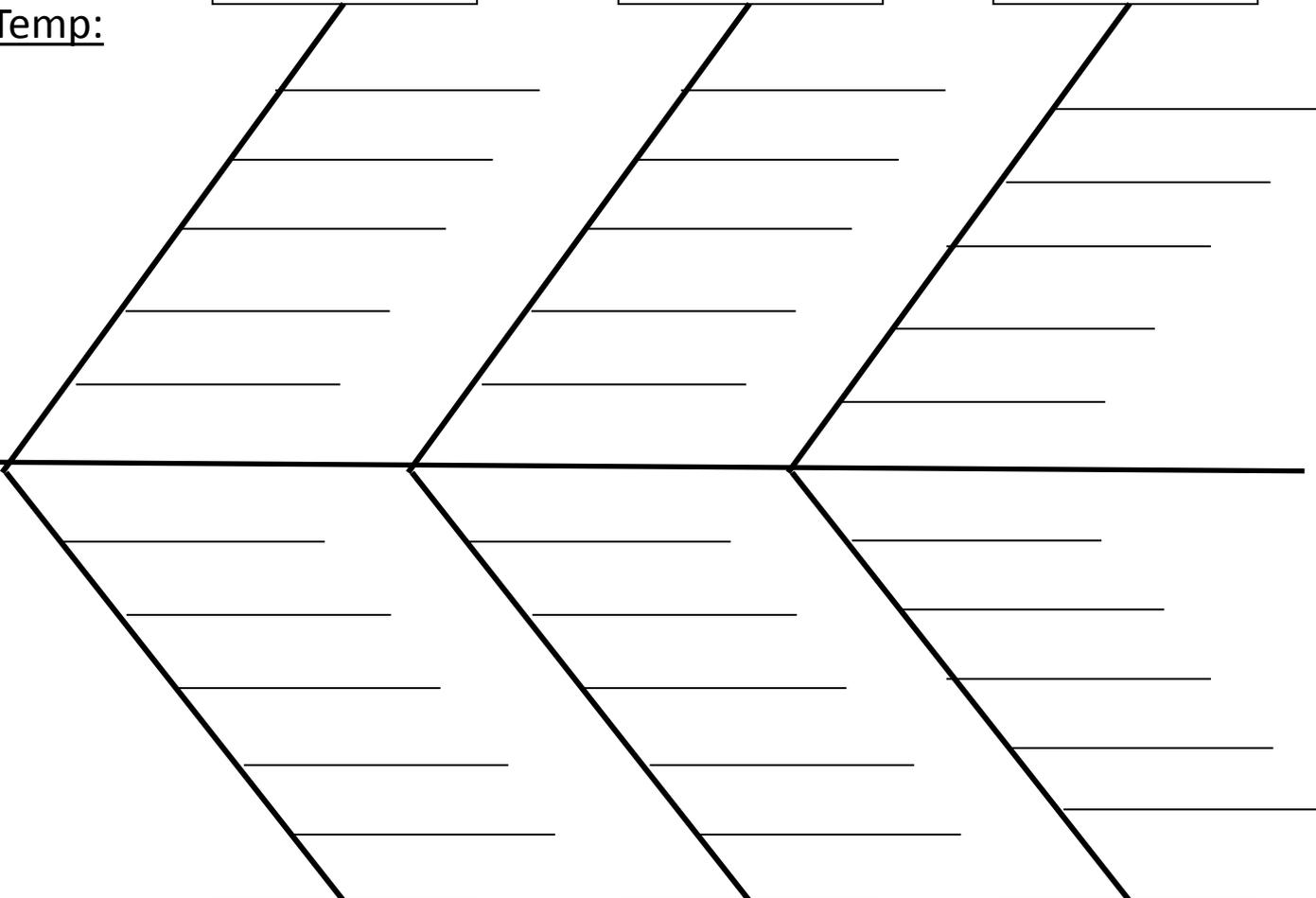
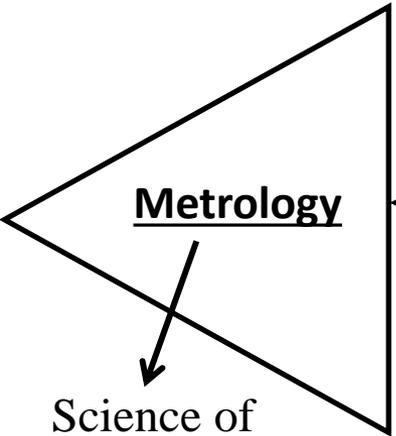


