation for a Compact Disk that can be written to once. (3)
20. Abbreviation for a normal Compact Disk. (5)
22. Proper name for the computer screen. (7)
26. Device for producing line drawings on paper. (7)
28. A computer programme that can damage files on the computer. (5)

Decorative Metalwork



Decorative Metalwork

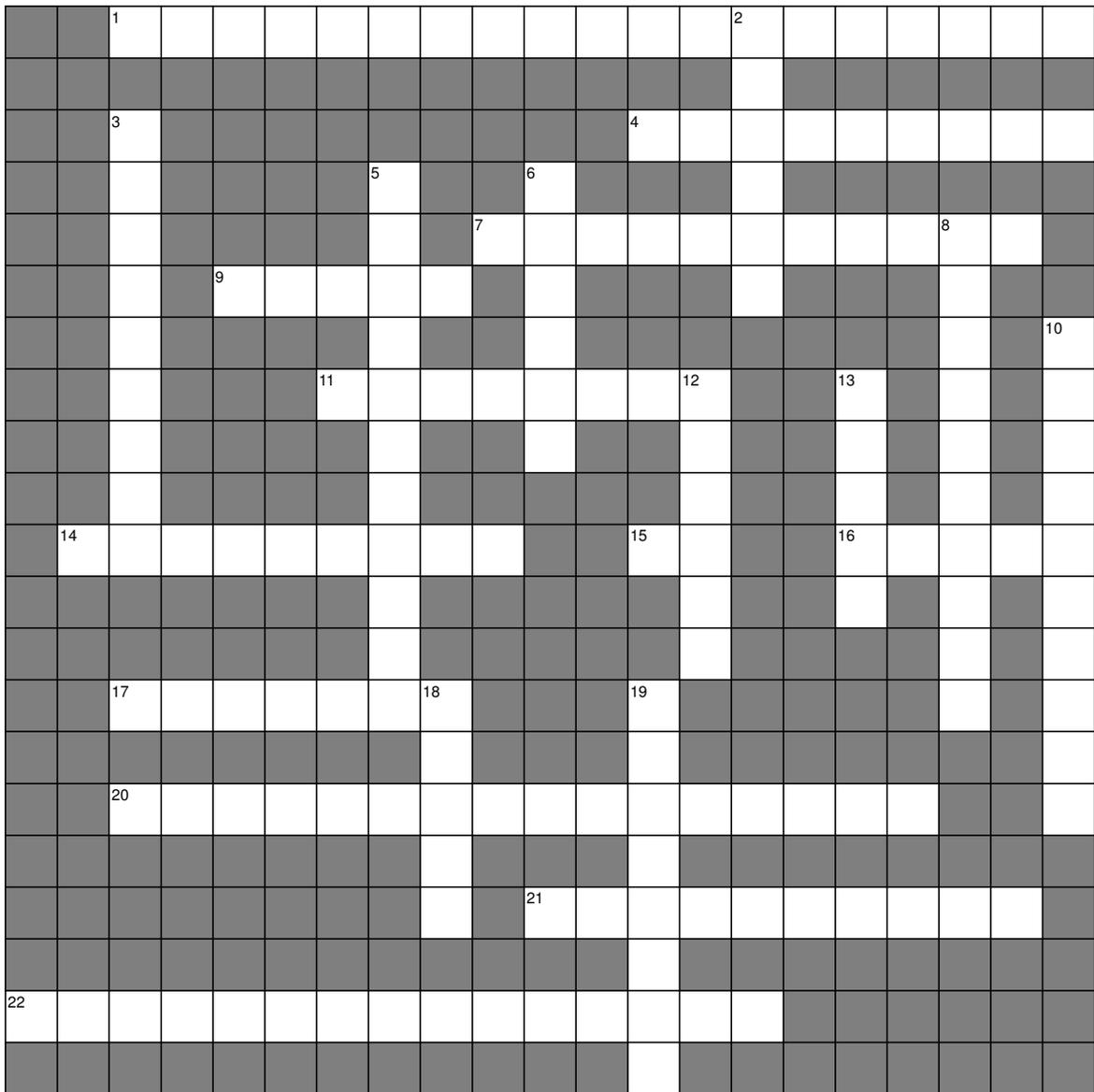
Across

1. Using a wodden dowel and a drilling machine to make a pattern on metal. (8)
5. Using acid to 'eat' away a design into metal. (7)
7. Forming a raised design using a hammer and punches. (8)
8. Soft tar like material used for some forms of Decorative Metalwork. (5)
9. Using the ball end of a hammer to produce a pattern on metal. (9)
11. Cutting of design into metal with sharp tools. (9)
12. Fusing glass to metal in a furnace. (10)

Down

2. Applying a varnish to metal to preserve the surface finish. (10)
3. Covering metal pieces in a plastic layer. (10)
4. Using a buffer and wax to increase the shine on a piece. (9)
6. Using a hammer and various shaped punches to put a pattern in metal. (8)
10. Proper name for the furnace used for Enamelling. (4)

Drilling



Drilling

Across

1. The part of a Drilling Machine which allows you to set the depth to be drilled. (19)
4. A small hole drilled before using a large drill bit. (9)
7. The tool used to dent metals before drilling. (11)
9. It holds the drill bit while drilling. (5)
11. The distance from a point on a circle to the opposite point through the centre. (8)
14. The part of the Drilling Machine which allows you to push the drill into the work. (9)
15. We give it a value of 3 when calculating the Spindle Speed. (2)
16. The part of a drill bit that allows the swarf out and coolant in. (5)
17. What you should always wear when drilling. (7)
20. Used to hold big drill bits that are too small for the Drilling Machine spindle. (16)
21. On a standard drill bit it equals 118° . (10)
22. What do you drill before using a Tap ? (15)

Down

2. Some Drilling Machine use a stepped version of these and a Vee Belt. (6)
3. You cannot see through this. (9)
5. What do we use to hold work while drilling ? (11)
6. Used after drilling to ensure a very accurate hole size. (6)
8. This protects you from a flying drill bit. (10)
10. The tip of a Drill Bit. (10)
12. The distance from the centre of a circle to the circumference. (6)
13. Used to remove a large drill bit from the Spindle of a Drilling Machine. (5)
18. The part of a Drill Bit held in the Chuck. (5)
19. The metal the Table and Base of a Drilling Machine are made from. (8)

