LESSON 1 INTRODUCTION - THE WHY AND HOW OF PLANT NAMES

Plants are critical to human existence. They provide much of our food, fuel, building materials, compounds for pharmaceuticals, and they satisfy many other needs. They are an integral part of our environment where they provide ecosystem services such as clean water and filtered air, as well as a food source for pollinating insects and birds which, in turn, ensure the provision of our crops. Plants also have a profound effect on both our physical and psychological wellbeing.

English Lavender (*Lavandula angustifolia*) Because this is the only lavender species with very low levels of camphor oil; it is the only species able to be used to flavour foods. Get the identification of lavender wrong, and you may be ingesting unsafe levels of camphor oil.

Why Name Plants?

The immense significance of plants in our lives has led to a desire to understand plants. Knowing shared characteristics of a plant group, allows us to predict traits of related and even unknown plants. Mankind has had to rely on plants for survival. In fact, around one third or more of all plants in cultivation contain toxic chemicals. If we were to incorrectly identify and name plants we may use these plants inappropriately, and that could have a dramatic and potentially fatal effect on us or anyone who we advise. For example, “People have died after mistaking deadly nightshade fruits, for the similar, but non-fatal, black-currants.”

Accurate plant identification is a skill which should be an essential requirement for anyone working with plants and especially in horticulture. Taxonomy is the term used to describe the practice and science of naming and classifying any organisms, and in our case plants. It relies on accurate

Suggested Tasks: ▼

Throughout this course you will be provided with suggested tasks and reading to aid with your understanding. These will appear in the right hand column. Remember: these tasks are optional. The more you complete, the more you will learn, but in order to complete the course in 20 hours you will need to manage your time well. We suggest you spend about 10 minutes on each task you attempt, and no more than 20 minutes.

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Suggested Tasks

Before progressing; spend 5 mins to quickly write a list of reasons why you think it is important to be able to identify plants accurately. Put the list to one side. You will refer to it again later.

descriptions and rules of nomenclature to facilitate identification. To attempt to select, grow, and use plants in any context without taxonomic skill is at best foolhardy, and at worst it can be outright dangerous.

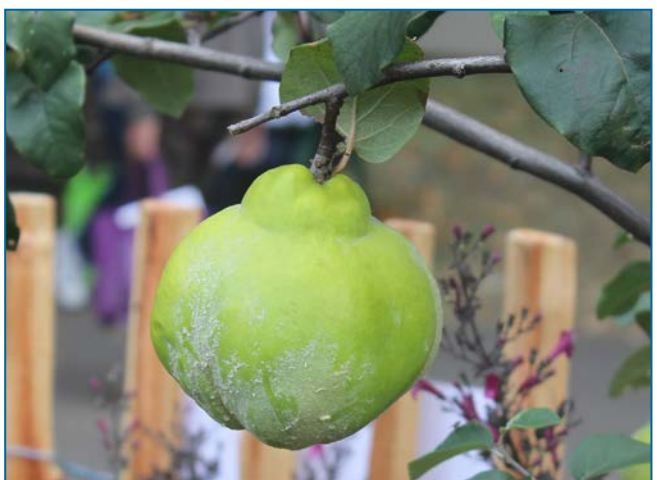
The necessity of understanding correct plant identification, however, goes far beyond recognising poisonous or toxic plants. Plants are a vital part of societal infrastructure, with uses ranging from the home gardening and landscaping through to coastal stabilisation, carbon sequestration, therapeutic use, and more. In accurately classifying and recognising plants, horticulturalists, agriculturalists, gardeners, and other professionals can work together to better everything from cityscapes to food production. In short, plant taxonomy is a necessary real-world skill.

There are also economic reasons for being able to identify plants. The development of new plant cultivars can be time-consuming and costly, but it is very important to commercial horticulture in order to improve continually the cultivars available in terms of productivity and quality. Anyone who devotes significant resources to developing a new cultivar needs to be able to establish and prove their commercial rights to that plant in order to obtain fair and profitable gain from their investment. Systems for establishing such rights exist in most developed countries.

It is also important to note that horticulture is a vast and diverse scientific field. Even if you don't work as a horticulturalist, it's important to understand there are different types of horticulture. The biggest modern distinction between types of horticulture is ornamental vs. edible. Within this grouping though, are many subtypes of horticulture, such as ornamental horticulture, amenity horticulture, arboriculture, floriculture, and more.

It's also important to draw a distinction between horticulture, professional gardening, and gardening. Horticulture is a science. It uses research-based methodology to improve plant growth, health, propagation techniques, and more. Professional gardening is the professional care of gardens, public spaces, and other areas. While many professional gardeners are also horticulturalists, their primary activities differ. Professional gardeners are in the business of caring for, supervising, and improving their environments. Both professions require skill and hard work.

Horticulture and professional gardening are also distinct from gardening or home gardening. Home gardening is the care of a garden for pleasure or domestic use (such as a vegetable patch, or ornamentals for pleasure). It is a hobby as opposed to a profession.



Cydonia oblonga has the common name Quince, but so does the genus *Chaenomeles*.

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Suggested Tasks

Make a list of 5 plants that are poisonous. For each plant, note down things like what it is used for, they type of poison, the effects of the poison, how to avoid it etc. Spend up to 15 minutes on this task.

