Animal Diversity & Wildlife Conservation

Zoology Complementary Course for I Semester B.Sc. Botany

Complementary Course 1

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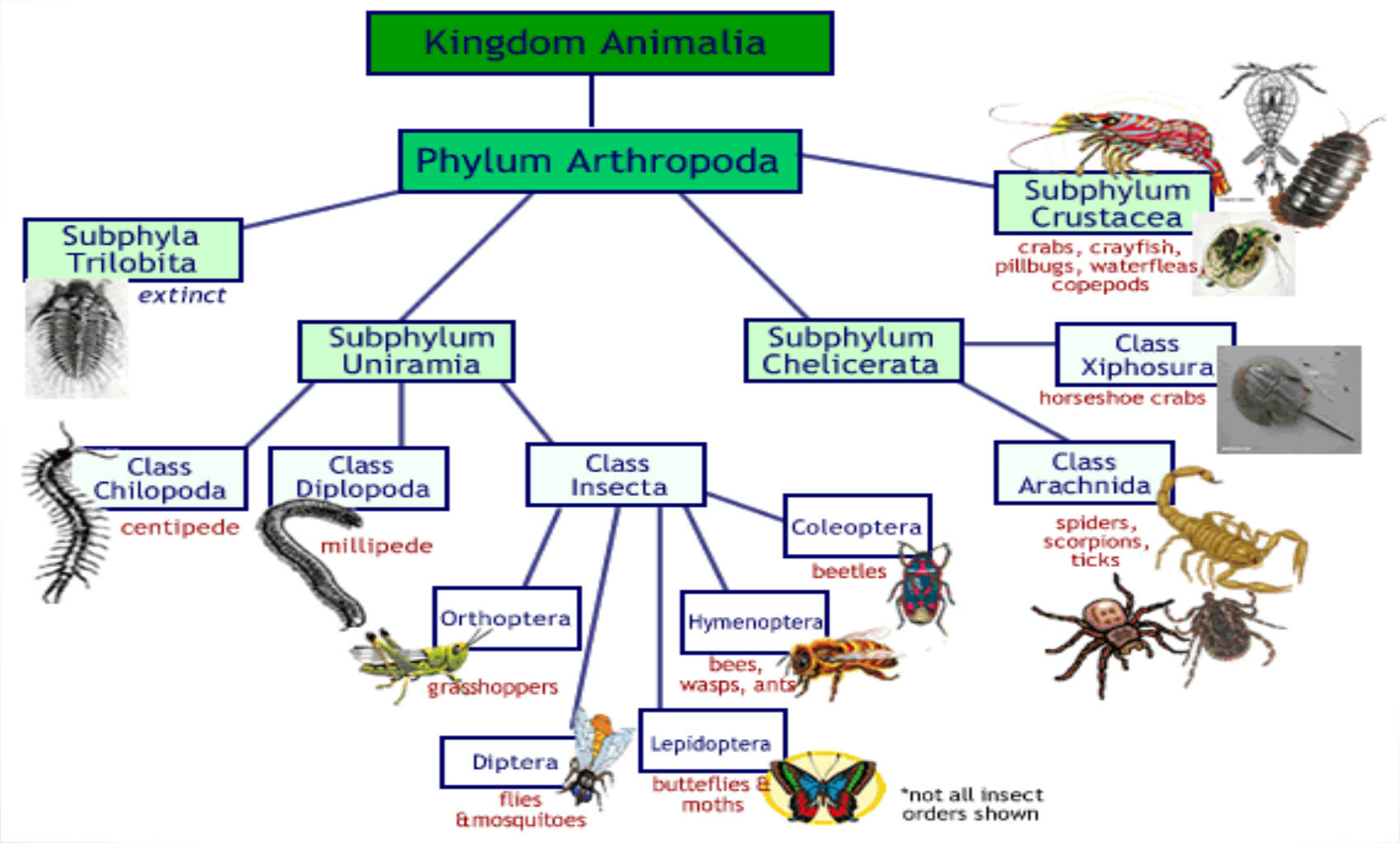
PHYLUM ARTHROPODA

ARTHROPODS


Kingdom Animalia
Phylum Arthropoda
Subphyla Trilobita
extinct
Subphylum Uniramia
Subphylum Chelicerata
Subphylum Crustacea
crabs, crayfish, pillbugs, waterfleas, copepods
Class Xiphosura
horseshoe crabs
Class Chilopoda
centipede
Class Diplopoda
millipede
Class Insecta
Class Arachnida
spiders, scorpions, ticks
Coleoptera
beetles
Orthoptera
grasshoppers
Hymenoptera
bees, wasps, ants
Diptera
flies &mosquitoes
Lepidoptera
butteflies & moths
*not all insect orders shown