Electricity

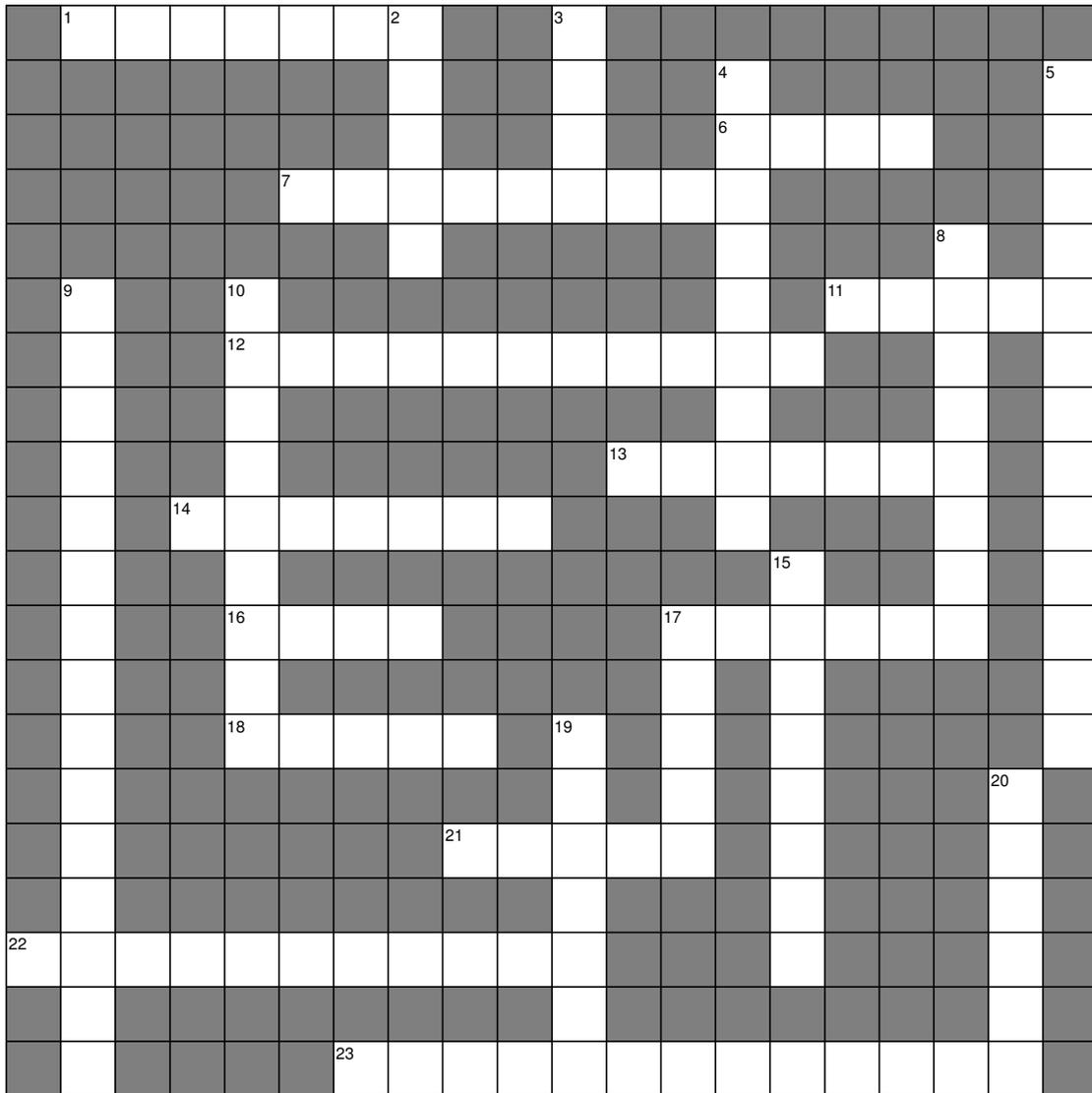
Across

2. The type of current that flows one direction for a split second and the opposite direction for the next split second, in a circuit. (11)
7. The name of the metal used in a bulb to generate light. (8)
9. A type of Resistor which changes resistance depending on how warm it is. (10)
10. They store electric charge. (9)
14. Something which allows electricity to flow through it easily. (9)
15. The unit of Resistance. (3)
17. Abbreviation for a type of diode which gives out light. (3)
18. The top terminal in a plug. (5)
20. The colours of the Earth wire. (14)
22. The name for the wire that lights up in a bulb. (8)
25. The force that slows down the movement of electrons in a circuit. (10)
27. Uses electricity to turn items. (5)
30. The negative part of an atom. (8)
32. The pressure that moves electrons around a circuit. (7)
34. Something which does not allow electricity to flow through it. (9)
35. The right terminal of a plug. (7)
36. A component which slows down the flow of electricity in a circuit. (8)

Down

1. The flow of electrons. (7)
2. Used to measure current. (7)
3. Used to create electricity. (9)
4. Used to measure Voltage, Current or Resistance in a circuit. (10)
5. Abbreviation for a resistor which is dependant on the light level. (3)
6. The weak link in a circuit. (4)
8. The type of Current that flows one direction in a circuit. (6)
11. A high speed electronic switch. (10)
12. A number of cells together. (7)
13. The unit of Voltage. (4)
16. The type of Primary Bond in Metals. (8)
19. Used to measure Voltage. (9)
21. The left terminal of a plug. (4)
23. Only allows electricity to flow one direction through it. (5)
24. A type of circuit where the components are lined up one after the other. (6)
26. Full name for the unit of current. (6)
28. The colour of the Live wire. (5)
29. The positive part of an atom. (6)
31. Creates a continuous electronic noise. (6)
33. The colour of the Neutral wire. (4)

