



Classifying Living Things

What is classifying?

A way of organizing living organisms



Classification –

- Why there is a need for classification
 - Organization
 - A method to name organisms
 - To give a worldwide uniform ness to the names.
 - Example: The common name puma cougar and mountain lion refer to the same organism

- Nomenclature – Naming organisms

Early classification

- **Aristotle developed a system of naming organisms (taxonomy)**
 - **Divided living things into two kingdoms, plants and animal**
 - **Plants he divided into herbs, trees and shrubs**
 - **Animals he divided into land, water and air**



Scientific naming



- Linnaeus in the 1700's developed a classification system based on structural features of organisms
 - Carolus Linnaeus introduced binomial nomenclature



Linnaeus's system

- Binomial nomenclature is a two name naming system
- Each organism is given a two word Latin name
- The first word is the genus usually a noun
- The second word is the species and usually an adjective
- Genus is always capitalized and the species name is lower case
- The words are underlined or italicized to show that it is the scientific name
- *Felis* *sylvestris* - bobcat
- *Felis* *domesticus* Domesticated cat
- *Felis* *concolor* Mountain lion

Basis for classification

- **Homologous structures – studying the similar structures**
- **Comparative biochemistry and development**
- **Phylogeny – “evolutionary history” (which could be an oxymoron)**
- **Genetics - # and type of chromosomes**

Classification groups “Taxa”

- Things are grouped together (The animals address)
 - Kingdom – The largest classification group
 - Phylum – the groups in the kingdoms
 - Class – the groups in the phyla
 - Order – the groups in the Classes
 - Family – the groups in the Orders
 - Genus – the groups in the families
 - Species – refers to a specific organism and includes both the genus and species name Canis familiaris

Kingdoms –

- No longer just separated into plants and animals
- Now divided into five kingdoms
 - Plants
 - Animals
 - Fungus
 - Protists
 - Monerans
- Some divide into six kingdoms



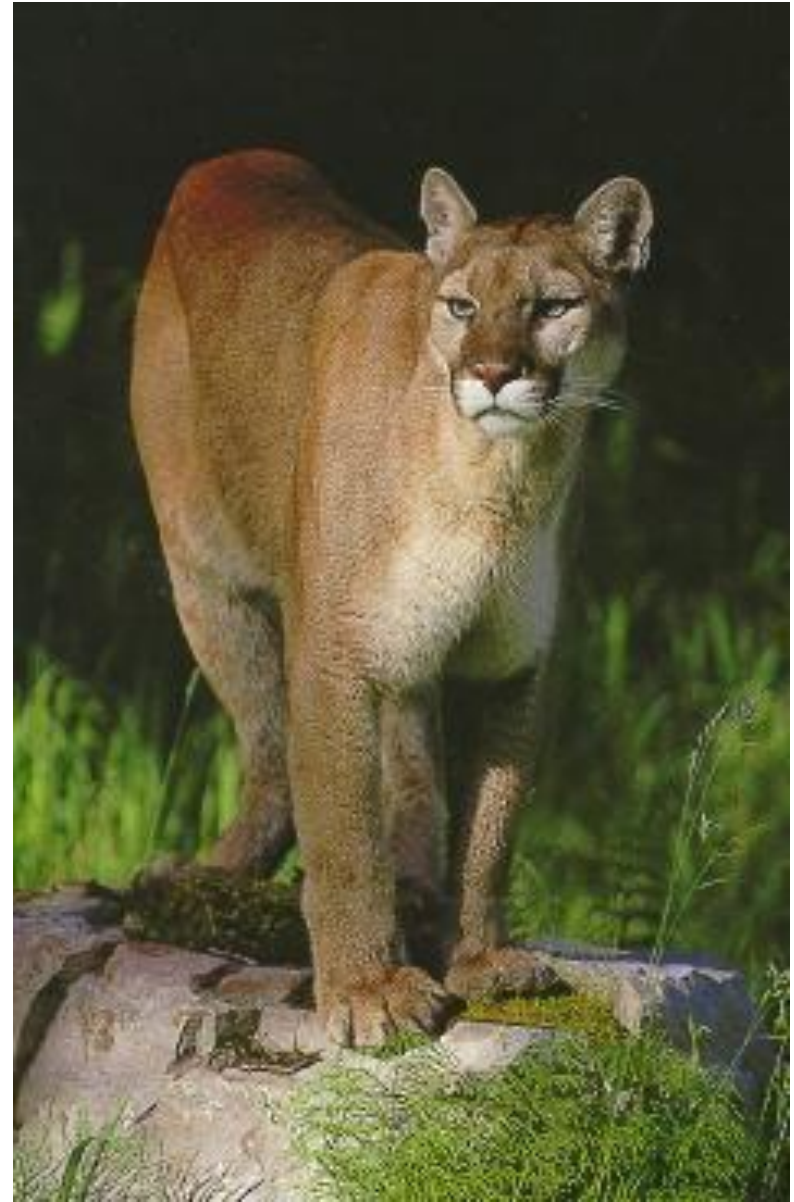
Plantae

A vibrant yellow flower with a brown center, surrounded by lush green foliage. The flower is the central focus, with its petals radiating outwards. The background is a dense field of green leaves and stems, creating a natural, outdoor setting.

