General characters of the Invertebrate phylums

Characters	**Phylum Porifera**	**Phylum Coelenterata**	**Phylum Platyhelmenthies**	**Phylum Aschehelmenthes**
Common name	Sponges	----------	Flat worms	Nematodes or Round Worms
Why called so	Body has many tiny pores called **Ostia** therefore called porifera**(pori-many, fera- pores)**	Body has a large cavity called coelenteron therefore called **Coelenterata**	Body is **flat**therefore called **flatworms**(**platy**-flat, **helminth**-worm)	There **body is round** and **non segmented** hence called **Roundworms**
Level of Organisation	**Cellular Leve**l of organisation	**Tissue level**of organisation	**Organ level**of organisation	**Organ level**of organisation
Symmetry	-Radial Symmetry or none	Radial Symmetry	Bilaterally symmetrical	Bilaterally symmetrical
Body Layers	A**Diploblastic** (Ectoderm and Endoderm)	**Diploblastic** (Ectoderm and Endoderm)	**Triploblastic**(Ectoderm, Mesoderm and Endoderm)	**Triploblastic**(Ectoderm, Mesoderm and Endoderm)
Exoskeleton	->Made up of **SPicules** made of**CaCO3, Spongin or Silica**	->Made up of Calcium carbonate	Parasitic forms have **cuticle**to protectect themselves from host enzymes	Parasitic forms have **cuticle**to protectect themselves from host enzymes
Habitat	*Aquatic (Mostly marine) *Solitary or Colonial or Free-living sessile	*Aquatic (Mostly marine) ->Solitary or Colonial ->Free swimming or sedentary.	Freeliving are aquatic (freshwater or marine). ->Free-living or parasites. -	->Every habitat sea, fresh water and land. ->Majority are aquatic. ->Land dwellers live in soil , grasslands and forests.
Locomotory organs	No movement ends attached to rocks	----------	Free-livinf by swim with **Cilia**	----------
Nutrition	->eat microbes, some carnivores.	->Feed on other organisms	->Free living consume crustaceans, worms &dead animals.	->Feeds on bacteria. ->Parasitic worms eat digested food of the host.
Digestive system	->No digestive system - Digestion intracellular by **Choanocytes.**	->Through the **Cnidoblasts**and **Tentacles** *Occurs with the help of **Tentacles** surrounding the mouth. *->**Intracellular**or **Extracellular.**	->Present but no **Anus.** **->I**n parasites by**Diffusion** ->**Intracellular**or **Extracellular.**	->Digestive system tubular with **mouth and anus**.
Nervous System	- Absent	----------	Primitive nervous system.	Peripheral neervous system present.
Respiration/Respiratoty system	Through ostia. (**Body surface)**	->By **Body surface**	Absent. By surface diffusion	No respiratory organs. Respire through skin.
Circulation/Circulatory system	Absent-	Absent	Absent	Absent

Excretion/ excretory system	->Diffusion through body surface	->Diffusion through body surface	By **Flame Cells**	->By intracellular tubes.
Reproduction	- Bisexual - Both Asexual and Sexual. ->Asexual by **Gemmule**formation. ->Sexual by production of **gametes.**	->Both Asexual and Sexual. -> Asexual by **Budding**formation. ->Sexual by production of **gametes**.	->**Bisexual** ->Asexual by **Transverse Fission (**each fragment grows into new organism**)** ->Sexual reproduction by fusion of gametes. ->Internal ->Direct or Indirect development	->**Unisexual (**sexes are separate**)**. ->Males smaller than females. Mlaes have curved tails. ->Only Sexual reproduction seen
Special Features	->Body wall lined with **spicules** to protect themselves. ->Free end has large opening called **Osculum**. ->Body has many tiny pores called **Ostia.** **->**has great power of **Regeneration**	->Body has nematocysts which help in capturing the prey.	->Unsegmented and soft bodeied invertebrates	->External body wall has cuticle. ->Between alimentary canal and body wall there is a **fluid-filled pseudocoelom** cavity.
Examples	->Sycon ->Euplectella	->Hydra ->Jelly Fish ->Corals	->Planaria ->Liverfluke ->Tapeworm	->Round worm, ->Pinworm ->Hookworm ->Filarial worm
Economic Importance	->Chemical substances secreted by them used in production of anti-inflammatory and antibiotic medicines. ->Dried fibrous skeleton used in bathing, Polishing, washing and other cleaing activities. ->Skeleton of Euplectella used for decoration.	->some Jelly fishes eaten as food. ->are source of food for fishes, molluscs &crustaceans. ->Corals are used in jewellary and as decoratives in house &aquariums.	->Eat earthworms which are friends of farmer. ->Cause diseases in	-> Some nematodes kill insect pests. ->Many of them cause serious diseases like Elephantiasis,