Standard Measuring Temp:
°C

Slip Gauges

Types of Fits

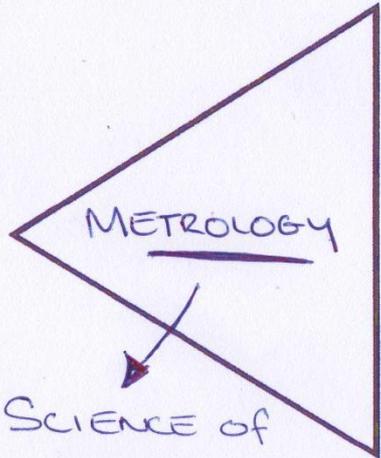
Linear Measurement



Limits & Tolerances

Tolerances & Systems

Angle Measurement



SCIENCE OF MEASUREMENT

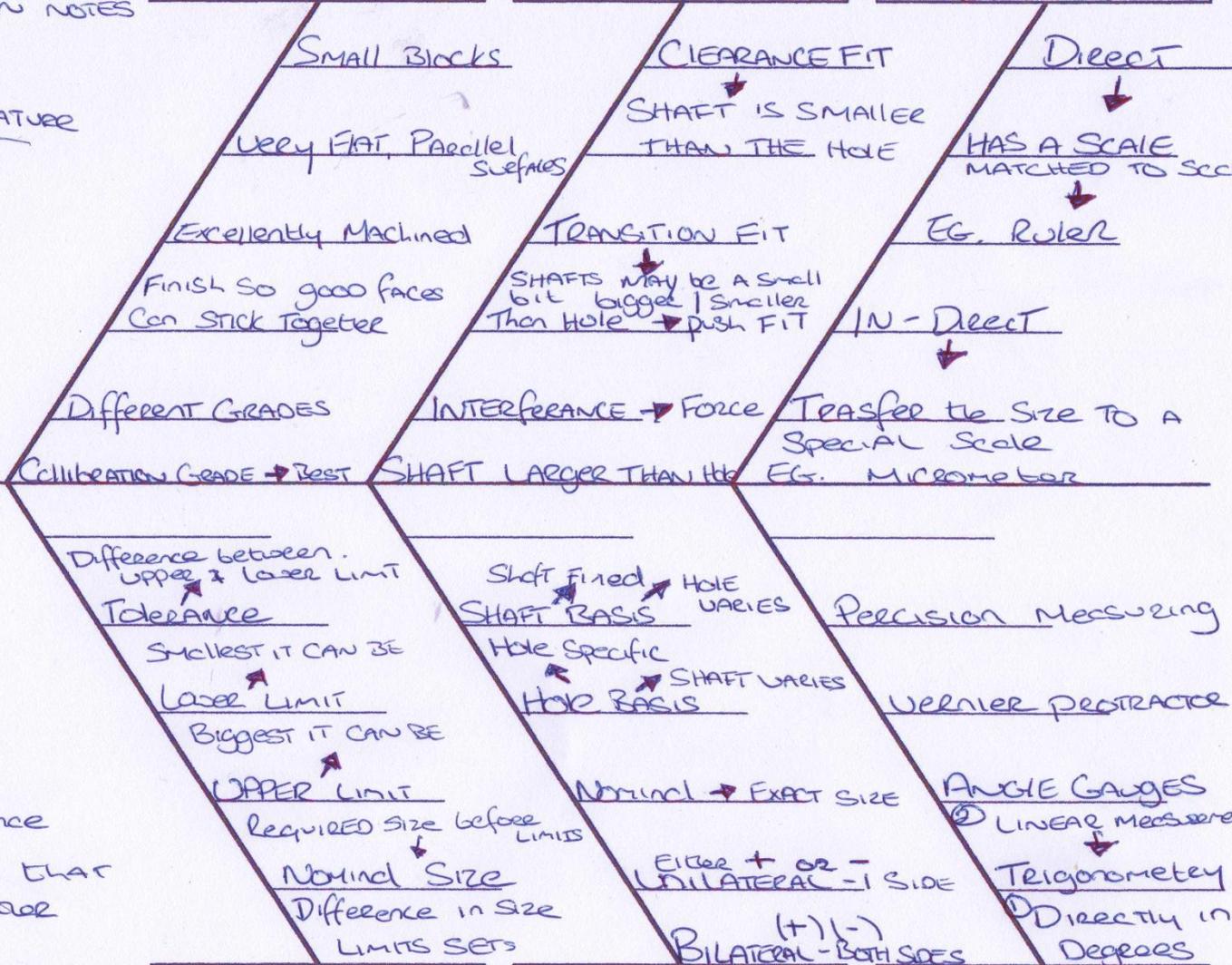
Allowance is Difference between Components that work together

Allowance Determines the type of FIT.

