Lesson 5. What's in a Name?

Lesson Objectives:

- Students will learn that the common name for fish might mean something else in another country.
- Students will learn how the Latin names might describe a prominent characteristic of the fish.
- Students will learn that Latin names describe the genus and species of the fish. And, each fish has only one scientific name.

Vocabulary: scientific names, genus, species, specific

What do Scientific Names Mean?

Have you ever taken the trouble to find out what the **scientific names** of fish actually are? Or mean? They often tell something of interest, or describe a body part on the fish. Many scientific names describe certain identifying characteristics of the fish, though others, generally those that incorporate names of people or places are not so descriptive.

Every living organism, be it animal or plant, has only one, internationally recognized scientific name. Scientific names are usually derived from Latin and Greek roots. A scientific name consists of two italicized names. The first (**genus**) name is capitalized and the second (**specific**) name is not capitalized. The genus name may be common to several **species**, but the combination of the two applies to only one species in the entire Animal Kingdom. For example, there are many cardinal fishes in the genus *Apogon*, but only one, the Barred Cardinalfish is known as *Apogon binotatus*. The specific name or species name, *binotatus*, refers to the two distinctive dark markings this fish has on each side of its body.

A fish may have several common names. For example, a Pearl Gourami, Lace Gourami and Mosaic Gourami are all the same fish, which can lead to possible confusion. Its scientific

name, *Trichogaster leeri*, belongs to that particular fish, and to no other animal or plant, and is therefore a unique identifying label.

Although scientific names consist only of genus and species, fishes also belong to progressively broader groupings, that is:

(Most Specific)
Species
Genus
Family
Order
Class
Phylum
Kingdom
(broadest)

Some of these groupings are also sub-divided. For example, within a species, there may be sub-species, and if a particular fish is considered to be a sub-species, a third word is appended to its scientific name to indicate this. Since we do not want to become too technical here, we will not discuss it any further.

Activity 5-1. Scientific Names in English

Now that more is known about the origins and structure of scientific names, let's have a look at a few of them and at what they actually mean in English.

Following are a few scientific names of common fishes and their meanings. Help the students work out how they relate to the fish they describe.

For example, in Latin *melano* means black and *curvi* means curved and *taenia* means banded. This might be describing a fish that has a black curved band on it.

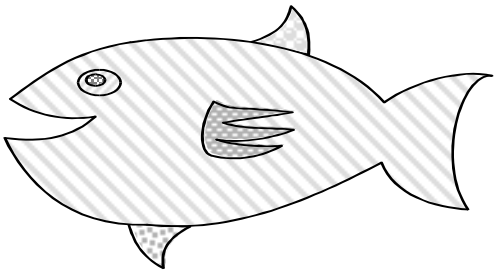
Perhaps, If you wish to pursue this topic further, look up a dictionary of biological names in your local library. It can be quite fascinating deciphering the scientific names of your fishes. If you have a computer search system in your library, 'biological names' or 'dictionary of biological definitions' are good key words to begin a search.

Procedure:
Work with the students through this activity, as latin names are not as easy as they might seem. Try the following first.

Flag Cichlid - *Aequidens curviceps* - (*Aequ*i = equal, *dens* = teeth, *curvi* = curved, *ceps* = head)
Pearl Cichlid - *Geophagus braziliensis* - (*Geo* = earth, *phagus* = to eat, *braziliensis* = from Brazil)
Crimson-spotted Rainbowfish - *Melanotaenia splendida fluviatilis* - (*Melano* = black, *taenia* = band, *splendida* = glittering, *fluviatilis* = belonging to a river) - an example of a sub-species
Glowlight Tetra - *Hemigrammus erythrozonus* - (*Hemi* = half, *grammus* = mark, *erythro* = red, *zonus* = banded)

Now, try the ones on the following page.

