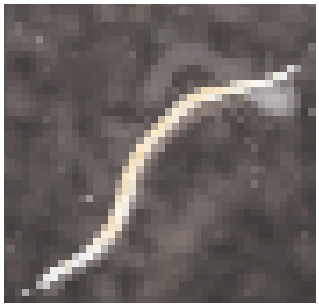
Annelids

Marine Polychaete Worm
Species: *vermicularis*
Genus: *Serpula*
Family: Serpulidae
Order: Sabellida
Class: Lepidoptera
Phylum: Annelida
Kingdom: Animalia

Freshwater Leech
Species: varies
Genus: *Placobdella*
Family: Glossiphoniids
Order: Rhynchobdellida
Class: Hirudinea
Phylum: Annelida
Kingdom: Animalia

Earthworm
Species: *terrestris*
Genus: *Lumbricus*
Family: Lumbricidae
Order: Haplotaxida
Class: Oligochaeta
Phylum: Annelida
Kingdom: Animalia



Aeolosoma
Species: varies
Genus: *Aeolosoma*
Family: *Aeolosoma*tidae
Order: not assigned
Class: Polychaeta
Phylum: Annelida
Kingdom: Animalia

Redworm
Species: *caliginosa*
Genus: *Allolobophora*
Family: Lumbricidae
Order: Haplotaxida
Class: Oligochaeta
Phylum: Annelida
Kingdom: Animalia

White Worm
Species: varies
Genus: *Enchytraeus*
Family: Lumbricidae
Order: Haplotaxida
Class: Oligochaeta
Phylum: Annelida
Kingdom: Animalia

Stylaria
Species: varies
Genus: *Stylaria*
Family: Naididae
Order: Haplotaxida
Class: Oligochaeta
Phylum: Annelida
Kingdom: Animalia

Conditions for Customer Ownership (per USDA Permits)

We hold permits allowing us to transport these organisms. To access permit conditions, click here.

Never purchase living specimens without having a disposition strategy in place.

- There are currently no USDA requirements for this organism. In order to protect our environment, never release a live laboratory organism into the wild.

Primary Hazard Considerations

- Always wash your hands thoroughly after you handle any of these organisms.

Availability

- Depending on the genus of annelid you are ordering, it may be cultured in our labs or collected in the wild. Annelids cultured in our labs are generally available year-round. Annelids wild-collected are subject to seasonal shortages.

How Will Animals Arrive and Immediate Requirements

- Annelids in the class Polychaeta will arrive in different ways. Marine polychaete worms will arrive in a plastic bag with saltwater and oxygen. Upon arrival, the bag should be floated in the aquarium for 30 minutes to acclimate the worms to the aquarium's temperature, and then the worms should be released into the aquarium. *Aeolosoma* will arrive in a 2 or 8 oz. plastic jar with media. Upon arrival, the lid on the jar should be loosened to allow for gas exchange. We over-pack each order of *Aeolosoma*. It is normal to have some deceased *Aeolosoma* in the container. You will receive at least the quantity of live *Aeolosoma* stated on the container.
- Annelids in the class Hirudinea (leeches) will arrive in an 8 or 16 oz. plastic jar with water. Upon arrival, the lid on the jar should be loosened to allow for gas exchange. We over-pack each order of leeches. It is normal to have some deceased leeches in the container. You will receive at least the quantity of live leeches stated on the container.
- Annelids in the class Oligochaeta will arrive in different ways. *Lumbriculus* (blackworms) will arrive in a plastic bag with water and oxygen. Upon arrival, the worms should be placed into a storage container, rinsed several times with fresh water, and stored in the refrigerator. Earthworms, redworms, and white worms will arrive in a container with soil. They should either be placed into their habitat upon arrival or stored in the refrigerator. *Stylaria* will arrive in a 2 or 8 oz. plastic jar with media. Upon arrival, the lid on the jar should be loosened to allow for gas exchange. We over-pack each order of oligochaetes. It is normal to have some deceased oligochaetes in the container. You will receive at least the quantity of live oligochaetes stated on the container.

Captive Care

Habitat:

- Refer to the marine invertebrate literature for detailed habitat instructions for your marine polychaete worms.
- For leeches, any escape-proof container with holes in the lid for oxygen exchange exchange is a suitable habitat. Fill the container 3/4 full of de-chlorinated spring or pond water. Tap water can be de-chlorinated by letting it sit out for 48 hours or by adding a de-chlorinating solution. Leeches should be kept at room temperature (65-75°F). Refer to the leech literature for more details.
- *Aeolosoma* and *Stylaria* will do well in a culture dish with hay medium and a few wheat seeds. Use a 1:4 dilution of hay media concentrate to distilled water. If you wish to keep your culture going, you should subculture *Aeolosoma* and *Stylaria* every 3-4 weeks. Pipette approximately 50 specimens from an established culture into a new culture dish with hay media and wheat seeds.
- Earthworms and redworms can be kept in any container that keeps them cool, moist, and allows for air exchange, and is preferably in the dark. Use a rich organic soil as a substrate. Refer to the earthworm/redworm literature for more details.
- White worms should be kept in a water-resistant container that keeps them cool and moist and allows for air exchange. A suitable substrate is rich organic soil. Refer to the white worm literature for more details.

