Taxonomy of Microbes Part 1

- The process of arranging organisms into related groups (taxa) make them easier to identify during study. 0 This involves 3 interrelated areas:
 - Identification
 - . The process of characterising an isolate to determine the taxon in which it belongs
 - Classification
 - The process of arranging organisms into similar groups for study
 - Nomenclature
 - The process of assigning names to organisms
 - The names must include a latin suffix
 - They also often honour a researcher •
- One method of classifying is to use the **Dichotomous key** 0
 - This involves making a series of choices, such as: "does it have wings?" in order to end up with the • organism
- Other ways of classifying bacteria include: 0
 - Morphology, i.e. size and shape
 - Staining growth, i.e. Gram positive or negative
 - Nutrition
 - Physiology, i.e. temperature
 - Biochemistry, i.e. antigens
 - Genetics (Most important), i.e. percentage of GC ratio
- esale.co.uk mined the sequence of rRNA in a number of In the late 1970's, Carl Woese at the university of I 0 0 organisms
 - Based on this, they discovered all prokaryotes of the divided into 2 major groups: Archaea and Bacteria
 - All en la repu domain, Eukarya
- To identify microorganisms, many different procedures are used:
 - **Microscopic examination**
 - Culture characteristics
 - **Biochemical tests**
 - Nucleic acid tests
 - The patients' symptoms
- The **phylogeny** of an organism is its evolutionary relatedness with other organisms. This creates a 0 classification scheme
 - This makes it easier to classify new species
 - It also allows scientists to make predictions about the likelihood of genes being acquired from • specific organisms
 - However, it is more difficult to do on microbes compared to plants and animals
 - They have less differences in size and shape
 - They do not undergo sexual reproduction
- Scientists often group microorganisms into informal categories based on one or more distinctive 0 characteristics
 - E.g. the anoxygenic phototrophs, the endospore-formers and the sulphate reducers •
 - These may show similar looks and characteristics but may not be genetically related