

Science Notes

Date 23/10/18

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Chapter - 7

K.V.S.

Class: 9th

DIVERSITY IN LIVING

ORGANISMS

Home-work

Q-1 Why do we classify organisms?

Ans For easier and convenient study of variety of life forms we classify organisms.

Q-2 Give three examples of the range of variations that you see in life forms around you.

- Ans a) small cat and big cow.
b) Grass and banyan tree.
c) Black crow and green parrot.

Q-3 Which do you think is a more basic characteristic for classifying organisms?

a) The place where they live.

b) The kind of cells they are made of. Why?

Ans because they are made of is more basic as there can be wide variations in organisms living in a given place, hence it can't be basic characteristic of classifying.



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Sawdih

"Facts are facts and will not disappear on account of your likes." - Jawaharlal Nehru

organisms.

Q.4 what is the primary characteristic on which the first division of organisms is made?

Ans Nature of cell is the primary characteristic on which the first division of organisms is decided based on this criterion life forms can be classified into prokaryotes or eukaryotes.

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Q.5 on what bases are plants and animals put into different categories?

Ans made of nutrition and presence or absence of cell walls.

Q.6 which organisms are called primitive and how are they different from the so-called advanced organisms?

Ans organisms with simple cellular structure and no division of labour are called primitive.

Advanced organisms, like mammals have millions of cells and there are different organs and organ system for different biological functions.

Q.7 will advanced organisms be the same as complex organisms? why?



Ans Yes, advanced organisms means greater degree of evolution which leads to more complexity.

Imp.

Q.8 who has proposed five kingdom classification write down the five kingdoms.

Ans R. H. Whittaker.

Imp.

Q.9 write the ~~Hierarchy~~ ^{Kingdom} of classification.

Ans Monera, Protista, Fungi, Plantae and Animalia

Kingdom:— all living organisms into broad categories called kingdoms.

Biodiversity:— variety of living organisms is called biodiversity.

Species:— species includes all organisms that are similar enough to breed and perpetuate.

OR

it is the basic unit of classification

* Charles Darwin first described species.

1- Monera:— i) They have unicellular, prokaryotic organisms.

ii) The cell-wall is not present.

iii) The mode of nutrition is heterotrophic.

iv) Eg:— Bacteria, Anabaena.



2- Protista:— i) They have unicellular, eukaryotic organisms.

ii) Their body is covered by cilia, flagella for locomotion.

iii) The mode of nutrition is heterotrophic.

iv) Eg:— Amoeba, Paramecium, Euglena.

3- Fungi:— i) These are multicellular, eukaryotic organisms.

ii) Cell wall of fungi is made up of chitin.

iii) They do not perform photosynthesis.

iv) Eg:— Aspergillus, Penicillium, Mushroom.

4- Plantae:— i) These are multicellular eukaryotic organisms with cell wall.

ii) It is made up of cellulose.

iii) They are able to perform photosynthesis.

iv) Ex:— Rice, wheat.

5- Animalia:— i) These are multicellular eukaryotic organisms without cell-wall.

ii) They are not able to perform photosynthesis.

iii) Eg:— Human beings, peacock.

Lichen:— It is made up of fungi and algae.



