

Binomial Nomenclature: 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 epithet

What do Scientific Names Mean?

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

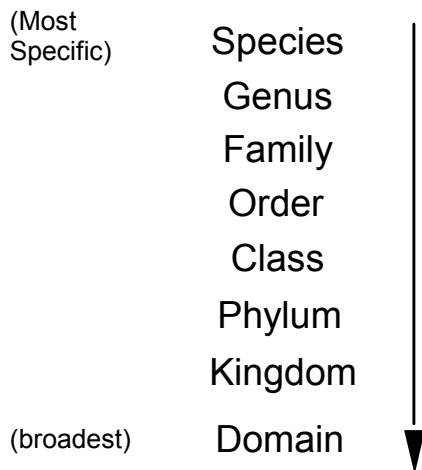
Every living organism, be it animal or plant, has only one, internationally recognized scientific name. Scientific names are usually derived from Latin and Greek roots. A scientific name consists of two italicized names. The first (**Genus**) name is capitalized

and the second (**specific epithet**) 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 classification system. 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.

An organism 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 leerii*, 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, organisms also belong to progressively broader groupings, that is:

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: 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 fish and their meanings:

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, you could look up a dictionary of biological names in your local library. It can be quite fascinating deciphering the scientific names of organisms. 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.

Practice in small groups:

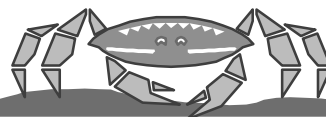
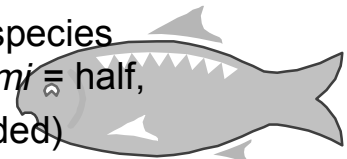
Using the scientific names below along with the helpful breakdown of what each name mean, see if you can match the pictures of fish to their name. **Write down common and scientific name on the worksheet provided.**

Flag Cichlid - *Aequidens curviceps* - (*Aequi* = 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)



Southern Flounder – *Paralichthys squamilentus* (*par* = beside, *ichtys* = eyes, *squami* = scale, *lentus* = bean shape)

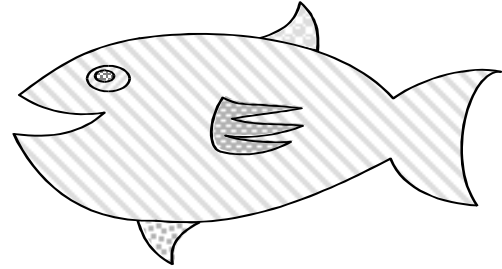
Oceanic Whitetip shark – *Carcharhinus longimanus* (*carchar* = ridged, *hinus* = rear body, *longi* = long, *manu* = hand)

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)

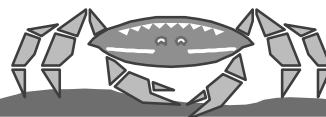
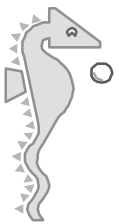
Oscar - *Astronotus ocellatus* (*Astro* = star, *notus* = back, *ocellatus* = spotted as with little eyes)

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 2: Design and name your own fish.

Procedure:

Use the table of Latin and Greek names provided to create a scientific name for a fish. Create only a genus and specific epithet.

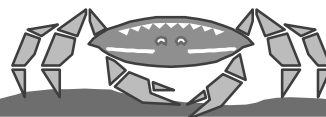
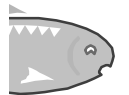
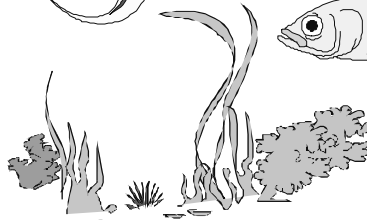
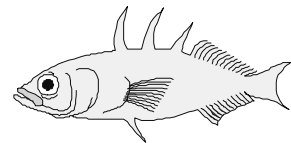
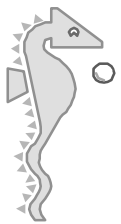
After you have created a name, draw/color/etc. the fish that you have created so that the illustration matches the English definitions.

Underneath (or above) your illustration please legibly write the common and scientific name properly.

Happy Creating!

Materials needed:
Scientific name table
Card stock or paper
Art supplies

The table is found in entirety on the next page.



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