Fitting And Assembly I



Fitting And Assembly I

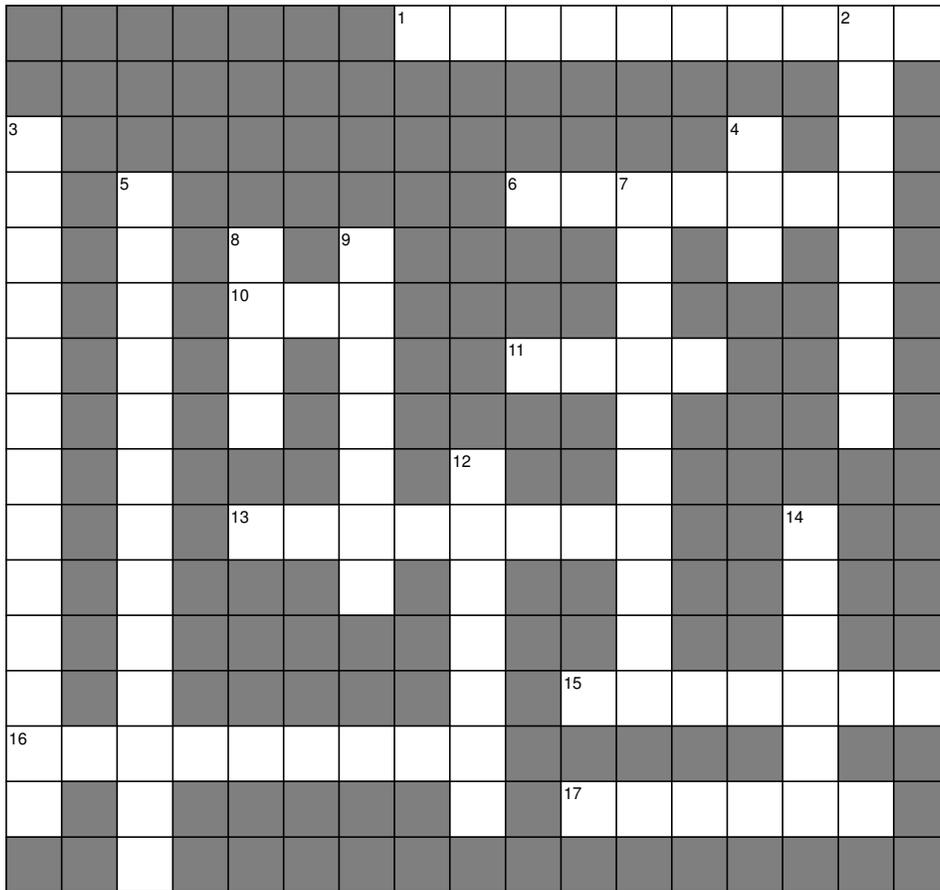
Across

1. Tap used to finish tapping or to tap a Blind Hole. (7)
6. The type of thread used on leadscrews of lathes. (4)
7. Another name for an Intermediate Tap. (9)
11. The Tap with the least amount of full teeth. (5)
12. Tool used to loosen or tighten screws. (11)
13. A type of nut with a nylon insert. (7)
14. The shape of a nut. (7)
16. The bottom of a thread groove. (4)
17. The type of thread used on vices. (6)
18. The most prominent part of a thread. (5)
21. Straight part of a thread between the Root and the Crest. (5)
22. Type of pliers that can hold flat or round bar and cut wire. (11)
23. The smallest diameter of a screw thread. (13)

Down

2. The distance between two corresponding parts of adjacent threads. (5)
3. The distance a screw moves along its axis for one revolution. (4)
4. Used to hold and turn a Tap. (9)
5. The largest diameter of a screw thread. (13)
8. Adjustable tool used to thread a bar. (8)
9. Hole drilled before using a Tap. (15)
10. The type of thread used on most machine screws. (9)
15. Type of thread used on quick release vices. (8)
17. Tool used to hold a Split Die. (5)
19. Used to loosen and tighten nuts. (7)
20. This prevents damage to a surface when tightening a nut. (6)

Fitting and Assembly II



Fitting and Assembly II

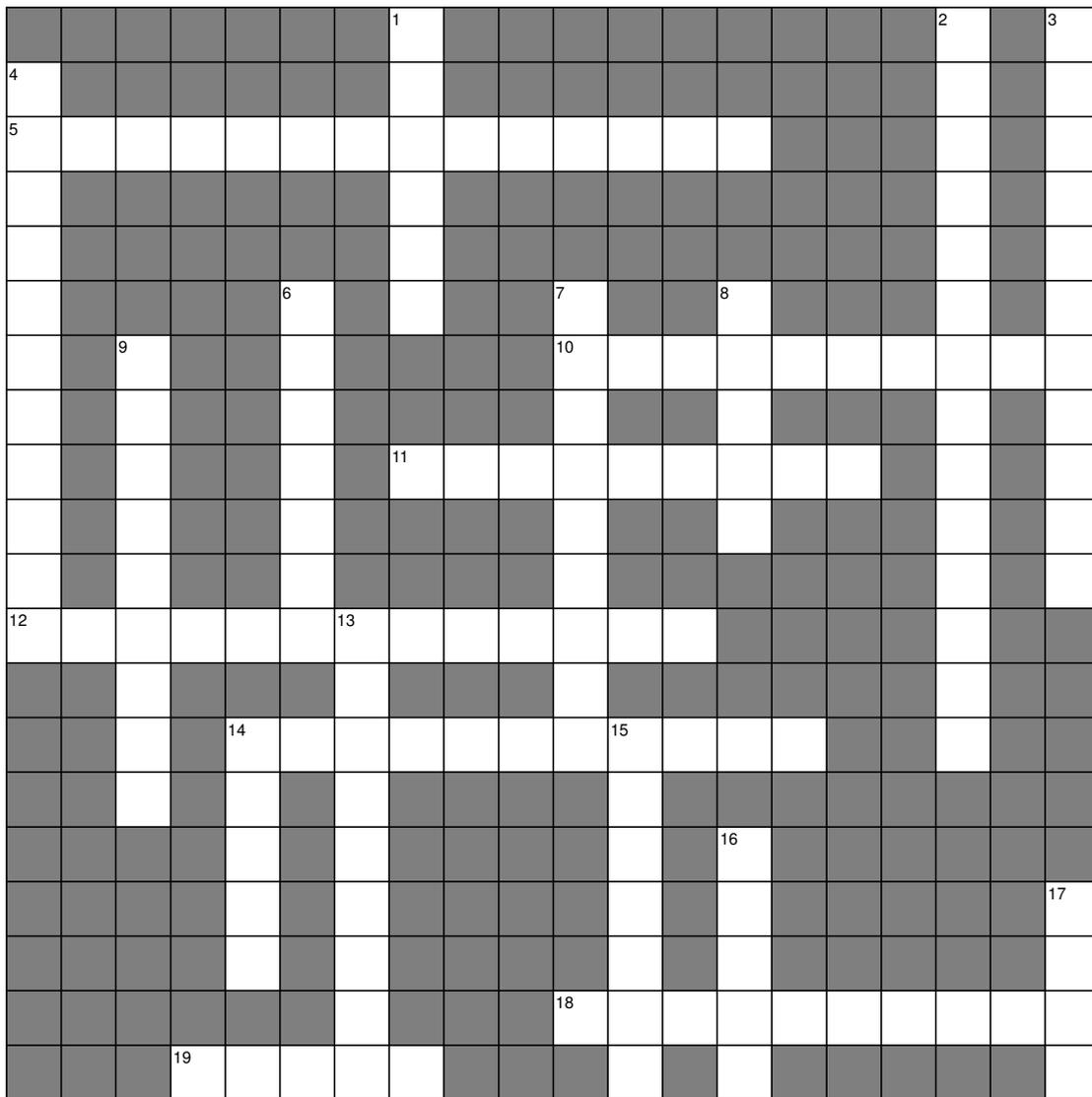
Across

1. Type of cleaning which removes physical material. (10)
6. Type of Flux that only prevents oxidation during soldering. (7)
10. The type of joint where one piece lies on top of the other. (3)
11. Type of joint where the ends of two pieces are soldered. (4)
13. Type of cleaning which removes oxides and grease. (8)
15. The type of hard soldering using brass. (7)
16. The word for how oxygen reacts with metals. (9)
17. Metal from which the Bit of a Soldering Iron is made. (6)

