

# NCERT Solutions for Class 11th Biology Chapter

## 1 The Living World

Since it is possible that more than one student can have a particular name, these names can be further divided based on the surnames.

Since there is still some chance that more than one student can have the same surname, the final level of classification will be based on the roll numbers of each student.

**Question 4:** What do we learn from identification of individuals and populations?

**Answer:** The knowledge of characteristics of an individual or its entire population helps in the identification of similarities and dissimilarities among the individuals of same kind or between different types of organisms. It helps the scientists to classify organisms in various categories.

**Question 5:** Given below is the scientific name of Mango. Identify the correctly written name.

*Mangifera Indica*

*Mangifera indica*

**Answer:** In binomial system of nomenclature, the generic name of a species always starts with a capital letter whereas the specific name starts with a small letter. Therefore, the correct scientific name of Mango is *Mangifera indica*.

**Question 6:** Define a taxon. Give some examples of taxa at different hierarchical levels.

**Answer:** Each unit or category of classification is termed as a taxon. It represents a rank. For example, the basic level of classification is species, followed by genus, family, order, class, phylum or division, in ascending order. The highest level of classification is known as kingdom.

**Question 7:** Can you identify the correct sequence of taxonomical categories?

(a) Species → Order → Phylum → Kingdom

(b) Genus → Species → Order → Kingdom

(c) Species → Genus → Order → Phylum

**Answer:** The correct hierarchical arrangement of taxonomic categories in ascending order is Species → Genus → Family → Order → Class → Phylum → Kingdom

Therefore, both (a) and (c) represent correct sequences of taxonomic categories.

In sequence (b), species should be followed by genus. Therefore, it does not represent the correct sequence.

**Question 8:** Try to collect all the currently accepted meanings for the word 'species'. Discuss with your teacher the meaning of species in case of higher plants and animals on one hand and bacteria on the other hand.

**Answer:** In biological terms, species is the basic taxonomical rank. It can be defined as a group of similar organisms that are capable of interbreeding under natural conditions to

produce fertile offsprings.

Therefore, a group of similar individuals that are respectively isolated form a species. Species can also be defined as group of individuals that share the same gene pool.

**Question 9:** Define and understand the following terms:

(i) Phylum (ii) Class (iii) Family (iv) Order (v) Genus

**Answer:**(i) Phylum

Phylum is the primary division of kingdom. It includes one or more related classes of animals. In plants, instead of phylum, the term 'division' is used.

(ii) Class

Class is a taxonomic group consisting of one or more related orders. For example, the class, Mammalia, includes many orders.

(iii) Family

Family is a taxonomic group containing one or more related genera. In plants, families are categorized on the basis of vegetative and reproductive features.

(iv) Order

Order is a taxonomic group containing one or more families. For example, the order, carnivore, includes many families.

(v) Genus

Genus is a taxonomic group including closely related species. For example, the genus, Solanum, includes many species such as nigrum, melongena, tuberosum,etc.

**Question 10:** How is a key helpful in the identification and classification of an organism?

**Answer:** Key is another taxonomical aid that helps in identification of plant and animal species. These keys are based on similarities and dissimilarities in characters, generally in a pair called couplet.

Each statement in a taxonomic key is referred to as a lead. For categorizing each taxonomic rank, such as family, genus, species, etc., different keys are used. It is also useful in identification of unknown organisms.

Keys are of two types- indented and bracketed keys. Indented key provides a sequence of choices between two or more statements while in bracketed key, a pair of contrasting characters are used.

**(i) Indented key to identify different species of Rhododendron.**

1. Leaves evergreen

2. leaves densely hairy below, orange or white hair; flower appears to have separate petals

..... Rhododendron groenlandicum

2. hair absent on leaves, flower has five petals fused in a shallow tube

..... Rhododendron maximus

- 1. Leaves deciduous
- 3. pink flowers with two free petals and three fused petals

..... Rhododendron canadense

- 3. white to pink flowers with all petals fused together

**(ii) Bracketed key to identify different species of Rhododendron.**

- 1. Leaves evergreen—————2

- 1. Leaves deciduous—————3

- 2. Leaves densely hairy below, orange or white hair; flower appears to have separate petals

..... Rhododendron groenlandicum

- 2. Hair absent on leaves, flower has five petals fused in shallow tube

.....Rhododendron maximus

- 3. Pink flowers with two free petals and three fused petals

..... Rhododendron canadense

- 3. White to pink flowers with all petals fused together——4

**Question 11:** Illustrate the taxonomical hierarchy with suitable examples of a plant and an animal.

**Answer:** The arrangement of various taxa in a hierarchical order is called taxonomic hierarchy. In this hierarchy, species is present at the lowest level whereas kingdom is present at the highest level.

Kingdom

↑

Phylum or division

↑

Class

↑

Order

↑

Family

↑

Genus

↑

Species

A Taxonomic hierarchy

**Classification of a plant**

As an example, let us classify *Solanum melongena* (Brinjal).

Kingdom – Plantae

Division – Angiospermae

Class – Dicotyledonae

Order – Solanales

Family – Solanaceae

Genus – *Solanum*

Species – *melongena*

### **Classification of an animal**

As an example, let us classify *Columba livia* (Blue rock Dove).

Kingdom – Animalia

Phylum – Chordata

Class – Aves

Order – Columbiformes

Family – Columbidae

Genus – *Columba*

Species – *livia*

[Free Pdf Download from Exxamm.com](http://Exxamm.com)

---