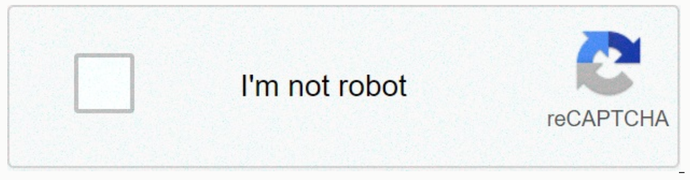

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Biological classification worksheet pdf

UNIT_1_DIVERSITY of LIFE_1: Biological classification scope of syllabus for classification should be discussed. For a clear understanding the definition and explanation of classification and phyllogenese words should be given. Three domains of life (archia, bacteria and euclia): definition and features majer classification (firam, class, order, family, genus, species) rules of binomial nomenclature. Tools for the study of classification: museums, botanical gardens, zoological gardens and Herberia biodiversity (diversity of life on Earth (genetic, species and ecosystem diversity) is a great diversity among living organisms found on planet Earth. They differ in their structure, habit, housing, mode of nutrition and physiology. The biodiversity of the earth is very large. Current estimates suggest that there may be more than 10 to 40 million species of organisms in the earth, but only about 1.7 million have actually been described, including more than 750,000 insects, about 250,000 flowering plants and 47,000 vertebrate animals. We call such diversity among living organisms biodiversity. Even though there is so much diversity and diversity between them, living organisms show a lot of similarities and general characteristics so that they can be arranged in many groups. To understand and study them systematically, these living organisms, mainly plants and animals, are grouped under different categories. Biological classification Biological classification is the process by which living organisms are divided into easily identifiable groups or categories based on certain observable characters. Biological Classification History of Biological Classification Systems of Artificial Classification: The artificial scheme of classification was based on superficial similarities. a) Theophrastus proposed the first system of artificial classification of plants based on habit. b) Pliny and Elder (23-79 AD) classified animals based on habits, such as land, air and water. Depending on the ability of flight, the animals were divided into two categories: (a) animals which can fly (b) animals which cannot fly. But it could not distinguish between birds, insects or bats. Similarly, plants were classified into herbs, bushes and trees based on habit. Natural Classification: The natural system of classification is based on natural similarities between organisms. It includes not only external, but also intrinsic features such as ultrastructure, anatomy, morphology and cwetochemistry. Phyllogenetic classification: The evolutionary history of a particular species is called phyllogenene. There is an assortment of organisms based on evolution Evolutionary or phyrogenetic classification. Need classification....? The study of the organism makes it very convenient. Facilitates the identification of bioshow relationships between different groups. Shows evolutionary trends. Helps to interpret fossil records. Classification (Greek: Taxis: System; Nomos: Law) Classification is the branch of biology that deals with the identification and nomenclature of living organisms and their classification based on their similarities and differences. It was the Swiss-French botanist A. P. de Canpolole (1778–1841) who coined the term Taxonomy, the science of naming and classifying organisms. Systemist Systemist is the branch of biology that deals with the diversity of organisms and their comparative and evolutionary relationships based on comparative anatomy, comparative biochemistry, comparative physiology and comparative ecology. In general, the terms of classification, systematic and classification are used with each other, but they take different meanings. According to Simpson, these three have different areas of study and should not be confused with each other. Phylogenes The evolutionary history of a particular species is called phyllogeny. The classification of organisms is called evolutionary or phyrogenetic classification based on their philogenetic relationships or on the basis of evolution. Even according to Linius the species were definite institutions. Lamarck (1744–1829) introduced the concept that species gradually change and give rise to new species. Hierarchical classification Carolus von Linius created a hierarchical classification system using seven classification categories. Kingdom Philam Class Order Family Genspealis These categories are based on shared physical characteristics, or phenotypes, within each group. Beginning with the state, each successive level of classification becomes more and more specific. Organisms within the same order have more similarity with each other than organisms within the same class. For example, not all species of bears are mammals, but not all mammals are bears. There is a useful pneotic tool to help students remember the hierarchical classification system: King Philip came to green soup, with the first letter of each word representing each category, beginning with the kingdom and ending with the species. Animation: taxonomic_hieararchy.swfFile