Down

2. Another word for glue. (8)
3. Tool used to apply Solder and heat the surfaces to be joined. (13)
4. Part of a Soldering Iron that is heated. (3)
5. Class of soldering which is sometimes referred to as Silver Soldering or Brazing. (13)
7. Alloy of Lead and Tin. (10)
8. Used to remove oxides from the surface of parts before soldering or prevent oxidation during soldering. (4)
9. The brass used in Brazing. (7)
12. Applying solder to the pieces before soldering. (7)
14. Type of flux that removes oxides before soldering and prevents oxidation during soldering. (6)

Forming Metals



Forming Metals

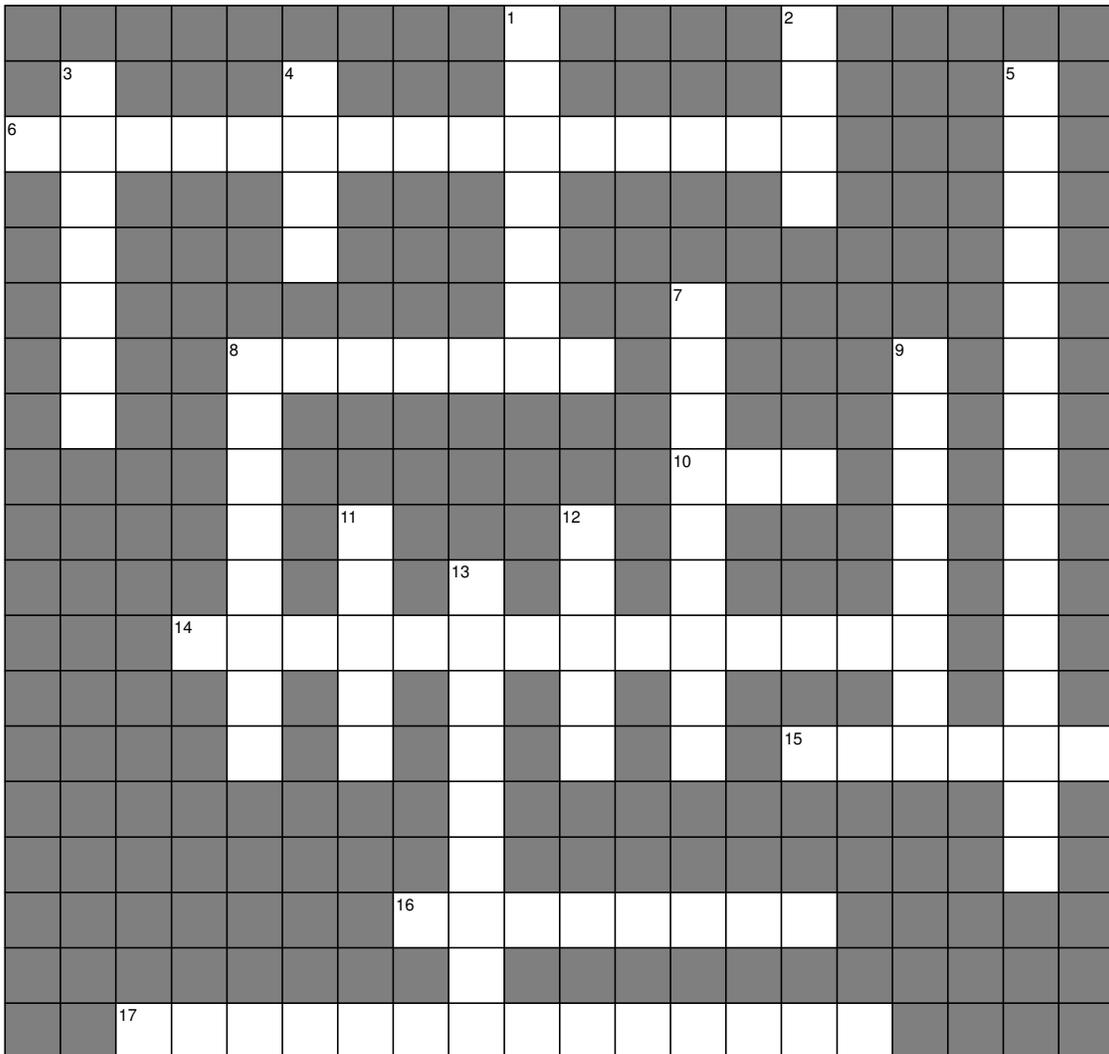
Across

5. Tool used for cutting straight edges and around curves in sheet metal. (14)
10. Method of removing marks caused by hollowing. (10)
11. Method of softening copper during hollowing. (9)
12. Tool used for cutting straight edges in sheet metal. (13)
14. Tool used for bending sheet metal in the Bench Vice. (11)
18. Many circles with the same centre. (10)
19. Tool used to pick up hot metal. (5)

Down

1. Type of sheet metal edge used to strengthen the sheet and provide a safe edge. (6)
2. Proper name for the normal workshop hammer. (14)
3. Forge technique which reduces the cross-section of a bar and makes it longer. (11)
4. Tool used for cutting around curves in sheet metal. (11)
6. Type of Hammer used for folding down metal edges in restricted places. (7)
7. Forge technique which involves making a bar thicker and shorter. (9)
8. Large heavy tool used to support hot metal while being forged. (5)
9. Heat treatment to remove some of the hardness from a hardened piece of steel. (9)
13. Creating a bowl shape usually from copper. (9)
14. Machine used to heat metals. (5)
15. Type of Hammer used for hitting sheet metal without damaging it. (7)
16. Tool used to make a hole in hot metal. (5)
17. 'Nose' part of an Anvil. (4)