Characters	Phylum Annelida	Phylum Arthropoda	Phylum Mollusca	Phylum Echinodermata
Common name	Segmented worms	Joint legged animals	Soft bodied organisms	Body has number of spines.
Why called so	The body is highly segmented having annular rings therefore called **Annelids**.	These **animals possess jointed legs**therefore called Arthropods (**Arthro-clawed, poda-legs**)	----------	----------
Level of Organisation	**Organ level**of organisation	**Organ level**of organisation	**Organ level**of organisation	**Organ level**of organisation
Symmetry	Bilaterally symmetrical	Bilaterally symmetrical	Bilaterally symmetrical	**Radial in adults****Bilateral**ly symmetrical in **larvae.**
Body Layers	**Triploblastic**(Ectoderm, Mesoderm and Endoderm)	**Triploblastic**(Ectoderm, Mesoderm and Endoderm	**Triploblastic**(Ectoderm, Mesoderm and Endoderm	**Triploblastic**(Ectoderm, Mesoderm and Endoderm
Exoskeleton	Covered by **Cuticle.**	Covered by **Chitin**	Protected by **Calcareous**shell.	----------
Habitat	Present in **land**&also in **water**. But **prefer moist, or water clogged**regions.	->Live in every possible habitat of the world.	Terrestrial or Aquatic	Marine forms
Locomotory organs	->Locomotion in Terrestrial by **Setae.** **->**Aquatics have **Parapodia**	->With pairs of **jointed leg**s in each segment.	Muscular foot.	Have tube feet for locomotion.
Nutrition	->active or passive hunters, scavengers, filter feeders, or like leech blood suckers	->Present variety of feeding habits like	->Herbivores, carnivores, scavengers, ciliary feeders predators &parasites.	Passive filter feeders, some take organic matter from mud &active hunters also.
Digestive system	**->Well developed**developed with gizzard, stomach &intestine.	-> **Well developed**developed with salivary glands	->Body cavity Filled with blood (**Haemocoel**). ->Digestive system has rasping tongue called **radula**. ->Extracellular digestion followed by intracellular.	Simple digestive system
Nervous System	->Nervous system present with **brain &ventral neerve cord.**	->Nervous system present with **brain &ventral neerve cord.**	----------	Primitive nervous system.
Respiration/Respiratoty system	->**Aquatics have Gills**for respiration.	->By **Body surface, Gills (in aquatic) &Trachea or Book Lungs.**	->By body surface, gills or **Ctenidia of lung**.	->By papulae or **Tube feet.**

	->**Terrestrial** have **no respiratory organs**. Hence occur through body surface.			
Circulation/Circulatory system	->Closed circulatory system	->Open circulatory system	->Open circulatory system present	->circulatory system present (reduced).
Excretion/ excretory system	-> Excretory system has segmented organs called **Nephridia**.	-> Excretory system has **Green glands**or **Malphigian tubules**.	->By Kidneys or Nephridia.	->Through body surface diffusion
Reproduction	->**Bisexual** **-> Both Asexual and Sexual.** **->**Asexual by**Fission, Budding or Fragmentation** **->**Fertilized eggs stored in**cocoons.**	->**Unisexual (**sexes are separate**)**. ->Only Sexual reproduction seen. ->**Sexual Dimorphism**seen (can identify male &female by external looks). ->**internal fertilization**and **oviparous**(egg laying).	->Only Sexual reproduction seen. ->Larval stage seen called "veliger" **->oviparous**(egg laying).	->Both Asexual and Sexual. ->External fertilization. ->Larval stage is called Bipinnaria which metamorphose to adult.
Special Features	->External body wall has **cuticle.** **->Alimentary canal &body wall separated by fluid filled Coelom. True coelom.**	->Biggest animal phylum >80% of living orgaisms. ->Coelom reduced, &is filled with colorless blood. (**Haemocoel**) -> External segmentation seen. ->A **pair of jointed appandages**for each segment. ->Possess compound eyes. ->Are the only invertebrates that can fly. ->Periodically shed their body skin, this pocess is known as **Moulting**.	-> Coelom reduced ->Unsegmented body.	->Large coelom ->Body has pentaradial arrangement. ->Possess water vascular system
Examples	->Neries ->Leech ->Earthworm	->Shrimps, millipides ->Lobsters, scorpions, ->All insects ->spiders ->Mosquitoes	->Snail, ->Pearl oyster ->Fresh water mussel, ->Octopus	->Starfish ->Sea urchin ->Sea cucumber ->Brittle star

		->Crabs ->Coackroaches, lices, silkworm, honey etc		
Economic Importance	->Are source of food for other animals. ->Earthworms fertile the soil and therefore called **Farmer's Friend**. ->Earthworms are therefore used in getting Vermicompost. ->Leeches used in blood letting in pathological conditions.	->Shrimps, lobsters crabs are used as food for humans. ->Many insects attach our goods and wood. ->**Act as vectors**for diseases like malaria, dengue, slleeping sickness etc. ->We get Honey from Honey bee &Silk from Silk moth.	->Source of food for humans. ->Pearl oysters provide us pearls. Which are used in ornaments. ->Shells used for decoration or as currency.	->Source of food for humans. Calcareous shells used as a source of lime by farmers. ->Seaurchin used as decorative unit in aquaria. ->Dried starfish used for decoration.