Size: 249 kbFile Type: swfDownload file 1. Species classification studies consider a group of individual organisms with fundamental similarities as a species. One should be able to distinguish a species from other closely related species based on different morphological differences. Let us consider the Mangifera Indica, The Sollam Tuberosam (potato) and the Panthera Singh (lion). The three names, Indica, Tuberossum and Leo, represent specific adjectives, while the first words are Mangifera, Solanam and Genera are and represents another high level of classification or category. Each genus may have one or more specific adjectives representing different organisms, but there may be morphological similarities. For example, The Panthera has another typical adjective called Tigris and the solanum includes species such as nigrum and fairs army. Humans belong to species that are grouped into homo genus. The scientific name for humans is thus written as Homo sapiens. 2. The genus genus contains a group of related species that are more eligible in common than other genera species. We can say that genera are a set of species closely related. For example, potatoes, tomatoes and brinjal are three different species but all belong to the genus Solanum. Lions (Panthera Leo), Leopard (P Pardus) and Tiger (P Tigris) are all species of the Panthera genus, with many common characteristics. This genus is different from another genus Felice which includes cats. 3.The family is a group of genera concerned with still low number of similarities than family, genus and species. Families are painted based on both vegetation and breeding characteristics of plant species. In plants, for example, three different Genera Sollam, Petunia and Datura are placed in the Solanesi family. In animals for example, the genus Panthera, which includes lions, tigers, leopards, is placed in the family felidae with the genus, Felice (cats). Similarly, if you observe the characteristics of a cat and a dog, you will also find some similarities and some differences. They are separated into two different families - Felidae and Canidae , respectively. 4 orders you have seen before that categories such as species, genus and families are based on many similar characters. Generally, the order and other high classification categories are identified based on a set of characters. Order being a high category, is a combination of families that exhibit some similar characters. The number of similar characters is lower than that of the individual genelia involved in a family. Plant families such as Convolvulacee, Solanaceae have been included in order polymonials mainly based on floral characters. Animal orders, carnivores include families such as Feliidae and Canidae. Order: Carnivores 5. Classes include related orders in this category. For example, the order primata that includes monkeys, gorillas and gibbons is placed in class matia with order carnivores that include animals such as tigers, cats and dogs. There are other orders of class Mamaria. 6. PHYLUM classes involving animals such as fish, amphibians, reptiles, birds with mammals constitute the next high class called filum. All of these, depending on common characteristics such as the presence of notocordered and dorsal hollow neural systems, are included in the phyllum cordata. In the case of plants, A higher class called Division is assigned with some similar characters. 7. All animals belonging to kingdom different fila are assigned in the highest category called Kingdom Anonia in the classification system of animals. Kingdom plante, on the other hand, is different, and includes all plants of different divisions. From now on, we will refer to these two groups as animal and plant states. Taxon and category karan are different classification categories such as species, genus, family, order and class abstract terms and represent a rank or level in the classification hierarchy. The term taxon is used to represent real biological objects included in a category. For example, the category of tiger species are real animals belonging to the Panthera Tigris. All cat-like species of animals constitute all mammals in family taxon felide and class taxon mammemia. The category in classification, organisms that are closely placed in a group similar to each other, are groups with similarities combined together in large groups, and these are still in larger ones. The classification is known as different group level or rank categories. There are seven major categories: state, fayla, classes, order, family, genera and species. Suffix categories used for family nomenclature: A plant family ends up in a suffix.. ı In ACE and subfamily ... Oedia. An animal family is a suffix... Thoughts, a subfamily ... Mae and superfamily suffix is... Oedia. Order: The order in plants ends in a suffix ... Elsa. Various suffixes are used in animals, for example, Lagofa, Artiodectilla, Primata, Carvivora (alt classes of mammals). Class: Plants have a suffix used for class.. Fiji... Opeda or... AE. The suffix is not fixed in the case of animals, e.g., amphibia, ayas, mammals, cyclostomata. In plants, a split in the suffix ends... In Phyta, a subdivision ... Phytina while there is no fixed suffix for animals, for example, Porifera, Nelida, Cnidaria. Genus: A special place in classification is because the species cannot be named without assigning the genus. The genus may or may not have more than one species. Genera, which contains only one species, is called monotypic while people with more than two are polytypic. Naming (naming an organism is called nomenclature) is given to two types of names to organisms. These are common and scientific. 