General Benchwork



General Benchwork

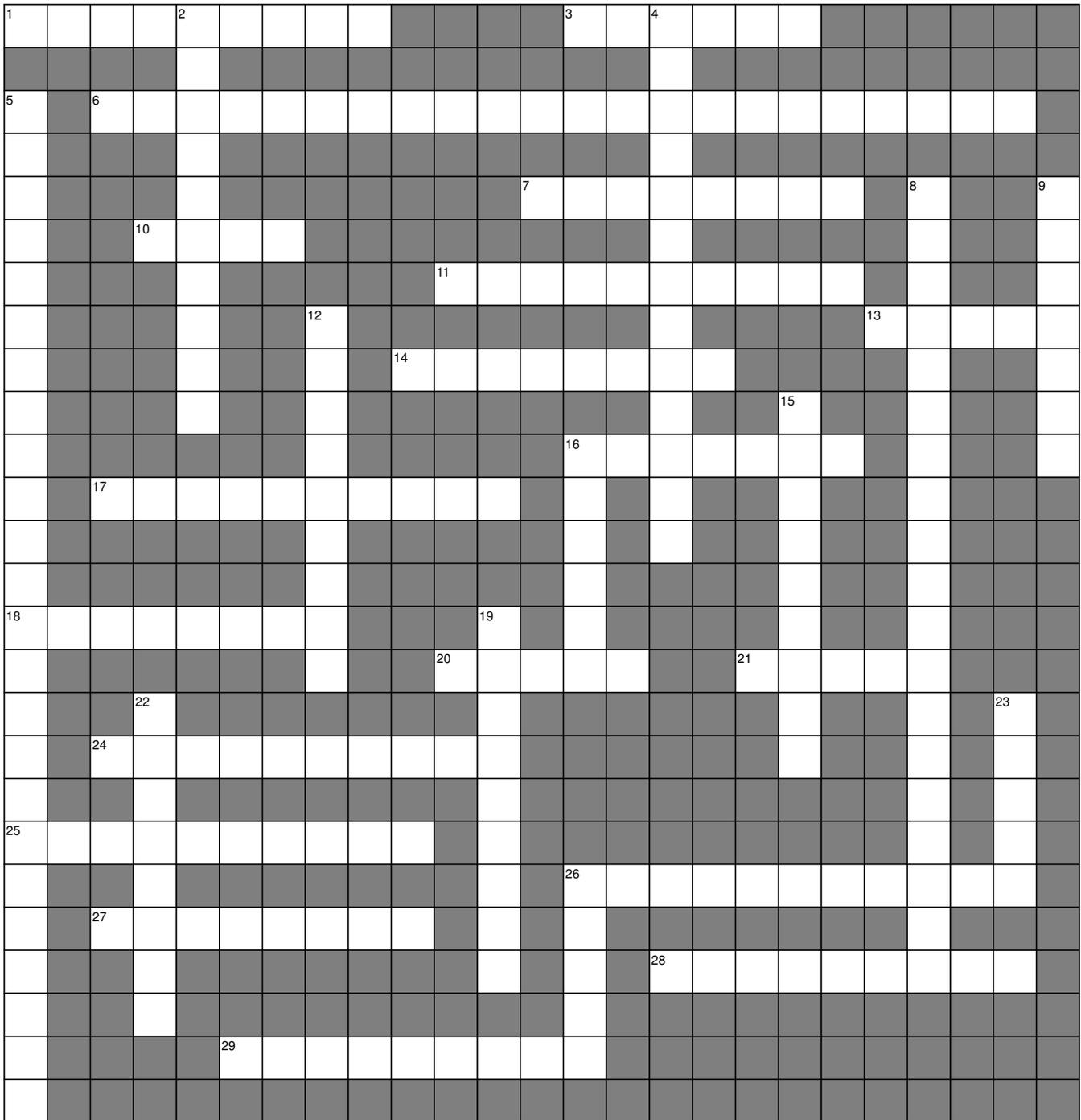
Across

6. The metal a hammer is made from. (15)
8. Tool used to draw lines on Metals and Plastics. (7)
10. The word for how the teeth of a hacksaw are not straight. (3)
14. Tool used to hit some other tools with. (14)
15. To curve outwards. (6)
16. Tool used to draw circles. (8)
17. The metal hacksaw blades and drill bits are made from. (14)

Down

1. To curve inwards. (7)
2. Hand tool used to wear a material down. (4)
3. The word for when a file gets clogged up with material. (7)
4. The part of a file that goes into the handle. (4)
5. Tool used to draw lines parallel to an edge. (15)
7. Tool used to draw lines perpendicular to an edge. (9)
8. Tool used to protect work from the vice. (8)
9. The metal a Vice is made from. (8)
11. Tool used to measure lengths. (5)
12. Tool used before drilling metals. (5)
13. Tool used to hold work at the Bench. (9)

The Lathe



The Lathe

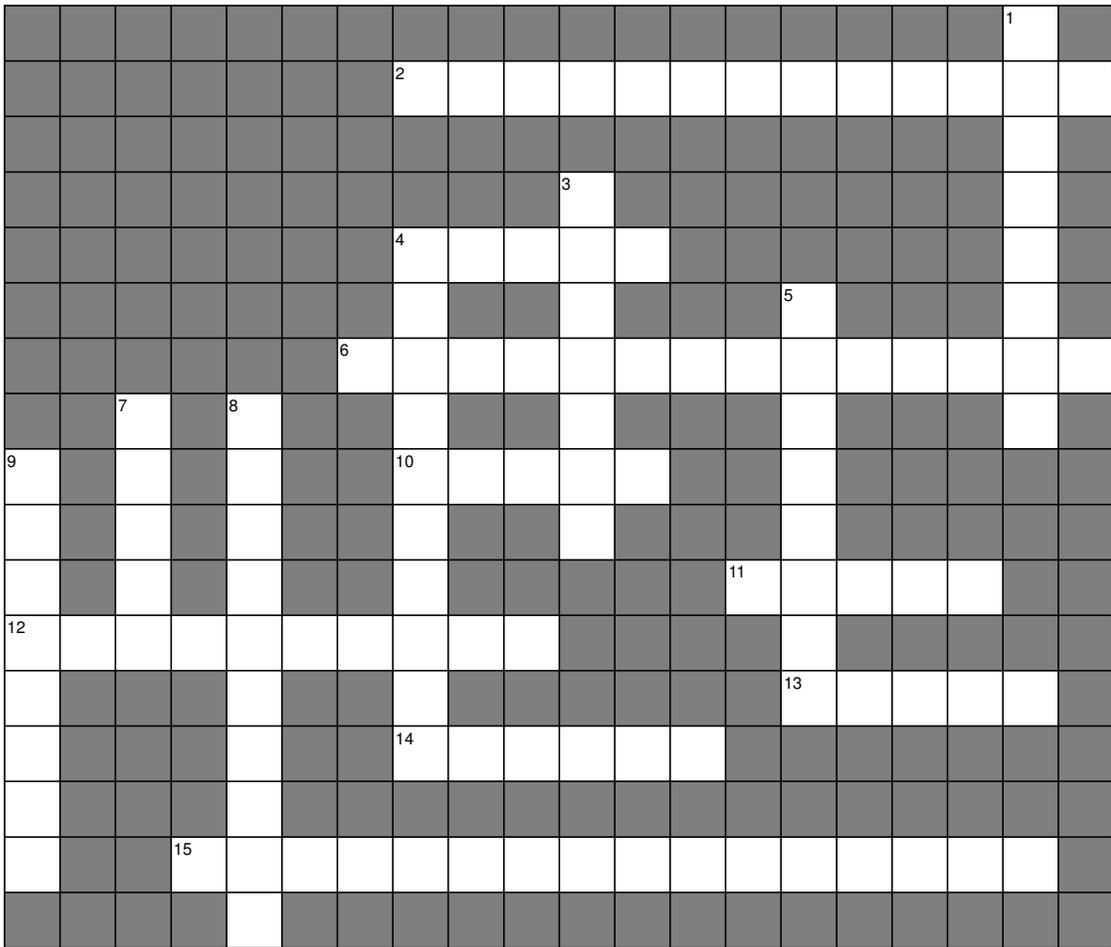
Across

- Used to move the Carriage automatically. (9)
- Lathe operation to shorten a bar or make the end of the bar smooth. (6)
- What does CAM stand for ? (22)
- Method of dimensioning from a Datum. (8)
- Cutting tool angle which allows the cut material to leave the cutting area. (4)
- Lathe operation involving the cutting off of parts. (10)
- Front part of the Carriage that contain some controls. (5)
- Holds the Tool Holder (8)
- The chuck is mounted on this and it is hollow. (7)
- Numbers which tell you the size of an object. (10)
- The method of dimensioning from the previous dimension. (8)
- Name for an angle cut on the end of a bar. (5)
- Machine used to produce round work among other things. (5)
- Level with the horizon. (10)
- Part of the Lathe that allows the tool to move perpendicular to the work. (10)
- Tool always used before drilling on the Lathe. (11)
- The distance from one side of a circle to the opposite side through the centre. (8)
- Cutting tool angle which stops the tool rubbing off the work. (9)
- Part of the Lathe housing the gears and controls. (9)