- **Autotrophic**
Multicellular
Eukaryotes
Reproduce sexually and asexually
Examples: mosses, ferns, conifers and
flowering plants

Animalia

- **Heterotrophic**
- **Multicellular**
- **Eukaryotes**
- **Reproduce sexually and some asexually**
- **Examples: Sponges**
 - **Blue whales**



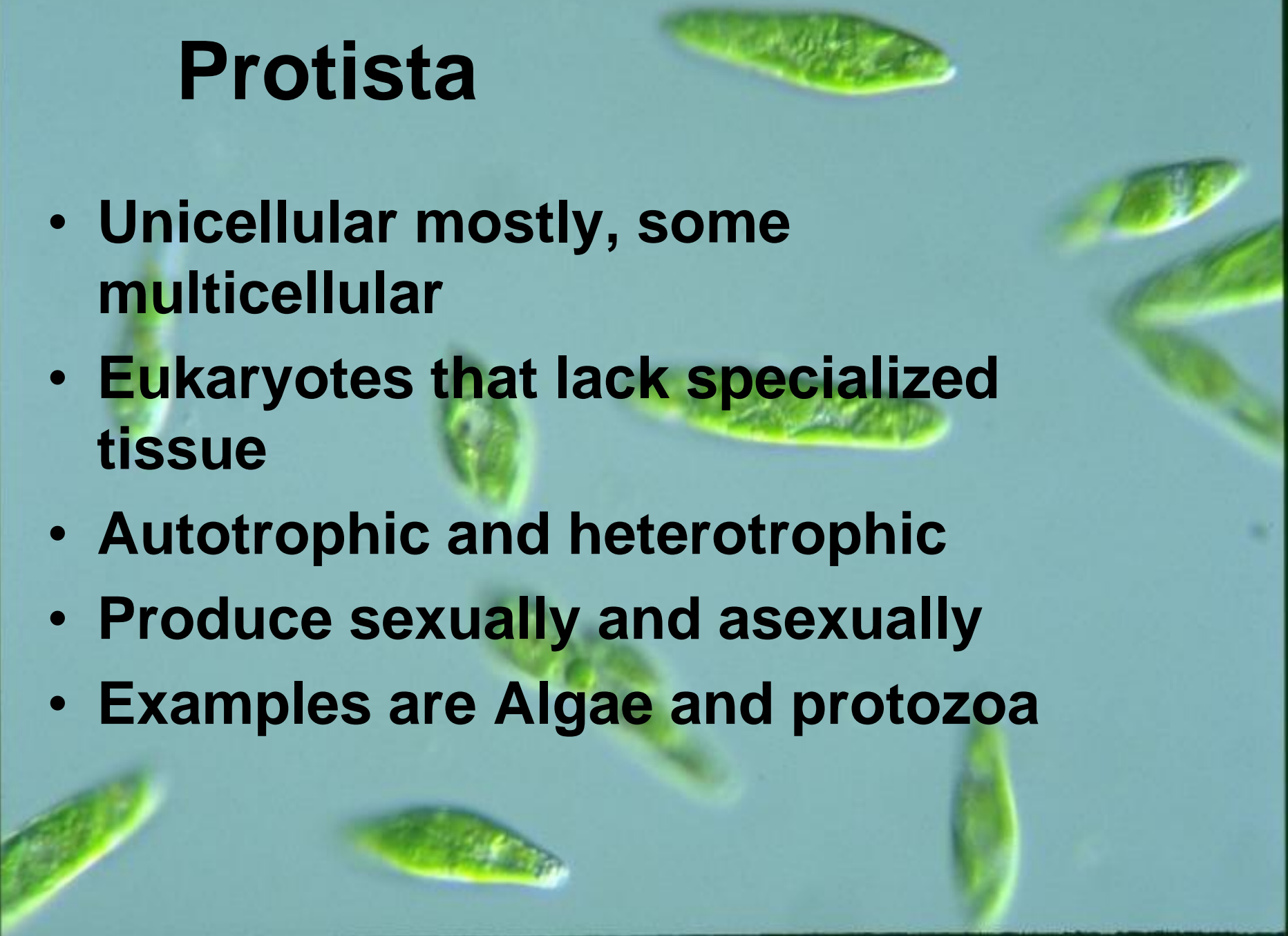
Fungi

- **Heterotrophic**
- **Eukaryotes**
- **Reproduce Sexually and asexually**
- **Examples – mushroom, yeasts, puffballs, smuts, rusts, molds**



