BIOLOGY

CLASSIFICATION GUIDE

# KINGDOMS

MONERA

Characteristics:

Prokaryotic

Unicellular or colonial

Autotrophic or heterotrophic

Microscopic

PROTISTA

Characteristics:

Unicellular or colonial

Autotrophic or hetertrophic

Eukaryotic

FUNGI

Characteristics:

Unicellualar or multicellular

Saprophytic or parasitic

Eukaryotic

PLANTAE

Characteristics:

Multicellular

Autotrophic

Eukaryotic

ANIMALIA

Characteristics:

Multicellular

Heterotrophic

Eukaryotic

BIOLOGY

CLASSIFICATION GUIDE

KINGDOMS: FUNGI

Characteristics:

## Unicellular or multicellular

Saprophytic or parasitic

Eukaryotic

DIVISION MYXOMYCOTA

Characteristics:

Fungus-like but with protist-like stages

Large with plasmodial stages

Nutrition:

Saprophytic

Life cycle:

Alternation of generations

Common names:

Slime mold

### DIVISION ASCOMYCOTA

Characteristics:

Sac-like reproductive structures

Nutrition:

Saprophytic or parasitic

Life cycle:

Asexual - budding

Common names:

Sac fungi

Yeast

BIOLOGY

CLASSIFICATION GUIDE

KINGDOMS: FUNGI

### DIVISION BASIDIOMYCOTA

Characteristics:

## Reproductive structures form club (mushroom)-like fruiting bodies

Nutrition:

#### Some parasitic, mostly saprobes

Life cycle:

#### Varies

Common names:

#### Puffballs, mushrooms

### DIVISION ZYGOMYCOTA

Characteristics:

#### Have rhizoids & hyphae

Nutrition:

#### Mostly saprobes

Life cycle:

#### Sexual & asexual

Common names:

#### Common bread mold

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: PLANTAE

Characteristics:

Eukaryotic

Multicellular

Autotrophic

### DIVISION PHAEOPHYTA – Brown algae

Characteristics:

## Color caused by fucoxanthans

Mostly marine

May have “air” bladders and holdfasts

“Kelp”

### DIVISION CHLOROPHYTA – Green algae

Characteristics:

Color caused by chlorophyll

## Filamentous or sheet-like

### DIVISION BRYOPHYTA – Mosses or liverworts

Characteristics:

## Amphibious

No true “roots”

No true “stems”

### DIVISION CONIFEROPHYTA – Cone bearing non-flowering plants

Characteristics:

## Needle-like leaves

No fruit enclosed seeds

Cones

### DIVISION ANGIOSPERMOPHYTA – Flowering plants

Characteristics:

#### Sex organs in flowers

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: ANIMALIA

Characteristics:

Multicellular

Heterotrophic

Eukaryotic

### PHYLUM PORIFERA

Characteristics:

Two layers

Aquatic

Reproduce asexually and sexually

Body symmetry:

#### Asymmetry

Habitat:

#### Aquatic

Feeding method:

#### Filter feeder

Common names:

#### Sponges

### PHYLUM CNIDARIA

Characteristics:

Aquatic

Two cell layers

Polyps and medusae

Body symmetry:

#### Radial

Habitat:

#### Aquatic

Feeding method:

#### Tentacles with nematocysts capture food and move it to mouth

Common names:

Jellyfish, hydra, anemone

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: ANIMALIA

### PHYLUM PLATYHELMENTHES

Characteristics:

Flatworms

Three layers of cells

#### Bilateral symmetry

### Class Turbellaria

Characteristics:

#### Free-living

Feeding method:

#### One-way digestive system with pharynx

Common names:

#### Planaria

### Class Trematoda

Characteristics:

#### Parasitic

Feeding method:

#### One-way digestive system

Common names:

#### Fluke

### Class Cestoda

Characteristics:

Sectioned body

No digestive system

Feeding method:

#### Absorb host food

Common names:

#### Tapeworm

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: ANIMALIA

### PHYLUM NEMATODA

Characteristics:

Body cavity

Two-way digestive system

Body symmetry:

#### Bilateral

Habitat:

Most free-living

Some parasitic

Feeding method:

#### One-way digestive system

Common names:

#### Roundworm

### PHYLUM ANNELIDA

Characteristics:

Has coelom

Segmentation

Advanced organ system

Most have setae

Body symmetry:

#### Bilateral

Habitat:

#### Terrestrial and aquatic

Feeding method:

#### One-way digestive system

Common names:

#### Earthworm, leech

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: ANIMALIA

### PHYLUM MOLLUSCA

Characteristics:

Mostly marine

Most have a shell

Very advance organ system

### Class Gastropoda

Characteristics:

#### One shell, only terrestrial mollusk

Habitat:

#### Mostly aquatic, some terrestrial

Common names:

#### Snail

### Class Pelecypoda

Characteristics:

#### Two shells

#### No distinct head section

Habitat:

#### Aquatic

Common names:

#### Scallop, clam, mussel

### Class Cephalopoda

Characteristics:

Very advance nerve system,

Method of movement:

#### “Jet” propulsion with siphon

Common names:

#### Squid, octopus, nautilus

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: ANIMALIA

### PHYLUM ECHINODERMATA

Characteristics:

#### Endoskeleton, “spiny” skin

Water-vascular system

#### Most have tube feet

No circulatory, respiratory, or excretory systems

Nervous system but no brain

Body symmetry:

#### Pentamerous radial symmetry

Habitat:

#### Marine

Method of movement:

#### Water-pump system with tube feet

Common names:

Sea urchin, starfish, basket star

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: ANIMALIA

### PHYLUM ARTHROPODA

Characteristics:

#### Exoskeleton made of chitin, must molt to grow

Jointed appendages

Segmented body

Ventral nervous system, open circulatory system, specialized sensory receptors

### Class Arachnida

Characteristics:

Two major body sections

Silk production, terrestrial

Body plan:

Two major body sections

Eight legs

Common names:

#### Spiders

### Class Crustacea

Characteristics:

#### Single body section

Habitat:

Aquatic (mostly)

Body plan:

Single body section (carapace)

Common names:

#### Crab, lobster, pill bug, sow bug, barnacles

### Class Insecta

Characteristics:

#### Largest class, breath through spiracles

Habitat

#### Terrestrial

Body plan:

#### Three sections with six legs

Common names:

Insects

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: ANIMALIA

# PHYLUM CHORDATA

Characteristics:

## A notochord or dorsal rod of specialized cells

## A dorsal nerve cord

Pharyngeal pouches

### SUBPHYLUM UROCHORDATA

## Characteristics:

## Non-moving, solitary or colonial

Filter feeders

Common names: Sea squirts

### SUBPHYLUM CEPHALOCHORDATA

## Characteristics:

Marine dwelling

Filter feeders

Common names: Lancet, amphioxus

### SUBPHYLUM VERTABRATA

## Characteristics:

#### Have bones or cartilage surrounding the dorsal nerve cord

Common names: Any organism with a backbone

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: ANIMALIA

# PHYLUM CHORDATA

CLASS CONDRICHTHYES

Characteristic:

## Skeleton of cartilage

Mostly marine

Has placoid scales

## Number of chambers in the heart: 2

Adaptations:

Saltwater: Have special mechanisms for excreting excess salt

Freshwater: Excretes excess water

Common names:

Sharks, rays, skates

CLASS OSTEICHTHYES

Characteristic:

Bony internal skeleton

Scaly skin, Fins

Number of chambers in the heart: 2

Adaptations:

## Saltwater: See above

Freshwater: See above

Common names: Fish, fishy, red fish, blue fish, one fish, two fish

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: ANIMALIA

# PHYLUM CHORDATA

CLASS AMPHIBIA

Characteristic: Change from aquatic larval stage to terrestrial

Moist, smooth skin with no scales, Feet (if present) webbed

Use gills, lungs, skin, in respiration, Larvae have 2 chamber hearts/adults 3

#### Eggs lack membrane or shell, fertilized externally

Cold blooded

Number of chambers in the heart: 2 in larvae/3 in adult

Adaptations: Behavioral=burying in mud to stay at correct temp.

Hibernation

#### Lay eggs in or near water

Common names for order:

Anura: Frogs and toads

Urodela: Salamanders and others with tails

## Common names: Frogs, toads, salamanders, newts

CLASS REPTILIA

Characteristic: Aminote egg

Waterproof skin

Specially modified feet, Specialized circulatory, respiratory, and excretory systems

Exothermic

Number of chambers in the heart: Mostly 3, alligators and crocodiles have 4

Adaptations: Aminote egg, internal fertilization, dry body with scales, limbs for movement

Common names for order:

Squamata: Lizards and snakes

Chelonia: Turtles

Common names:

BIOLOGY

CLASSIFICATION GUIDE

# KINGDOM: ANIMALIA

# PHYLUM CHORDATA

CLASS AVES

## Characteristic: Body covered with feathers, Bones thin and hollow

## Most winged for flight, Two hind limbs for support, Beak, 4 chamber heart

## Amniote eggs with hard shell, Most incubate shell in nest

#### Endothermic

Number of chambers in the heart: 4

Adaptations: Endothermic

Hard shell

Hollow, light bones

Flight

Common names:

CLASS MAMMALIA

Characteristic: Endothermic, Hair, 4 chambers in heart

A muscle to help breath (diaphragm)

Single jawbone and four different types of teeth

Viviparous, Mammary glands for milk secretion

Well-developed brain

Number of chambers in the heart: 4

Adaptations: See above

Common names:

BIOLOGY

CLASSIFICATION GUIDE

KINGDOM: ANIMALIA

PHYLUM CHORDATA

CLASS: MAMMALIA

Characteristics: Endothermic, Hair, 4 chambers in heart

A muscle to help breath (diaphragm)

Single jawbone and four different types of teeth

Viviparous, Mammary glands for milk secretion

Well-developed brain

Characteristics of order:

Rodnetia: Only two incisors in jaw

Common names: Rodents, rats, mice

Chiroptera: Modified forelimb with membrane for flight

Echo location

Common names: Bats

## Carnivora: Long canine teeth, strong jaws, clawed toes

Usually have good sense of smell and sight

Common names: Dogs, cats, lions and tiger and bears, oh my!

Artiodactyla: Hoofed animals with even number of toes

Common names: Deer, elk, bison, moose, cows, sheep, goats, pigs

Primates: Omnivores, Complex brain

Common names: Donnie, Rylee, Kevin, Roxanne, Alina, Matt, Amanda

Tania, Melissa, Frank, David, Ape, Tarzan, Chimp