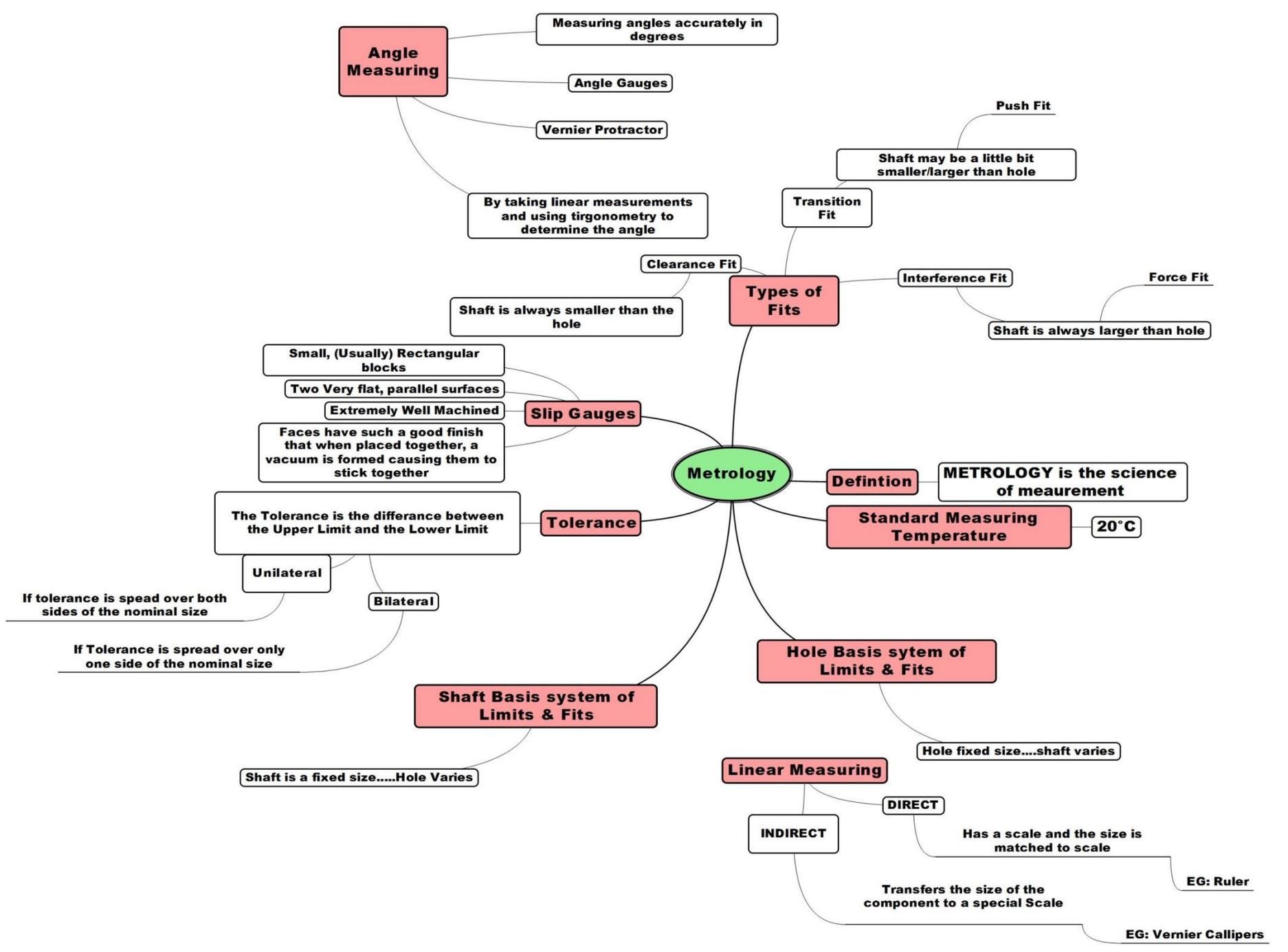
STANDARD MEASURING TEMPERATURE
20 °C

MAKE UP CALCULATION ON NOTES

SLIP GAUGES TYPES OF FITS LINEAR MEASURING



LIMITS & TOLERANCES TOLERANCES & SYSTEMS ANGLE MEASURING



Angle Measuring

Measuring angles accurately in degrees

Angle Gauges

Vernier Protractor

By taking linear measurements and using trigonometry to determine the angle

Types of Fits

Clearance Fit

Shaft is always smaller than the hole

Transition Fit

Shaft may be a little bit smaller/larger than hole

Push Fit

Interference Fit

Force Fit

Shaft is always larger than hole

Slip Gauges

Small, (Usually) Rectangular blocks

Two Very flat, parallel surfaces

Extremely Well Machined

Faces have such a good finish that when placed together, a vacuum is formed causing them to stick together

Tolerance

The Tolerance is the difference between the Upper Limit and the Lower Limit

Unilateral

Bilateral

If tolerance is spread over both sides of the nominal size

If Tolerance is spread over only one side of the nominal size

Standard Measuring Temperature

20°C

Definition METROLOGY is the science of measurement

Hole Basis system of Limits & Fits

Hole fixed size....shaft varies

Shaft is a fixed size.....Hole Varies

Linear Measuring

DIRECT

Has a scale and the size is matched to scale

EG: Ruler

INDIRECT

Transfers the size of the component to a special Scale

EG: Vernier Callipers