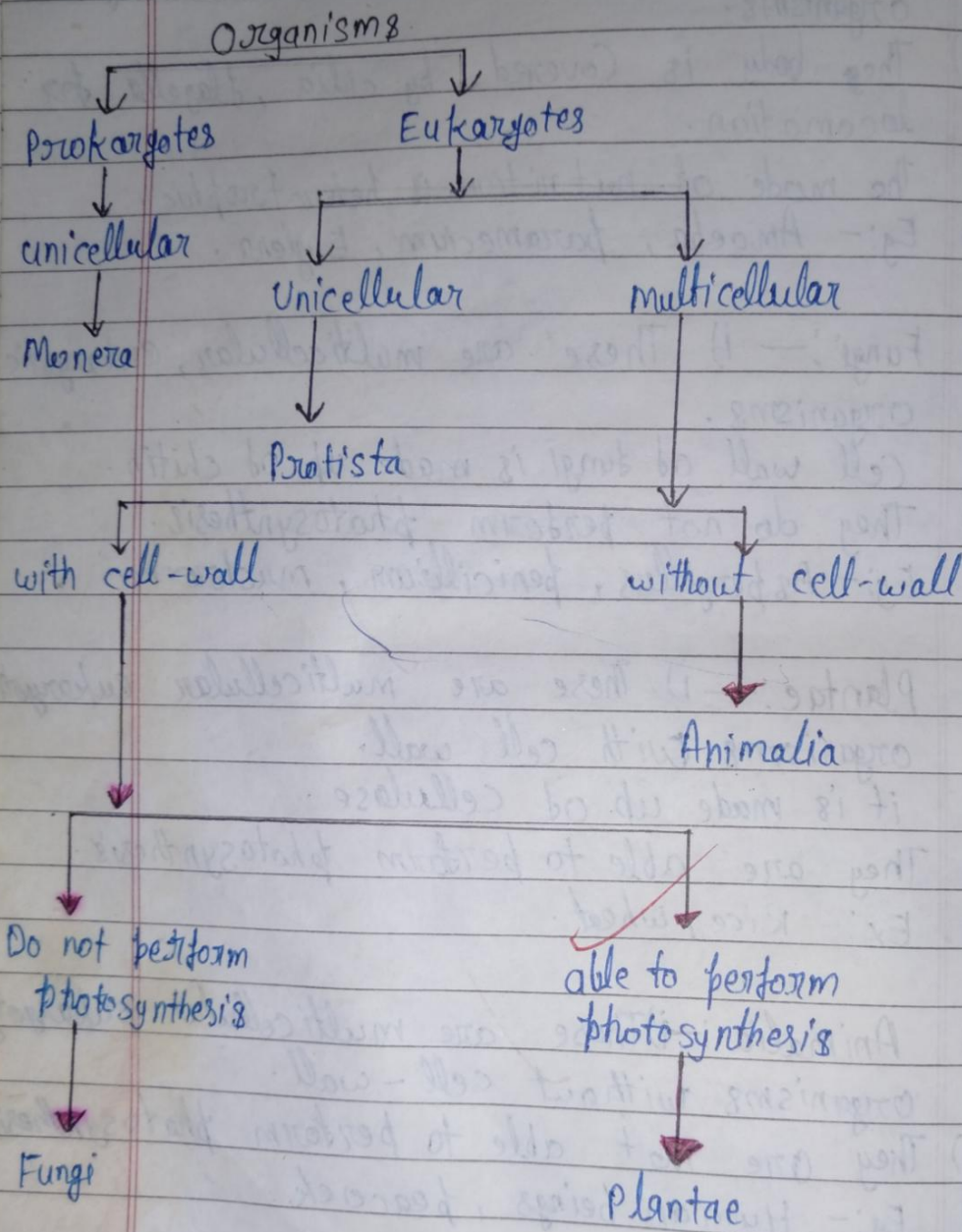


Fig. 7.4 The five kingdom classification



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Bryophyt
i) Plant bod
ii) Plant
out by J
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int
ii) The
iii) Eg:
spor
the
4) Grym
ii)
iii) They
Eg:-

PLANTAE

There are five types.

1) **Thallophyta** :— i) The plants do not have well differentiated body.

ii) They are mostly aquatic.

iii) Eg:— Chara, Ulothrix, Ulva.

2) **Bryophyta** :— i) These are called the amphibians of the plant kingdom.

ii) The plant body is differentiated to form stem and leaf-like structures.

iii) Eg:— Riccia, Marchantia, Funaria.

3) **Pteridophyta** :— i) The plant body is differentiated into roots, stem and leaves.

ii) They are called vascular tissue.

iii) Eg:— Marsilea, Fern.

Spores :— The pteridophytes have naked embryos that are called spores.