1. Common or local language name: Common or local names are given to organisms in a particular language and region of the world. Benefits: a) Easy to learn, speak and write. b) These are small and simple. c) These people are familiar to since their a) Plurality: Common names of the same group of animals or plants differ in different countries and also in different languages. For example, onions (in English) are Hindi and Paiz in Bengali, Vegyam in Tamil and Iruli in Kannada. Similarly, Argemon Mexicana has been named yellow Dhanura, Satyanasi or Bhargang etc. The bird 'sparrow' in India is known as House Sparrow in England, Pradal in Spain, Musch in Holland and Seizureun in Japan. b) Opacity: A name is often used for two or more animals or plants. Dhokak is a common name for many plants, including milky latex, such as euphorbia, soncus, launia, etc. Titlee includes butterflies and moths. Chiri is used for many small birds. c) Misleading: Some common names are misleading, for example, Cuttlefish, Jellyfish, Silverfish and Starfish. These names indicate that these are all fishes. But a fish is a vertebrae with spine, gills and feathers and these are all invertebrates. Silverfish is an insect, cuttlefish is a mollusc, jellyfish is a colerante and starfish is an echinoderm. d) Lack of uniformity: Common name classifications have failed to indicate categories 2. In binomial nomenclature (scientific name) 1753, Carolus Linius proposed the binomial system of nomenclature to give scientific names to plants and animals. They are called the father of classification. According to this system, each organism, be it a plant or an animal, has two names: the first is the common name and the second is the typical adjective. He explained this arrangement in his famous book Systema Natyre published in 1758. This system of providing a name with two components is called binomial nomenclature. For example, the scientific name of the modern man is Homo sapiens sapiens, where Homo is the generic name and the name of the Sapiens species. The second refers to the name of the Sapiens subspecies. Similarly, the scientific name of onion is Allium Sipa, mango mangifera indica, domestic cat's felis domesticus and honeybee's epis melifera. Binomial Nomenclature: Rule organisms are given scientific names based on universal rules, prepared and standardized by the International Code of Botanical Nomenclature (ICBN) and the International Code of Zoological Nomenclature (ICZN). These help to avoid error, duplication, confusion and ambiguity in scientific names. The names of bacteria and viruses are decided by the International Code of Bacterial Nomenclature (ICBAKAN). Similarly there is a separate international code of naming of cultivated plants. The scientific name of each animal or plant has a common name followed by the name of the species (binomial nomenclature). Subspecies, varieties or race species are named triangular. The generic name begins with a capital letter and species name with a small letter. Name both generic and species Be written in italics. The name of the classification that previously assigned the name of the species is added at the end. For example, Homo sapiens linius (or L) is the scientific name for modern human species. In this case Linius was the first scientist who named humans Homo sapiens. Two generic names cannot be the same in any state to avoid confusion. Scientific names are usually taken from the Latin language. When words are used in a language other than Greek or Latin, they are Latined with the appropriate end. For example, banyan is ficus bengalensis. Here, Belensis means Bengal, where the banyan tree is usually found. Generic and common names can be the same because gorilla is the generic name of Gorrifia and monkey. Generic and species name can also be similar to catella catala, a freshwater fish, and eucalyptus plant eucalyptus is the common name. Binomial Nomenclature: The scientific name of an organism is universal, that is, it has the same name all over the world. All known animals and plants have been provided with scientific names irrespective of their usefulness. This facilitates systematic study of plants and animals. The scientific name eliminates the illusion of multi-naming an organism in different regions. This indicated a connection between different varieties of a species in a genus. Dog, Wolf and Jackal have the same generic name, Canis. This means that all these animals have some common characters. It facilitates the identification or identification of the newly discovered organism. Incorrect or misleading names can be easily corrected. Scientific