Down

- Running a programme on a computer before running it on a CNC Lathe. (10)
- Another name for the Top Slide. (13)
- What does CNC stand for ? (24)
- What does CAD stand for ? (19)
- Lathe operation used to make a bar thinner. (7)
- Used for screwcutting on the lathe. (9)
- Part of the Machine Bed along which the Tailstock can move. (9)
- Part of the Lathe that sits on top of the Machine Bed and supports the Cross Slide. (6)
- Used for drilling on the lathe and can hold a centre. (9)
- Can be set at different angles to cut tapers. (8)
- Grip pattern on some hand tools which can be created on the lathe. (5)
- Part of the lathe used to hold the work. (5)

Marking Out



Marking Out

Across

- Two lines at 90° to each other. (13)
- Tool used before using a Drill Bit. (5)
- What are a Ruler, Protractor Head, Bevel Head and Centre Square together called ? (14)
- Used for measuring straight lines. (5)
- Another name for an Odd Leg Callipers. (5)
- There are 1,000 of these in a meter. (10)
- The handle part of an Engineer's Try Square. (5)
- The distance from the centre of a circle to the edge. (6)
- Tool which can be used to measure round bars or drill bits. It is very accurate. (16)

Down

- Two lines that are equi-distant from each other and in the same direction are ? (8)
- Used for drawing lines on metals and plastics. (7)
- Tool used to measure angles. (10)
- Tool used to draw circles. (8)
- Pattern found on some tools to provide better grip. (5)
- There are 100 of these in a meter. (10)
- The distance from one side of a circle to the other side through the centre. (8)

Metals

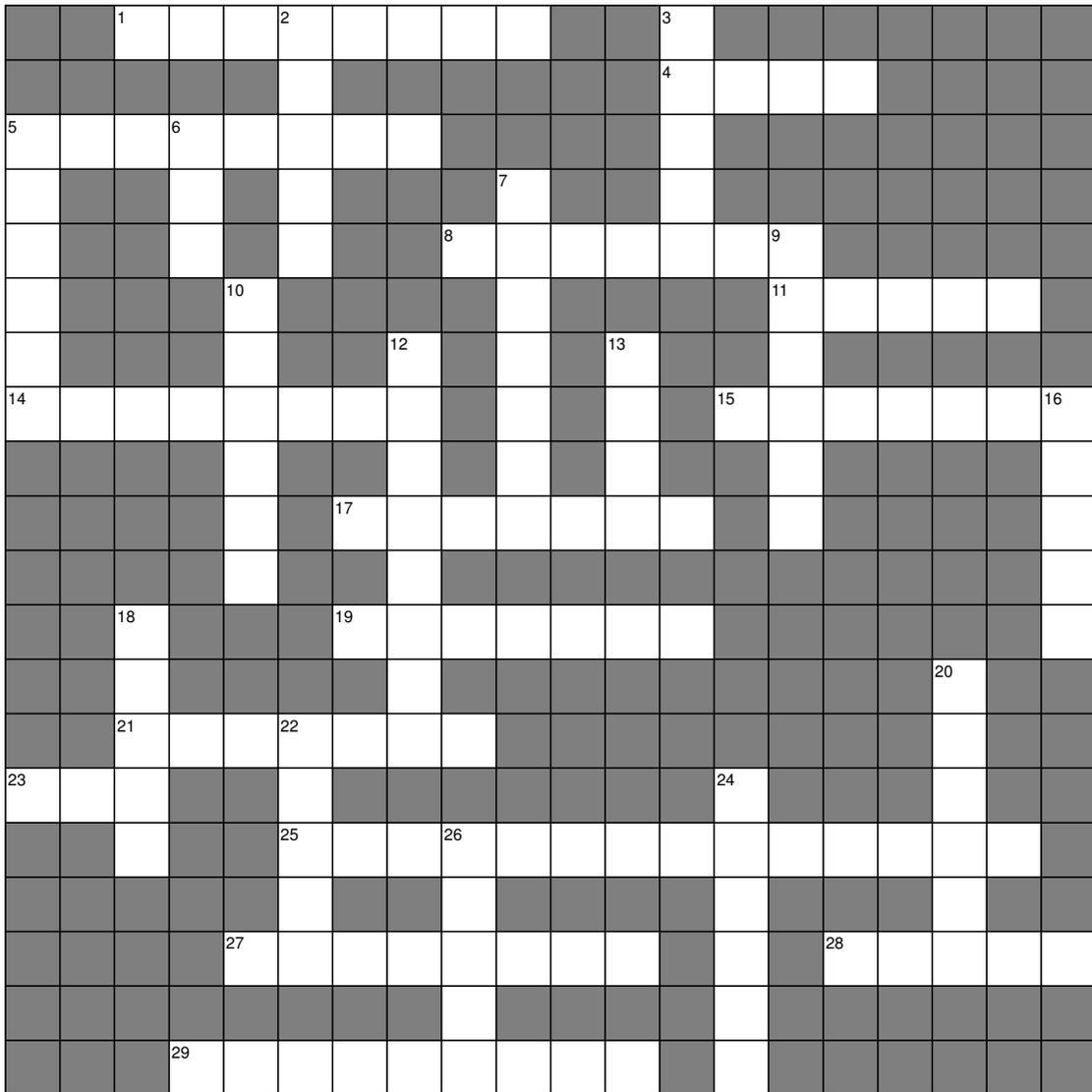
Across

2. Iron Ore is taken to this furnace to produce Iron. (12)
4. Gates and Girders are made from this metal. (9)
5. Used in the Electric Arc Furnace to provide the spark. (16)
6. A metal with a very low melting temperature made from lead and tin. (10)
9. The general name for metals which contain iron. (7)
11. Pipes around the base of the Blast Furnace used to pump air into the Hearth. (6)
13. Raw material from the earth that contains metal. (3)
15. Metal used in the manufacture of Brass. (4)
17. Part of the Charge for the Blast Furnace and also a drink. (4)
19. The raw materials that are put into a furnace. (6)
20. Iron and Carbon (5)
21. The heaviest of the common metals and used in Flashing. (4)
22. Waste material after the smelting of a metal. (4)
23. Metal used in the manufacture of hammer heads. (15)
27. The general name for metals which do not contain iron. (10)
28. A type of rock used in the Charge for the Blast Furnace. (9)
30. A mixture of two or more metals. (5)
31. The Furnace used to produce bulk steel. (18)