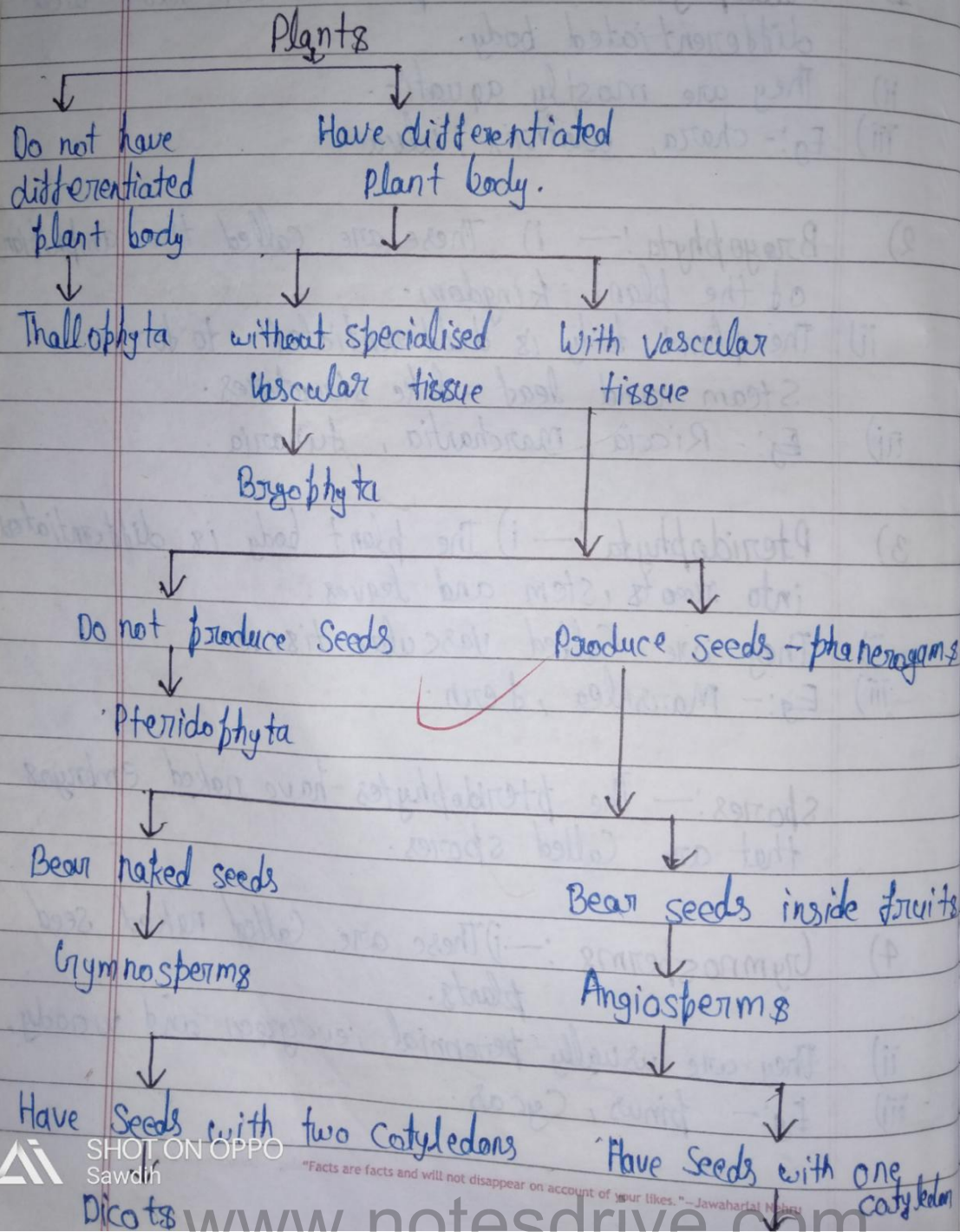
4) **Gymnosperms** :— i) These are called naked seed plants.

ii) They are usually perennial, evergreen and woody.

iii) Eg:— Pinus, Cycas.



- 5- Angiosperms:—
- i) These are called flowering plants.
 - ii) The seeds develop inside fruit.
 - iii) eg:- Ipomoea, papriopedilum.



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Dicots

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Home-work

Q.1 what is the criterion for classification of organisms as belonging to kingdom monera or protista?

Ans it is the presence or absence of a well defined nucleus. monera has no nuclear membrane, while protista has well defined nucleus.

Q.2 In which kingdom will you place an organism which is single eukaryotic and photosynthetic?

Ans Protista.

Q.3 In the hierarchy of classification, which grouping will have the smallest number of organisms with a maximum of characteristics in common and which will have the largest number of organisms?

Ans in the hierarchy of classification, species will have the smallest number of organisms with a maximum of characteristics in common and kingdom will have the largest number of organisms.

Q.4 which division among plants has the simplest organisms?



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Sawlin

"You have to take the calculated risk, to earn something." - Dhirubhai Ambani

Ans Thallophyta.

Q.5 How are pteridophytes different from the Phanerogams?

Pteridophytes	Phanerogams
i) Pteridophytes have naked embryo.	i) Phanerogams have covered embryo.
ii) They have inconspicuous reproductive organ.	ii) They have reproductive organs.
iii) They are seedless plants.	iii) They are seed-bearing plants.

V. Imp.

Q.6 How do gymnosperms and angiosperms differ from each other?

Gymnosperms	Angiosperms
i) it is naked seed.	i) its seed inside fruit.
ii) it is ^{non} flowering plant.	ii) it is non flowering plant.
iii) it is non-cones.	iii) it is cones.
iv) Eg:- Pines and deodar. Cycus.	iv) Eg:- Ipomoea and papilionidilum.