ARTHROPDS

- JOINT FOOTED ANIMALS
- BILATERALLY SYMMETRICAL, METAMERICALLY SEGMENTED, JOINT FOOTED COELOMATES WITH CUTICULAR EXOSKELETON AND SEGMENTED APPENDAGES
- LARGEST ANIMAL GROUP – 80%

SALIENT FEATURES

- SEGMENTED BODY WITH HEAD, THORAX AND ABDOMEN – CEPHALOTHORAX
- CUTICULAR EXOSKELETON
- MOULTING FOR GROWTH
- JOINTED APPENDAGES
- PERI VISCERAL HAEMOCOEL
- REDUCED COELOM IN ADULT

SALIENT FEATURES

- OPEN CIRCULATORY SYSTEM WITH DORSAL HEART
- RESPIRATORY ORGANS INCLUDE BRANCHIAE IN AQUATIC FORMS AND TRACHAE, BOOK LUNGS,ETC..
- EXCRETORY ORGANS INCLUDE MALPHIGIAN TUBLES, GREEN GLAND, ETC. NEPHRIDIA IS ABSENT
- NERVOUS SYSTEM– CIRCUM OESOPHAGEAL NERVE RING AND GANGLIONATED DOUBLE VENTRAL NERVE CORD
- LOCOMOTOR CILIA ABSENT IN LIFE CYCLE
- INDIRECT DEVELOPMENT

CLASSIFICATION

- Sub Phyla
  - Trilobita
  - Chelicerata – 3 Classes
  - Crustacea – 13 Classes
  - Uniramia – 5 Classes
- Phylum Onycophora

CLASSIFICATION

- CLASS CRUSTACEA
- CLASS MYRIAPODA
- CLASS ARACHNIDA
- CLASS INSECTA
- CLASS ONYCHOPHORA

CRUSTACEA

- AQUATIC ARTHROPODS, MOSTLY MARINE, FRESHWATER FORMS ALSO PRESENT
- BILATERALLY SYMMETRICAL BODY COVERED WITH CUTICULAR EXOSKELETON
- BODY – HEAD, THORAX & ABDOMEN
- HEAD – STALKED COMPOUND EYES & 5 PAIRED APPENDAGES
- THORAX AND ABDOMEN – SINGLE PAIR EACH

CRUSTACEA

- BLOOD VASCULAR SYSTEM IS OPEN OR LACUNAR
- RESPIRATION BY GILLS
- EXCRETORY ORGAN – ANTENNARY GLAND AND MAXILLARY GLAND
- SEXUAL DIMORPHISM
- LIFECYCLE STARTS WITH NAUPLIUS LARVA
- EGS. PRAWN, CRABS, LOBSTERS, SACCULINA, LEPAS,ETC

CRUSTACEANS

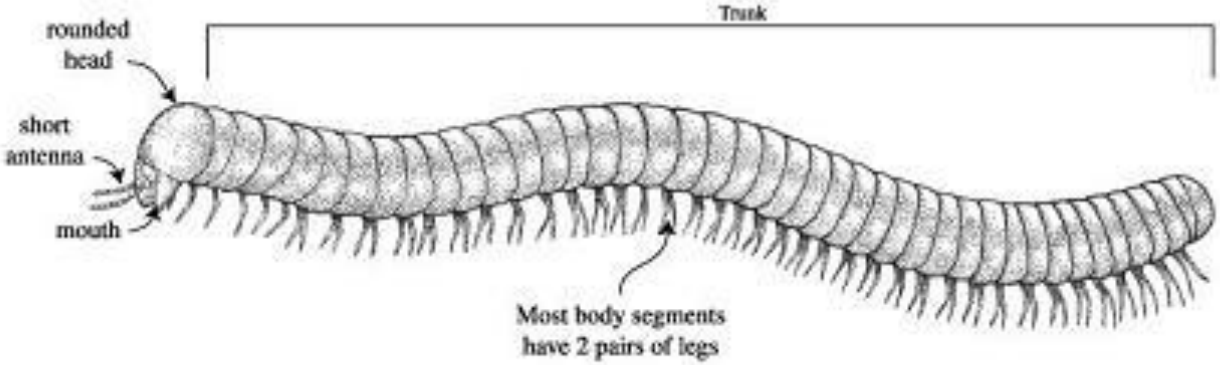
MYRIAPODA

- WORM LIKE, MULTILEGGED AIR BREATHING TERRESTRIAL ARTROPODS – MILLIPEDS, CENTIPEDS.
- LONG BODY – HEAD & TRUNK
- EACH SEGMENT – 1 OR MORE PARED APPENDAGES
- ALIMENTARY CANAL STRAIGHT & GLANDLESS
- RESPIRATORY ORGANS – TRACHEA WITH SPIRACLES