Down

1. A long pipe that pumps a gas into the Basic Oxygen Furnace and is kept cool by water. (22)
3. A light metal which aeroplanes are made from. (9)
6. What is a kitchen sink made from ? (14)
7. Material which keeps the heat inside the furnace and prevents the outside of the furnace from melting. (16)
8. Copper and Tin. (6)
10. Drill bits are made from this metal. (14)
12. The furnace used to produce high quality Steel. (18)
14. Ferrous in Greek. (4)
16. Steel coated with a non-ferrous metal. (8)
18. A Bench Vice is made from this metal. (8)
24. A metal that is very good at conducting heat and electricity. (6)
25. Copper and Zinc. (5)
26. A metal used in the manufacture of Bronze. (3)
29. The central part of the Blast Furnace. (5)

The Nature of Materials



The Nature of Materials

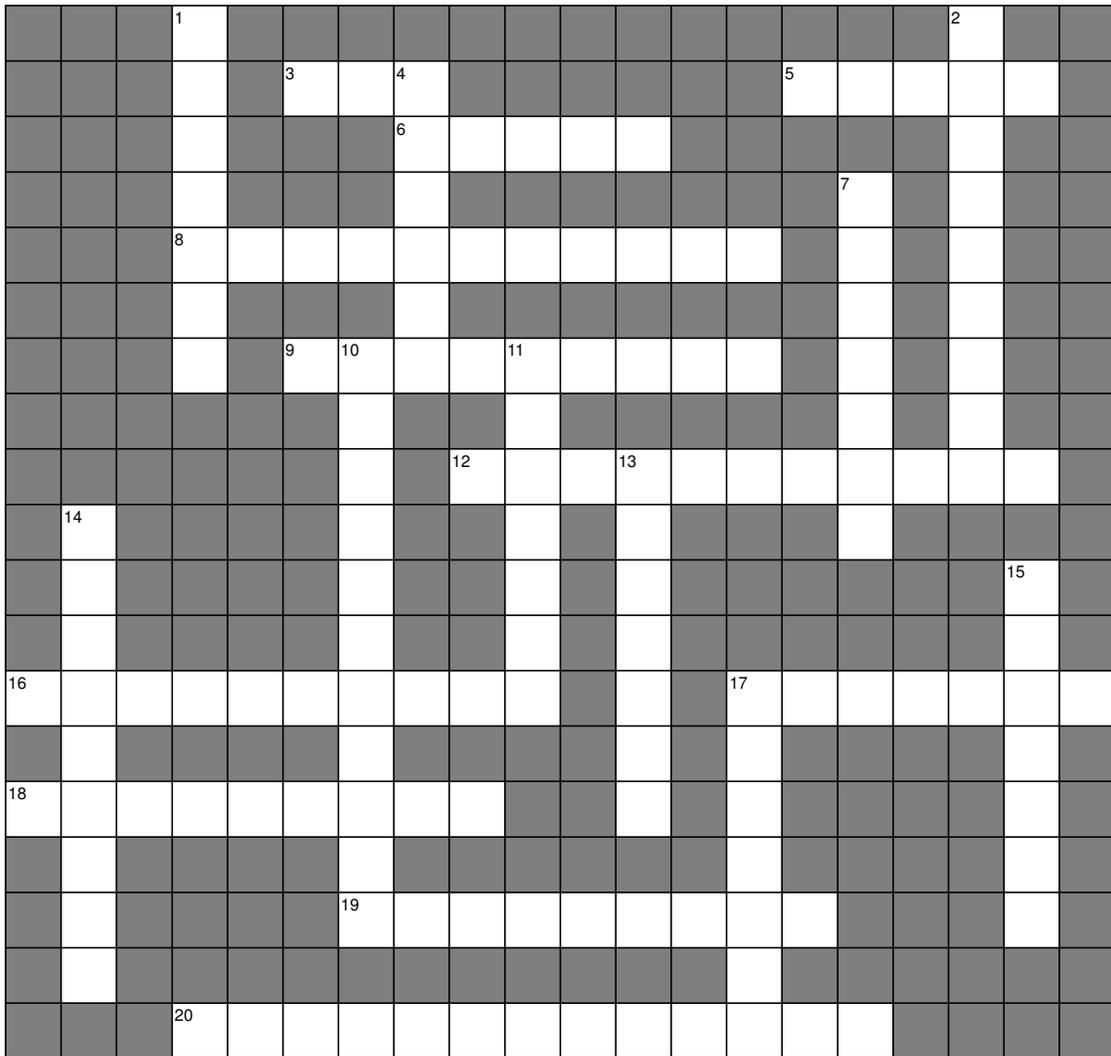
Across

1. The type of bonding for liquids and gases. (8)
4. The smallest part of an Element that still holds the properties of the Element. (4)
5. The electrical charge on a Proton. (8)
8. The electrical charge on a Neutron. (7)
11. The type of bonding for crystals. (5)
14. The electrical charge on an Electron. (8)
15. The protons and neutrons together at the centre of an atom. (7)
17. What do electrically charged bodies act like ? (7)
19. There are 112 different ones and they make up everything in the universe. (7)
21. What do unlike Electrostatic Forces do ? (7)
23. A State of Matter that could smell. (3)
25. The most important way Atoms join together. (14)
27. The negative part of an atom. (8)
28. What do Iron and Carbon make ? (5)
29. A special type of steel made from Iron, Carbon and Chromium. (9)

Down

2. What a negatively charged atom is called. (5)
3. The best example of Covalent Bonding. (5)
5. The positive part of an atom. (6)
6. What a charged atom is called. (3)
7. The neutral part of an atom. (7)
9. A State of Matter that could drown you. (6)
10. What a positively charged atom is called. (6)
12. The type of bonding used in all metals. (8)
13. An example of Ionic Bonding you put on your dinner. (4)
16. The State of Matter where the atoms cannot move. (5)
18. What does Copper and Zinc make ? (5)
20. What does Copper and Tin make ? (6)
22. What do like Electrostatic Forces do ? (5)
24. The word for the space a body takes up in the universe. (6)
26. The type of material that uses Metallic Bonding. (5)