names are often descriptive, reflecting some important characteristics of organisms. Scientific names are derived from Latin or Greek. The change of meaning of his words is less likely because these two languages are the dead state system of classification classification The two-state system of Carolus Linius (1758) divided all organisms into two states. The shortcomings of the two-state system of state PlantaeKingdom Animalia classification: the two state system of classification has become inadequate and unsatisfactory in view of the latest information about fewer organisms. It has the following drawbacks: 1. The difference between high and familiar plants and animals is quite clear. But there are many instances at the grassroots level of the organization where it is not easy to identify them as plants or animals. Such creatures share the characters of both animals and plants. Some examples are as follows: (a) Euguana is a unicellular organism that shares the characters of both animals and plants. Like animals it lacks cell wall, has the power of contraction, a flagellum for locomotion, a mouth and contracted vacuole, reproduced by binary fission and heterotrophic nutrition when placed in the dark. On the other hand, like plants, it has chlorophyll Take on pyrenoids and photosynthesis. (b) Chimiodomonas A is a unicellular, movable organism with a certain size and has a photosensitive organel like animals, but it is chlorophyll bear and autotrophic like plants. (c) Mud molds are a group of fungi. They lack cell wall, can creep and ingest food, but develop cell wall in the breeding phase. They are similar to animals at one stage and plants in the second stage. (d) Plants such as sponges are determined to be stable, branched, irregular organisms that respond very slowly to stimuli. But, they are kept with animals because they have holozoic nutrition and emit nitrogen-rich waste. 2. Lichens: These are double creatures formed by an algae and fungus. These are found enncrusted on the bark of rocks or trees and have no plant-like character. They are classified as plants due to their fixed nature. 3. Bacteria and blue-green algae: Bacteria present a great classification problem. Like plants they have a cell wall and some of them are able to synthesize their food lightly. But, like animals, they have a flagella to roam and most of them are saprophytes. In addition, blue-green algae and bacteria have fundamentally different organizations. They lack nuclear envelope and cell organels. Nevertheless, they are prokarites but are housed with plants that are eukaryoets. 4. Fungi: Unlike plants, fungi lack chlorophyll and are saprophytic in nutrition. Their body plan is also different from plants. However, they should be placed under a different state, but are placed with plants. 5. Eukaryotes and prokarites: The previously formed organisms were neither plant-like nor like animals. In due course, some of them evolved along plant and animal lines. Summary, grouping of such diverse organisms into two states is unsatisfactory and unrealistic. It puts eukaryoets together with prokarots. It also brings together non-photosynthetic fungi with photosynthetic green plants. Five States Classification Robert H. Whittaker (1969), an American classification, divided the living world into five states: Monera, Protista, Fungus, Plantae and Animalia. Criteria for five state system of classification In this system, Whitaker did not change the subdivisions of the old two state system of classification. Instead, these are redistributed to additional States. Such a system is better based on the filooni of different lifestyles. They have left the virus on the borderline of living and non-living things. They used the following criteria to limit different states: Cell structure complexity of organisms Body mode nutritional lifestyle philogenetic relationship Five state classification empire and domain three domain system is a biological classification introduced by Carl Vosse in 1977 In the 18th century, organisms were considered related. Out of the two states, animia or plante. As biologists collected more information about the diverse forms of life on Earth, it became clear that the two state systems did not accurately reflect the relationship between different groups of organisms, and the number of states increased. In 1969, Robert Whitaker proposed a five-state system that included moneron, protests, fungi, plants and animals. Over the years, comparative studies of nucleotide sequences of gene coding for ribosomal RNA and other proteins have allowed biologists to recognize the significant distinction between bacteria and arcebaacteria. As scientists learn more about organisms, classification systems change. Genetic sequencing has given researchers a new way to analyze relationships between organisms. The current system, the three domain system, mainly groups organisms based on differences in the ribosomal RNA structure. Under this system, organisms are classified into three domains and six states. The three domains are Archiya, Bacteria and Euserya. The six states are arcebacteria (ancient bacteria), eubacteria (true bacteria), protista, fungus, plante and animaly 1. Domain Archia or Arcebacteria These are the most primitive forms. Cells have a prokaryotic organization the myrocoyl membrane is composed of branched hydrocarbon chains associated with glycerol. There is no peptidoglacan in their cell membranes. Arthia is not affected by antibiotics that destroy bacteria. Their RNA is unique and very different from bacterial RNA. Archia live in extreme environments. Examples: Methanogenes, Halophiles and Thermocidophiles 2. Domain bacteria or eubacteria are made up of unbranched fatty acid chains associated with their cell membrane glycerol. Their cell wall is made up of peptidogwan. Bacteria are sensitive to antibiotics. The naked DNA molecule is contained in cell cytoplasm. Bacterial RRNA is unique and different from Arcia and Ukeria's RRNA. Bacterial ribosomes are of 70S type. Examples: Eubacteria contains mycoplasma, cyanobacteria (blue-green algae), gram positive bacteria and gram negative bacteria. 3. The domain is a eukaryotic organization of eukaria or eukaryota cell. The cell membrane is made up of unsyielding fatty acid chains associated with glycerol to form a trilminer protein-lipid-protein layer in the form of bacteria. The cell wall is absent in animal cells but is present in plant cells. Peptidoggelcans have not been found. Euurias are resistant to traditional antibiotics. Hereditary material is made up of DNA+ basic protein, nucleoprotein fiber made of hiton. Eukaryotic RNA is unique to Eukarya. Eukaria ribosomes are of 80S type. Eucuria is divided into the following four states: (a) Kingdom Protista: Contains sludge mold, euglenoid, algae and protozoan. (b) Kingdom fungus: phycomyset in it, Besidiomicets, dutertes. (c) Kingdom Plante: This includes bryophytes, petridophytes, gymnosperms and angiosperms. (d) State Anitalia: It involves all animals. Six state classification classification classification classification aids classification studies of different species of plants, animals and other organisms are useful in agriculture, forestry, industry and in general in knowing our bio resources and their diversity. These studies will require the correct classification and identification of organisms. The identification of organisms requires intensive laboratory and field studies. Collection of actual specimens of plant and animal species is essential and is a major source of classification studies. These are also fundamental to studies and are essential for training in order. It is used for the classification of an organism, and also stored with collected information samples. In some cases the sample is preserved for future study. Biologists have established some processes and techniques to store and preserve information as well as samples. Some of these are explained to help you understand the use of these aids. 1.Herberium is a store house of samples of herberium collected plants that are dried, pressed and preserved on sheets. In addition, these sheets are arranged according to a universally acceptable system of classification. These samples, with their descriptions on herberium sheets, become a store house or storehouse for future use. The Herberium sheets also have a label giving

information about the date and place of collection, English, local and botanical names, family, collector's name, etc. Herberia also works as a quick referral system in Taxonomic Studies 2. Botanical Garden: These special gardens have a collection of living plants for reference. Plant species in these plantations are grown for identification purposes and each plant is marked indicating its vegetation/scientific name and its family. The famous botanical gardens are in Kew (England), Indian Botanical Garden, Howrah (India) and National Botanical Research Institute, Lucknow (India). 3. Museum biological museums are generally set up in educational institutions such as schools and colleges. Museums have collections of preserved plant and animal specimens for study and reference. Samples are preserved in containers or jars in preservative solutions. Plant and animal samples can also be preserved in the form of dried samples. Insects are preserved in insect boxes after collecting, killing and pinning insects. Large animals such as birds and mammals are usually stuffed and protected. Museums also often have a collection of animal skeletons. 4 Zoological Parks These are the places where wild animals are kept in an environment protected under human care and which enable us to learn about their food habits and behaviour. all Conditions similar to their natural habitats are provided in a zoo, as far as possible. 5.KEY key is another classification aid used to identify plants and animals based on similarities and anomalies. Keys are usually based on contrasting characters in a pair called couplets. This represents the option made between two opposite options. This results in only acceptance of one and rejection of the other. Each statement in the key is called a lead. Identification purposes require separate classification keys for each classification category such as family, genus and species. Purposes.