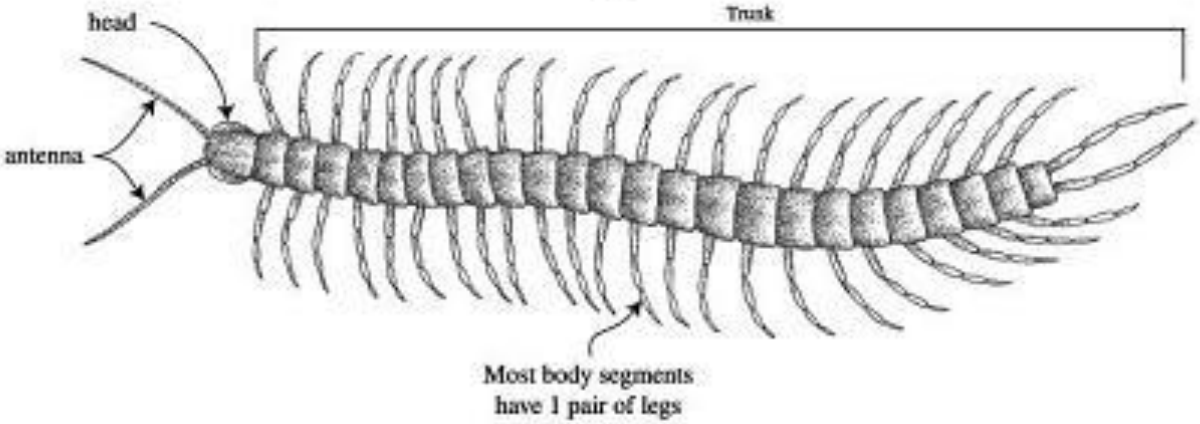
MYRIAPODA

- LONG AND CHAMBERED HEART
- EXCRETORY ORGANS – MALPHIGIAN TUBULES
- SEXES SEPARATE. SINGLE GONADS WITH PAIRED GONODUCTS
- SCOLOPENDRA (CENTIPEDE)
- SPIROSTREPTUS (MILLIPEDE)