Q.4 Difference
Algae
i) They contain
-thetic pigmen
ii) Algae are
iii) The cell wall
of cellulose
Q.5 Difference
Plants
i) They have
shape and size
ii) They are
iii) ~~Response~~
plants is s
iv) Response
Stimuli in
v) Plants do
excretory
Q.6 Difference
Posidata
i) Digestion
muscle are n
ii) Absent
Appendages
Posi

How do ~~Eg~~ Cryptogamiae and Phanerogams differ from each other?

Cryptogamiae	Phanerogams
i) They have hidden reproductive organ.	i) They have reproductive organ.
ii) it is non-flowering plants.	ii) It is flowering plants.
iii) it include Thallophyta, Bryophyta, pteridophyta.	iii) it include Gymnosperms and Angiosperms.

How do monocots and Dicots differ from each other?

Monocots	Dicots
i) Plants with seed having single cotyledon.	i) plants with seeds having Two Cotyledons.
ii) Eg:- wheat, Rice, maize	ii) Eg:- Gram, pea, pigeon pea
Parallel venation	Reticulate venation

Write the Hierarchy of classification groups.
Class, order, family, genus, species



Animalia

1- Porifera:— i) The word porifera means organisms with holes.

ii) These are non-motile animals.

iii) The Canal system for circulation of water and food.

iv) ~~Hard outside layer called as skeletons.~~

v) Eg:- Sycon, Spongilla, Euplectelia.

2- Coelenterata:— i) These are animals living in water.

ii) They are Radial symmetry and diploblastic.

iii) They can move from one place to another place.

iv) Eg:- Hydra, Sea anemone.

3- Platyhelminthes:— i) it is also called flat worms.

ii) They are bilateral symmetry and triploblastic.

iii) There are no Coelom present.

iv) Eg:- Planaria, Liver fluke.

4- Nematoda:— i) They are bilaterally symmetrical and triploblastic.

ii) Pseudo-coelom is present.

iii) The body is cylindrical rather than flattened.

iv) Eg:- Ascaris, Wuchereria.



- 5- Annelida:— They are bilateral and triploblastic.
- ii) These animals are found marine and water.
 - iii) Coelom is present.
 - iv) Eg:— Earthworm, leech, nereis.

- 6- Arthropoda:— They are bilaterally symmetrical and segmented.
- ii) Coelom is present.
 - iii) They are generally known as insects.
 - iv) Eg:— Prawn, scorpion, cockroach.

- 7- Mollusca:— i) They are bilaterally symmetrical and triploblastic.
- ii) Coelom is present.
 - iii) Its kidney like organ for excretion.
 - iv) Eg:— Chiton, octopus, pila.

- 8- Echinodermata:— i) These are spiny skinned organisms.
- ii) They are bilateral symmetry, triploblastic.
 - iii) There is no notochord.
 - iv) Eg:— Antedon, sea cucumber, star fish.

- 9- Protochordata:— i) They are bilaterally symmetrical triploblastic.
- ii) Gills is present at some phase of life.
 - iii) They are marine animals.
 - iv) Eg:— Petroglossus.



10- ^{V. Imp.} Vertebrata:— i) They are bilaterally symmetrical triploblastic.

ii) They have coelomic cavity.

iii) 2, 3, 4 chambered heart.

iv) Eg. Humans (4 chambered) .dog (3 chambered) fishes (2 chamber)

Vertebrata are five classes:—

1) Pisces:— i) They are fishes living in water.

ii) Their skin is covered with scales or plates.

iii) They respire using gills.

iv) They are cold-blooded and their heart has only two chambered.

v) Eg:— Scoliodon, pterois volitans.

2) Amphibia:— i) They are living in land and water.

ii) They are cold blooded and the heart is three chambered.

iii) Their respiration is through gills or lungs.

iv) They lay eggs in water.

v) Eg:— Salamander, Toad, Hyla.

3) Reptilia:— i) They have scales and breathe through lungs.

ii) They are cold blooded.

iii) They have three chambered heart but Crocodiles have four chambered heart.



- iv) They lay eggs with hard covering.
 v) eg:- King Cobra, Turtle, flying lizard.

4) Aves:— i) They are warm blooded.

ii) They have four chambered heart.

iii) They ~~have~~ breathe through lungs.

v. Imp. iv) Their two forelimbs are modified into wings for flying.

v) They lay eggs.

vi) Eg:- Pigeon, Crow, Sparrow.

v. Imp. 5) mammalia:— i) They are warm-blooded animals with four-chambered hearts.

ii) They have mammary glands for the production of milk to nourish their young.

iii) Their skin has hairs and sweat glands

iv) Eg:- Cat, Human, Rat, bat.

v. Imp. Scientific name of some plant and animal:—

Plants and Animal

Scientific name

~~Neem~~ Lotus

Nelumbo

Neem

Azadirachta indica

Potato

Solanum tuberosum

Black ant

Iris niger

Tiger

Panthera tigris

Peacock

Pavo cristus



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Nomenclature
Nomenclature: — i) An organism can have different names in different languages. This creates confusion in naming organisms.
ii) A scientific name is needed which is same in all languages.
iii) binomial nomenclature system given by Carolus Linnaeus is used for naming different organisms.