Southern Flounder – *Paralichthys squamilentus* (*par* = beside, *ichtys* = eyes, *squami* = scale, *lentus* = bean shape)
Oceanic Whitetip shark – *Carcharhinus longimanus (carchar =* ridged*, hinus =* rear body, *longi =* long*, manu =* hand)
Silver Shark - *Balantiocheilus melanopterus* (*Balantio* = bag, *cheilus* = lip, *melano* = black**,** *pterus* = fin)
Blue Marlin – *Makaira nigricans* (*mak* = large, long, *nigri* = black or dark, *can* = long rod)
Oscar - *Astronotus ocellatus* (*Astro* = star, *notus* = back, *ocellatus* = spotted as with little eyes)
Queen Triggerfish -- *Balistes vetula* (*bali* = spotted; nimble, *vetula* = an old person)



Matching Exercise: match the Latin word with its English meaning.

Latin	English
odon	half
curvi	back
hemi	small
multi	tooth
minut	curved
spini	many
dorsi	spiny

Activity 5-2. Students design and name their own fish.

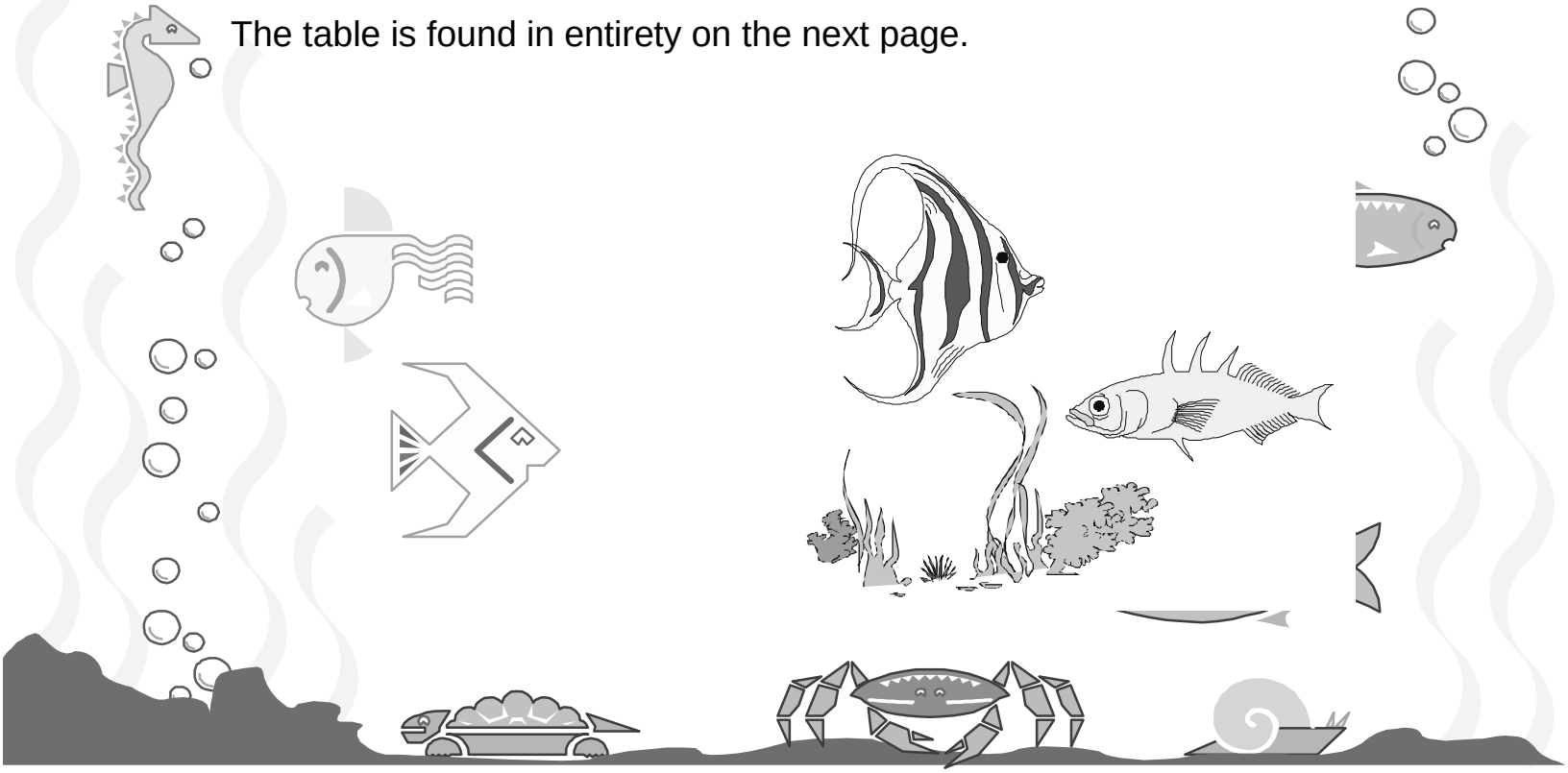
Now that the students have been following the show for 5 episodes, they have seen Teresa Greely work with many fish. Hopefully, they have worked on activities such as Fish Word Art, and Fish Poetry. This activity can be used alone, or with the previous activities.