Millipede



Centipede



CENTIPEDE & MILLIPEDE

SCUTIGERA

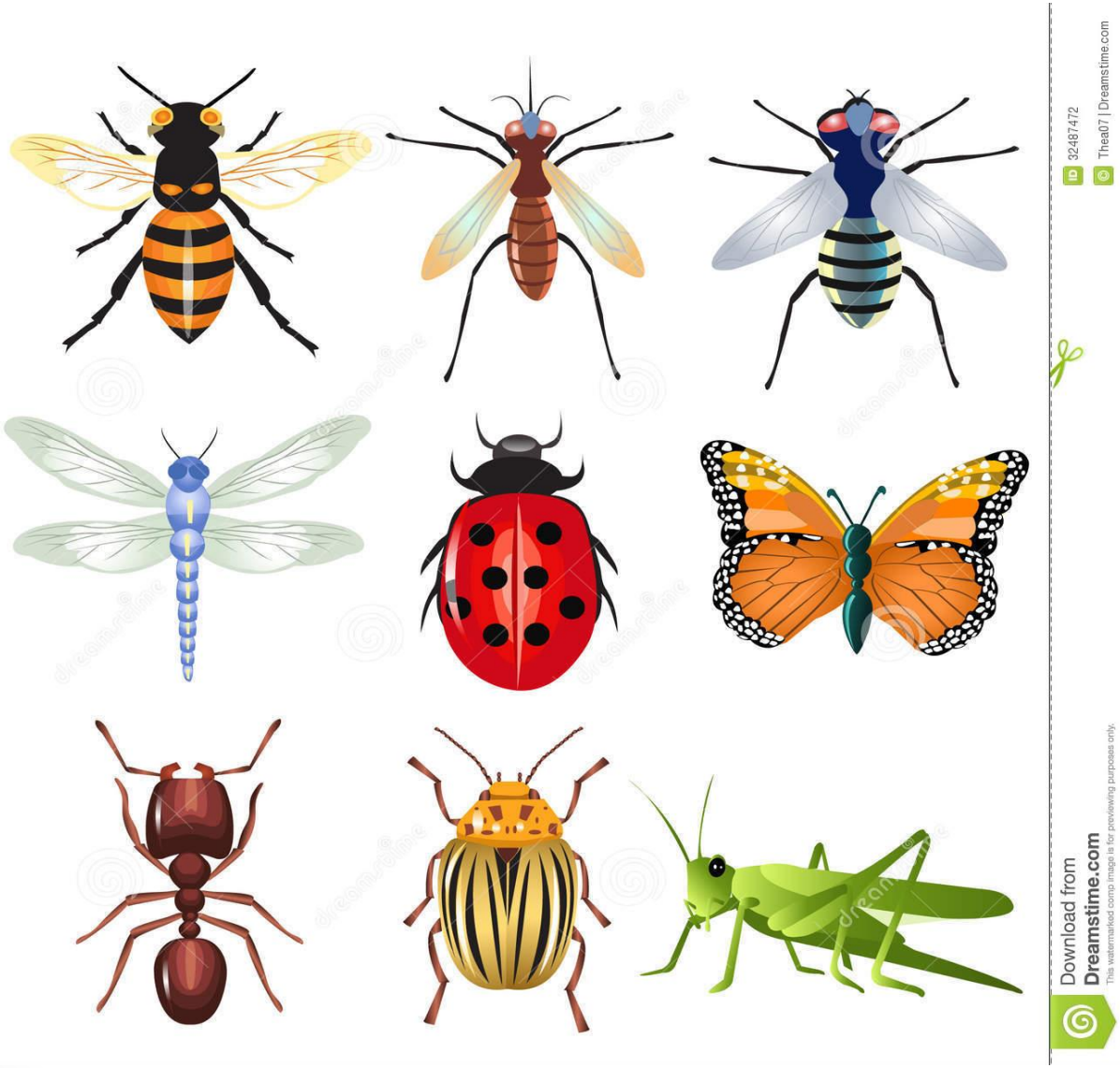
CLASS INSECTA

- SEGMENTED BODY – HEAD, THORAX & ABDOMEN
- HEAD – 6 SEGMENTS – PAIRED COMPOUND EYES & ANTENNAE
- THORAX – 3 SEGMENTS – 3 PAIRS LEGS & 2 PAIRS WINGS
- ABDOMEN – 7-11 SEGMENTS. NO APPENDAGES

CLASS INSECTA

- SALIVARY GLANDS PRESENT
- HEART LONG AND TUBULAR WITH LATERAL OSTIA
- RESPIRATORY ORGANS – TRACHEAL TUBES
- EXCRETORY ORGANS – MALPHIGIAN TUBULES
- SEXES SEPRATE – INTERNAL FERTILIZATION – DIRECT OR INDIRECT DEVELOPMENT
- EGS – COCKROACHES, BUTTERFLIES, BEES, WASPS, TERMITES, ANTS, ETC

INSECTS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ARACHINIDA

- AIR BREATHING – TRERRESTRIAL ARTHROPODS (RARELY AQUATIC)
- BODY – PROSOMA & OPISTHOSOMA
- PROSOMA – SIMPLE EYES & 6 PAIRS OF APPENDAGES
- HEART DORSAL & TUBULAR
- RESPIRATORY ORGAN – TRACHAE, BOOK LUNGS
- EXCRETORY ORGANS – MALPHIGIAN TUBULES AND COXAL GLANDS
- SEXES SEPARATE
- INTERNAL FERTILIZATION & DIRECT DEVELOPMENT
- EGS. LIMULUS, SCORPION, SPIDERS, TICKS AND MITES, ETC…

ARACHNIDS

tick
scorpion
crab spider
www.visualdictionaryonline.com
garden spider
water spider
red-kneed tarantula

LIMULUS

ONYCHOPHORA

- CATERPILLAR LIKE SLOW MOVING ARTHROPODS - PERIPATUS
- VERMIFORM BODY WITHOUT EXTERNAL SEGMENTATION
- NO TRUE HEAD REGION
- HOLLOW, STUMPY &UNJOINTED APPENDAGES
- SPIRACLES ARE IRREGULARLY DISTRIBUTED
- NO COMPUND EYES
- PAIRED SEGMENTAL NEPHRIDIA
- VENTRAL NERVE CORD WIDELY SPREAD. NON GANGLIONATED
- CILIATED REPRODUCTIVE ORGANS
- PERIPATUS EXAMPLE

PERIPATUS

THANK YOU