Imp Rules of nomenclature:—

- i) The name of the genus begins with a capital letter.
- ii) The name of the species begins with a small letter.
- iii) when printed, the scientific name is given in italics.
- iv) when written by hand, the genus name and the ~~and~~ species name have to be underlined separately.

2/11/18

Home-work

Q-1

How do poriferan animals differ from coelenterate animals?

Ans i) Animals from porifera show cellular level of organisation, while those from coelenterata show tissue level of organisation.



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- ii) In porifera there is no division of labour, while in coelenterata some division of labour is seen.
- iii) Porifera do not have coelom, while coelenterata have coelom.

Q-2

How do annelida animals differ from arthropods

Ans

Arthropoda

Annelida

- | | |
|--|---|
| i) skeleton is present. | i) skeleton is absent. |
| ii) Body is segmented into head, thorax and abdomen. | ii) Body is segmented into rings. |
| iii) Sexes are usually separate. | iii) Sexes may be united (Hermaphrodite) or separate. |
| iv) Their sensory system is well development. | iv) Their sensory system is less development. |

Q-3

What are the differences between amphibians and reptiles?

Ans

amphibians

reptiles

- | | |
|---|--|
| i) Adapted to live in water and land, can breathe by skin in water. | i) Can live in water but need to come to surface to breathe in oxygen. |
| ii) Skin is moist and soft. | ii) Skin is hard ened. |
| iii) Respiration is either through gills or lungs. | iii) Respiration is through lungs. |
| iv) move by crawling. | iv) move by crawling. |



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Q.4 what are the differences between animals belonging to the Aves group and those in the mammalia group?

Aves	mammalia
i) Body is covered with feathers.	i) Body is covered with hair.
ii) Beak is present, teeth absent.	ii) Beak is absent, teeth present.
iii) forelimbs modified for flying.	iii) forelimbs modified for various activities.
iv) Hollow bones for flying.	iv) No hollow bones.
v) Streamlined body.	v) body is not streamlined.

Q.5 what are the advantages of classifying organisms?

- Ans -
- it help us understanding the evolution of organisms.
 - it helps in the development of other life sciences easy.
 - it helps environmentalists to develop new methods of conservation of plants and animals.

Q.6 How would you choose between two characteristics to be used for developing a hierarchy in classification?

Ans We choose that characteristics which depends



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on the first characteristics and determines the rest variety.

V. Imp.

Q7 what are the major divisions in the plantae?
what is the basis for these divisions?

Ans The plant body has well differentiated for the transport of water and other substance.

V. Imp.

Q8 which is the largest group in animal kingdom?

Ans Arthropoda.

Q9 In which group first coelom appears.

Ans Annelida.

Q10 Difference between chordates and Non-chordates.

chordates	non chordates
i) Notochord is present.	i) Notochord is absent.
ii) Pharyngeal gill slits are absent present in them.	ii) pharyngeal gill slits are present absent in them.
iii) Their circulatory system is of closed type.	iii) Their circulatory system is of open or closed type.
iv) Their central nervous system is solid and ventral.	iv) Their central nervous system is hollow and dorsal.



Q4 Difference between Algae and Fungi

Algae	Fungi
i) They contain photosynthetic pigments.	i) Photosynthetic pigments are absent in them.
ii) Algae are autotrophic.	ii) Fungi are heterotrophic.
iii) The cell wall is made of cellulose.	iii) The cell wall is made of chitin.

Q5 Difference between Plants and Animals

Plants	Animals
i) They have less definite shape and size.	ii) They have definite shape and size.
ii) They are usually branched.	iii) They are unbranched.
iii) Reserve Reserve food of plants is starch and oil.	iii) Reserve food of animals is glycogen and fat.
iv) Response to external stimuli is slow.	iv) Response to external stimuli is quick.
v) Plants do not contain excretory organs.	v) Animals have distinct excretory organs.

Q6 Difference between Porifera and Coelenterata

Porifera	Coelenterata
i) Digestion is intracellular.	ii) Digestion is both extracellular and intracellular.
ii) Muscle and nerve cells are absent.	ii) Muscle and nerve cells are present.
iii) Appendages are absent in Poriferans.	iii) Appendages are present in Coelenterata.

