**Phylum Nematoda: The Roundworms** Name: Date:

**What is a roundworm?**

* Are slender, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ worms with tapering ends
* Their habits range as far north in polar regions to the tropics
* There are two groups: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Most species are free-living, inhabiting soil, salt flats, aquatic sediments, and water
* Many others are parasitic and live in the hosts that include almost every kind of plant or animal
* A single rotting apple can contain up to 90,000. Your garden at home contains millions!

**Body Plan**

* Like flatworms, nematodes develop from three germ layers - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Roundworms have a body cavity that is located between the endoderm and mesoderm, therefore it is not fully surrounded in mesoderm tissue (such as muscle) and is known as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	+ A psuedocoelomate is an organism with a “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
* Unlike flatworms, the roundworms have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with two separate openings, a mouth and an anus.
* This body plan is referred to as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ structure, with the inner tube being the digestive tract and the outer tube being the body wall.
* The development of an anus allows digestive wastes to exit through a different opening.
* Free-living nematodes are more complex than parasitic nematodes

**Feeding - Digestion**

* Typically have a complete digestive system with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Free-living nematodes often play an important role in ecology – they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Parasitic roundworms feed on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ food from their host

**Respiration, Circulation and Excretion**

* Similar to flatworms, roundworms exchange gases and excrete metabolic waste through their body walls
* They have no internal transport system therefore \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on the movement of nutrients and wastes.

**Response**

* Simple nervous systems with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Several nerves extend from the ganglion in the head and run the length of the body
* These nerves transmit several types of sense organs and movement
* Sense organs can vary between nematodes but some have specialized structures that \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Movement**

* Roundworms have muscles that extend the length of their bodies
* Together with the fluid in their psuedocoelom, these muscles function as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Aquatic roundworms contract these muscles to move like a snake through water
* Soil-dwellers push their way through the soil by thrashing around

**Reproduction**

* Reproduce \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Internal fertilization – the male deposits sperm inside the females reproductive tract.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ typically have a ‘hooked’ end to grasp the females
* Parasitic worms have complex lifecycles which often involve one or two hosts



**Parasitic Nematodes**

* Some of the worst worm parasites are members of phylum Nematoda. Some examples of very harmful nematodes include:
	+ Intestinal roundworms such as *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lumbricoides*
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ that enter between your toes and hook into your intestines to suck your blood
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that crawl out your anus at night
	+ *Trichinella* which causes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in your muscles
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which cause elephantiasis
	+ And the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (AKA Dracunculus) which causes … well, you will see! (if you don’t close your eyes)

**1. *Ascaris sp.* the Intestinal Roundworm**

* Most common worldwide worm parasite - over 1 billion people have it
* Lives in small intestine but travels through the body to lungs as a juvenile
* Cause \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as they absorb digested food from the host’s small intestine, nausea, vomiting, abdominal pain or coughing and gagging during the part of the lifecycle where they are in the lungs
* Commonly spread by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**2. Hookworm**

* Human hookworm (*Necator sp.*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from inside of intestine
* A single worm can drain 20 ml of blood per day
* Most serious in children as can lead to physical and mental retardation
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. Pinworm (*Enterobius sp.)***

* Lives in lower bowel
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Secretes irritating toxin to get person to scratch
* Re-infection is oral

**4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* From \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Causes Trichinosis by invading muscles and organs forming painful cysts

**5. Filarial Worm**

* Small nematode that lives in human \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* As a result, fluids can’t drain so accumulate resulting in severe, grotesque swelling below where the worm is
* Causes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. The Guinea Stick Worm (*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sp*.)**

* In Africa only
* ****Enters while a person is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and grows into a painful open wound
* No cure - is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - one turn per day
* Contains deadly toxin if broken it can kill its victim

**Can You …**

**… describe the defining features of roundworms?**

**… explain the advances over Platyhelminthes (the flatworms)?**

**… describe the body plans and body systems?**

**… describe 2 broad types and their example animals?**

**… describe parasitic worms: which roundworms are important in human disease?**