Protista

- **Unicellular mostly, some multicellular**
- **Eukaryotes that lack specialized tissue**
- **Autotrophic and heterotrophic**
- **Produce sexually and asexually**
- **Examples are Algae and protozoa**



Monera –

- **Unicellular autotrophic and heterotrophic Prokaryotes**
Reproduce asexually
Bacteria and Blue green algae



Human Classification

- Kingdom – Animalia
- Phylum – Chordata
- Subphylum – vertebrata
- Class – Mammalia
- Order – Primates
- Family – Homonidae
- Genus - Homo
- Species – Homo
sapiens



Identifying organisms

- **Common names**
- **Not the same world wide**
 - Many organisms have more than one common name
 - Many different organisms have the same common name



Functions of scientific names

- Help avoid errors
Use a name that
won't change (Latin)





Using a dichotomous Key (do activity)

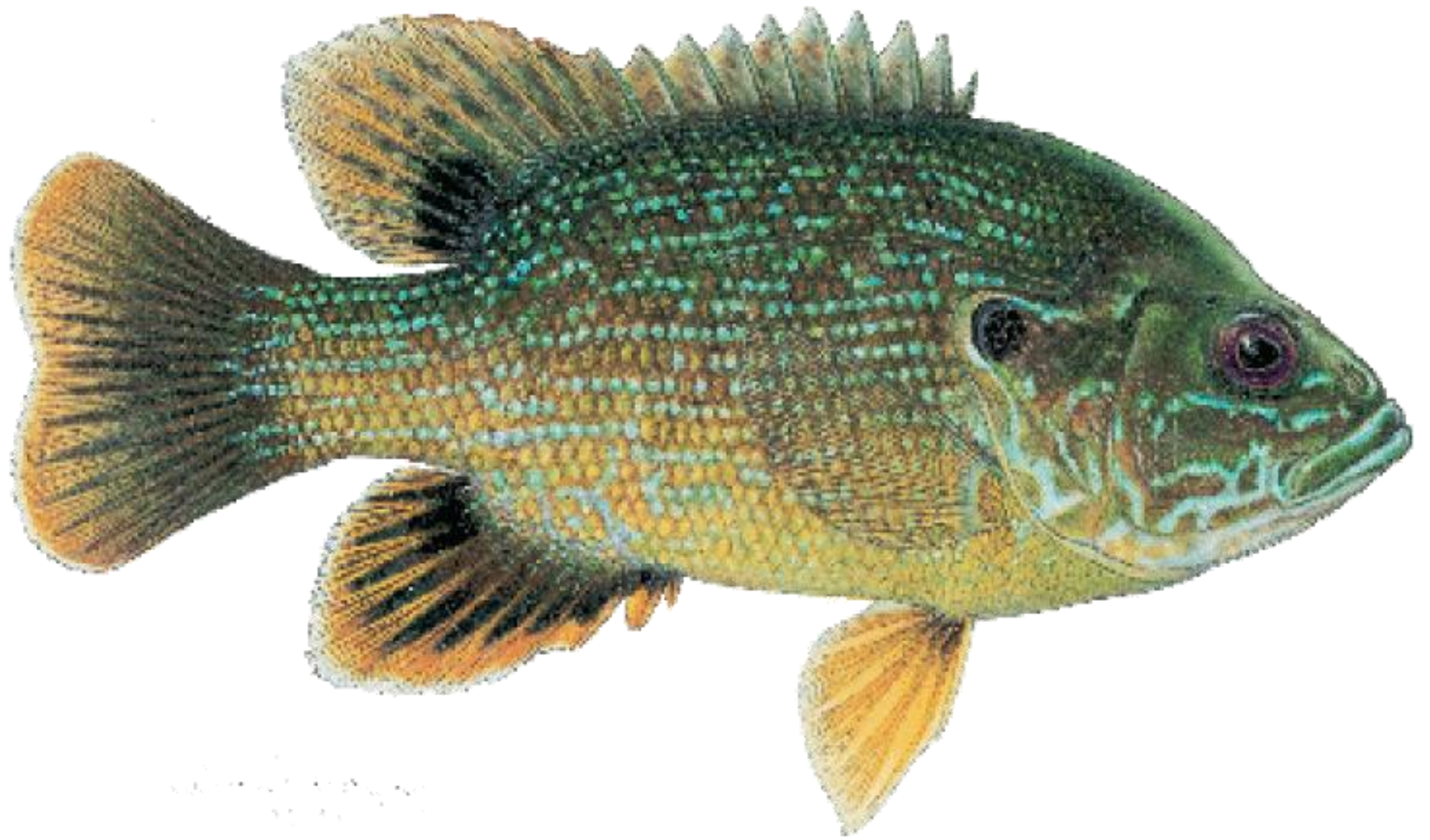












Micropterus dolomieu
Common Name: Rock Bass



Uland Thomas