Care:

- Refer to the marine invertebrate literature for detailed care instructions for your marine polychaete worms.
- Freshwater leeches are carnivorous predators that feed on small invertebrates. They should be fed about once a month. Their water should be changed weekly to keep levels of toxins, decaying matter, and debris at a minimum. Refer to the leech literature for more details.
- *Aeolosoma* and *Stylaria* do not require special food; the hay media and wheat seeds are sufficient.
- Earthworms and redworms should be fed cornmeal by sprinkling it on top of the soil substrate.
- White worms should be fed white bread soaked in milk once per week. Refer to the white worm literature for more details.

Information

Method of reproduction:

- Marine polychaete worms mate by releasing sperm and eggs into the water where fertilization takes place. This usually happens during summer.
- Freshwater leeches reproduce sexually.
- *Aeolosoma* reproduce asexually. Some species exhibit occasional sexual reproduction.
- Earthworms and redworms reproduce sexually.
- White worms reproduce sexually.
- *Stylaria* reproduce asexually and, occasionally, sexually.

Determining sex:

- Marine polychaete worms have separate male and female genders, but they are impossible to tell apart.
- Freshwater leeches are hermaphroditic.
- *Aeolosoma* reproduces asexually by budding.
- Earthworms and redworms are hermaphroditic.
- White worms are hermaphroditic.
- *Stylaria* reproduces asexually by budding.

Life Cycle

- Marine polychaete worms start out life as trochophore larvae, freely swimming in the ocean. As they metamorphose, they become juveniles and choose a place to settle. It takes about 50 days from hatch to settlement. The larvae reach adulthood in less than one year. Their entire life cycle takes anywhere from two to five years.

- Leeches mate, each fertilizing the other. A cocoon is formed where the eggs will develop until they hatch. It generally takes about two weeks for the eggs to hatch into little leeches.
- *Aeolosoma* may form chains up to ten individuals long of immature worms. These chains are produced by asexual budding. The worms range in size from 1-2 mm and have only a few poorly defined segments. They are somewhat flattened in appearance, especially in the head region.
- Earthworms and redworms lay fertilized eggs. The eggs hatch after about 3 weeks. The newly- hatched worms become sexually mature in 4-12 months. Their life span is 3-10 years.
- White worms mate during cooler temperatures and lay fertilized eggs. The eggs hatch after about 12 days. The newly hatched worms become sexually mature in about 20 days.
- *Stylaria* reproduces most of the year, forming chains of individuals up to 2 cm long. In the fall, they attach slime-covered egg capsules to underwater plants, which will hatch the following spring. *Stylaria* have very distinct external segmentation and a sensitive elongated prostomium (first body segment).

Wild Habitat

- Marine polychaete worms live in the northeast Atlantic Ocean and the Mediterranean Sea. They live in hard tubes attached to hard surfaces, such as rocks, stones, and bivalves.
- Freshwater leeches are native to the Northeastern U.S. and Southeastern Canada. They can be found in freshwater ponds, lakes, and slow moving rivers and creeks in these areas.
- *Aeolosoma* have been found in Europe, South America, India, Japan, South Africa, and the U.S. They are commonly found in small, still bodies of fresh water.
- Earthworms and redworms range through most of the northern hemisphere, from temperate to sub-arctic regions.
- White worms are commonly found in damp soil that contains a large amount of decaying organic matter.
- *Stylaria* have been found in fresh and brackish waters and at depths of up to 1,200 meters.

Special Notes

- Marine polychaete worms' hard tubes are made up of calcium carbonate.
- Due to slow digestion, freshwater leeches can survive a period of fasting of 10 months in between meals.
- *Aeolosoma* hibernates during cold weather in the form of a cyst. When the temperature increases, it becomes active again. They move primarily by means of cilia on the underside of the prostomium.
- Earthworms and redworms can eat their weight in food each day.
- White worms are popular among aquarium enthusiasts as fish food.
- *Stylaria* are the best swimmers of all annelids, snaking through the water with rapid horizontal waves of their bodies.

Disposition

Aeolosoma, *Stylaria*:

- Please dispose of excess living material in a responsible manner, to prevent spread into the environment. Consult with your school to identify its preferred methods of disposal.
- You can safely use one of the following disposal methods:
- Treat culture with a 10% bleach solution for 24 hours (1 part bleach to 9 parts culture medium or water culture medium removed). Then rinse bleach solution down the drain with water until you can no longer smell bleach. Rinse remaining materials and containers with water and dispose of them in a general garbage container.
- Carefully wrap specimens and their containers in a biohazard bag (without containing anything sharp that might puncture the bag) and tie closed (a twist tie works well). Autoclave the bag for 30 minutes at 121 degrees C and at a pressure of 15 lbs. per square inch. Dispose of autoclaved bag as your school recommends.

Marine Polychaete Worm, Freshwater Leech, Earthworm, Redworm, White Worm:

- We do not recommend releasing any laboratory animal into the wild, and especially not organisms that are considered to be pests or not native to the environment.
- Adoption is the preferred disposition for any living animal.

- If the organisms must be euthanized at the end of study, follow one of these procedures:
  - Put them into a container or bag and freeze for 48 hours.
  - Place the organism in 70% isopropyl alcohol for 24 hours.
  - Autoclave the organism @ 121°C for 15 min.
- A deceased specimen should be disposed of as soon as possible. Consult your school's recommended procedures for disposal. In general, dead organisms should be handled as little as possible or with gloves, and wrapped in an opaque plastic bag that is sealed (tied tightly) before being placed in a general garbage container away from students.

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