Procedure:
Use the following table of Latin and Greek names to create a scientific name for a fish. Create only a genus and specific name. After they have created a name, have the students draw the fish that they have created so that the illustration matches the English definitions.

Good Luck and Happy Creating!

Materials: the following chart
Pens and paper
Creativity!

The table is found in entirety on the next page.



Latin or Greek word	English Definition	Latin or Greek word	English Definition
Oculi	Eye	***Rostr***	Beak
Ventr	Belly	***Dorsi***	Back
Caud	Tail	***Dent***	Tooth
Aequi	Equal	***Thoracatum***	Breast-plate
Splendida	Glittering	***Fluviatilis***	Belonging to a river
Curvi	Curved	***Para***	Near
Ceps	Head	***Cheir***	Hand
Astro	Star	***Odon***	Tooth
Notus	Back	***Chromis***	Color
Ocellatus	Spotted, as with little eyes	***Pulcher***	Beautiful
Balantio	Bag	***Poecilia***	Many-colored
Chelius	Lip	***Cara***	Head
Melano	Black	***Xipho***	Sword
Pterus	Fin	***Phorus***	Bearer
Cory	Helmet	***Psaro***	Speckled
Doras	Skin	***Vittat***	Striped
Paleatus	Mixed with chaff	***Lucid***	Shiny
Gastero	Stomach	***Gravi***	Heavy
Pelecus	Hatchet	***Grandi***	Large
Geo	Earth	***Minut***	Small
Phagus	To eat	***Angusti***	Narrow
Braziliensis	From brazil	***Spini***	Spiny
Hemi	Half	***Glabr***	Smooth
Gramus	Mark	***Rough***	Asper
Cerule	Blue	***Coccin***	Scarlet
Violace	Violet	***Alb***	White
Galb	Yellow	***Piscis***	Fish
Multi	many	***Medi***	middle
erythro	Red	***Gracil***	Slender
Zonus	Banded	***Acuminat***	Pointed
Sternum	Chest	***Posterio***	Back

Student Information Sheet 5. Have you learned this about fish yet?

- Fish compose more than ½ the total number of known modern vertebrates.
- Did you know that scientists expect to discover approximately 6,000 new species of fish in the next few years? (Currently, there are 22,000 known species!)
- The earliest known vertebrates were jawless fishes that lived about 480 million years ago. These fishes were called the Ceolacanths. Some still exist!
- Fish can live at extreme elevation and depth. The killifish is abundant in the world's highest large lake, South America's Lake Titicaca (3810m/12,500 ft above sea level). Others have been found in the bottom of the deepest lake, Lake Baikal (1637m/5371 ft deep) in Russia! Others have been found in the abyssal depths of the ocean (7000m/22,960 ft).
- Fish can tolerate extreme temperatures or icy oceans. A killifish tolerates temperatures as high at 45°C (113°F). An Antarctic icefish lives at about -2°C (29°F).
- Fish do not freeze at very cold temperatures because their blood contains a form of biological antifreeze.
- Some fish can even live out of water and survive a high level of sun. A group of fish in South America survives periodic desiccation by spending the dry season as dormant eggs, only to hatch and develop with the arrival of the next wet season.
- Over 90% of the animals and most large plants in the marine habitat live on the sea floor or within the sediments. There are 50 times more benthic (150,000 species) than pelagic (3,000 species) animals.
- Some fish that have pectoral fins on their ventral side, and live in the benthos, have taste buds on their fins!