Plastics



Plastics

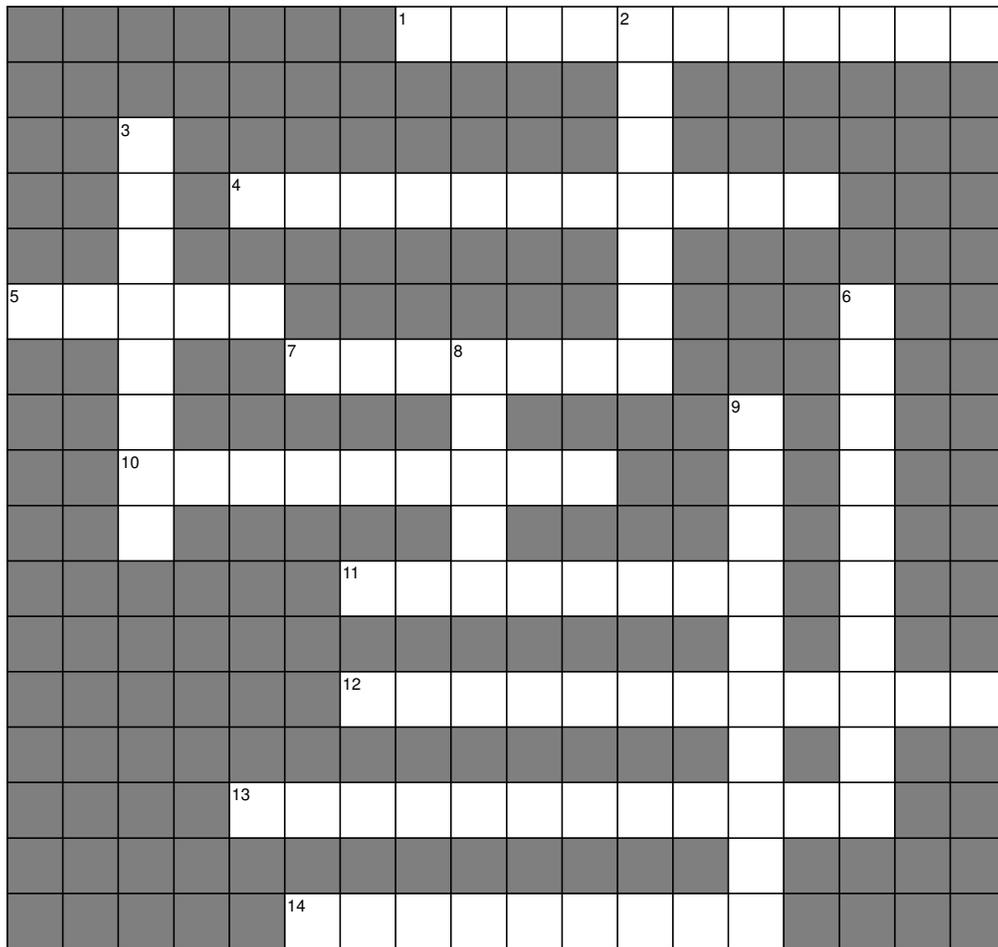
Across

3. Used to make window frames or shower curtains. (3)
5. Can be used to make fishing line or tights. (5)
6. A natural plastic that is also a colour. (5)
8. Plastic used to make disposable cups for hot liquids. (11)
9. What does the word 'Polymer' mean in English ? (9)
12. Used to make plastics more flexible. (11)
16. Prevents Ultra Violet light from damaging plastics. (10)
17. The type of chemical bond between the parts of the chain. (7)
18. The type of bond between chains that are beside eachother. (9)
19. The type of plastic which can only be heated once. (9)
20. The type of plastic which can be reheated and reshaped repeatedly. (13)

Down

1. Common name for Acrylic. (7)
2. Plastic bags are made from this plastic. (9)
4. A modified natural plastic made from cow's milk. (6)
7. Natural plastic which your hair is made from. (7)
10. Prevents oxygen from damaging plastics. (11)
11. The proper name for a plastic. (7)
13. The type of natural plastic that comes from the behind of the Lac Bug. (7)
14. This word means "man made". (9)
15. Type of plastic used for making shop signs. (7)
17. Used to colour plastics. (7)

Properties of Materials



Properties of Materials

Across

1. When a material can be easily broken or fractured by an impact. (11)
4. When two inline forces are pushing onto an object. (11)
5. The stretching of a material due to a constant force over a period of time. (5)
7. When two inline forces a pulling on an object. (7)
10. The ability of a material to withstand impact. (9)
11. The ability of a materials to withstand scratching and indentation. (8)
12. The ability of a material to be stretched or shaped in all directions without breaking or fracturing. (12)
13. The ability of a material to allow heat or electricity to flow through it. (12)
14. The ability of a material to be stretched out by a force into thin wire. (9)

Down

2. Twisting forces. (7)
3. The ability of a material to withstand the forces of Tension, Compression and Shear (8)
6. The ability of a material to be stretched or formed into another shape and then hold that shape, without breaking or fracturing. (10)
8. When two or more forces are moving in opposite directions and not inline. (5)
9. The ability of a material to return to its original shape after it has been stretched. (10)

Structures & Mechanisms

Across

- Two forces acting inline pulling away from the object. (7)
- Word for a weight or force acting on an object. (4)
- Turning in the same direction as the hands on a clock face. (9)
- Moving in a circle in one direction. (6)
- Stroke which allows the air/fuel mixture into an engine. (9)
- Acts like a belt but is found on bicycles. (5)
- Two lines equidistant from each other. (8)
- Allows the air/fuel mixture into the engine. (10)
- Moving forwards and backwards in a straight line. (13)
- Used with a Worm gear. (9)
- A guide and support for a moving part of a mechanism. (7)
- Part of an engine on which the Cams are. (8)
- The name for the gear that moves a Rack. (6)
- Turns rotary motion into Reciprocating motion. (3)
- An object which can carry a load. (9)
- Allows the exhaust gasses out of the engine. (11)
- Mechanism which allows two shafts to be engaged or disengaged easily. (6)
- Used to apply turning force to a bar or shaft. (5)
- Ignites the air/fuel mixture in an engine. (9)
- Part of an engine attached to all pistons. (10)

Down

- Turned by a chain. (8)
- Moving forwards and backwards in a circle. (11)
- Guide for the piston in the engine. (8)
- A method of making Structure stable. (13)
- Slider part of an engine which goes up and down. (6)
- Anything which moves has this. (6)
- Allows turning in one direction only. (7)
- Two forces acting inline towards each other or the stroke in an engine which squeezes the air/fuel mixture. (11)
- Used with a belt to transfer rotary motion. (6)
- Engine part which holds the piston onto the Connecting Rod. (10)
- A rigid body free to rotate around a fixed point. (5)
- The work or force needed to do something. (6)
- Two twisting forces acting in opposite directions. (7)
- Used to transfer rotary motion without slippage. (4)
- Connects the Piston to the Crankshaft. (13)
- The fixed point around which a rigid body is free to rotate. (7)
- Stroke which pushes the piston down in an engine. (5)
- A type of gear that can transfer rotary motion through an angle. (9)
- A Spur Gear used only to make the driver and the driven gears turn in the same direction. (9)
- Two or more forces acting in opposite directions towards each other but not inline. (5)
- Stroke which allows the waste gasses out of the engine. (7)
- A number of levers working together. (7)
- Movement in a straight line in one direction. (6)
- A flat gear which can be found on the Lathe and Drilling Machines. (4)