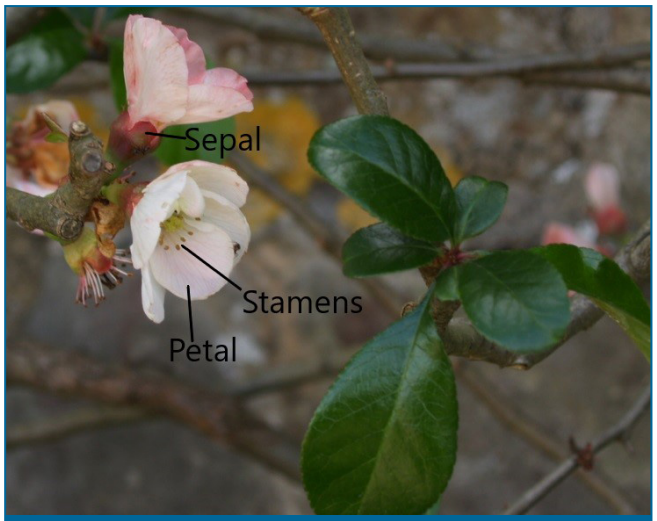
If need be, search books or the internet, or have a discussion with a horticulturist to compile this list.

Scientific Vs. Vernacular Names

A vernacular name is a common or local name given to plants. These names are widely used amongst gardeners and non-horticulturists. There are advantages to these vernacular names. For example, they are in the local language and thus easier to remember. They are also often descriptive with the description indicating a use or danger. However, there are also drawbacks with common names. They can be very localised and the same plant can have more than one common name for example, the White Waterlily (*Nymphaea alba*) has many other common names, such as European White Waterlily, Waterlily, and White Lotus. Further confusion is created when the same common name is applied to different plants. For example, *Nymphaea lotus* is also called White Lotus and White Waterlily, along with other names like Egyptian Lotus, Egyptian Waterlily and White Egyptian Lotus. Another example is the common name Quince which is used for both *Cydonia oblonga* and *Chaenomeles* species.

Some common names are the same as the Latin name. For example, plants in the genus *Euphorbia* are often referred to by gardeners simply as euphorbias, although they can also be called spurges. Likewise, species in the genus *Rhododendron* are called rhododendrons, but some of them are called azaleas even though they are in the genus *Rhododendron*! Extreme confusion can result from the fact that “fritillary” is a common name for both a bulbous plant and a butterfly.

Scientific names on the other hand are all written in the Latin language. They can therefore be understood equally by anyone, anywhere, regardless of their native language. The Latin name ensures that people are referring to the exact same plant.



Chaenomeles species are commonly called Flowering Quinces. So are *Cydonias*. Both are in the Rosaceae family.

History

To gain a solid grounding in plant naming, a little historical background information is helpful.

John Ray

John Ray (also spelled Wray) was an English naturalist who lived between 1627 and 1705. He was one of the most important figures in the early development of plant taxonomy. In 1660, he published a catalogue of plants which were growing around Cambridge in England where he studied his Bachelor’s degree. Over the decades that followed he explored plant life throughout other parts of the UK, and he continued publishing important taxonomic works. His most important

long-term legacy was to establish the importance of distinguishing plants at a species level and using every part of a plant when grouping them, and not just relying on one, such as leaf shape or flower colour.

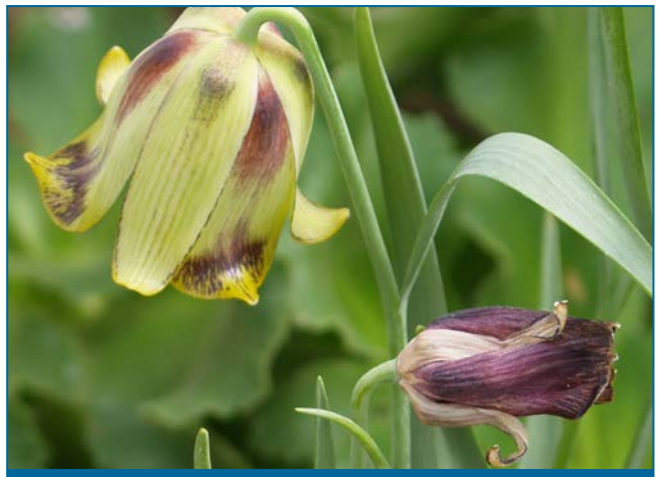
Linnaeus

Carl Linnaeus (1707-1778), who was a Swedish botanist and zoologist, is widely regarded as the most significant figure in establishing the scientific system of taxonomy.

Binomials

Linnaeus achieved his standing largely by formalising the practice of *binomial* naming of plants and animals (where *bi* means two, and *nomial* means name). That is, he used the genus together with the species name to identify an organism with “two names” e.g. *Quercus robur* (English Oak) or *Rhododendron ponticum* is the rhododendron from the Pontic Mountains in Turkey.

His work “*Systema Naturae*” was first published in 1735 as a 12 page book and was developed and expanded over more than 2 decades until the 10th edition in 1758 which covered some 7,700 species of plants and 4,400 species of animals. By this time, specimens of plants and animals were being sent from all around the world for Linnaeus to catalogue. Many other works relating to plant taxonomy emerged throughout Linnaeus’s lifetime, some by Linnaeus himself, and some by others who were heavily influenced by Linnaeus’s thinking. The evolution of taxonomy beyond Linnaeus has arguably been influenced more by Linnaeus than anyone else.



Fritillary is a common name used for the plant genus (*Fritillaria*) and also for a type of butterfly.

Uniformity

It wasn’t until 1867 at the inaugural ‘International Botanical Congress’ that the first set of rules underpinning plant names was officially adopted by the botanical world as an international scientific standard.

Deficiencies in this original code led to the establishment of a number of other sets of rules. A compromise between the existing codes was adopted in 1930 and published as the 3rd Edition of the International Rules of Botanical Nomenclature. More recent editions are basically modifications of this code.

Many amateur gardeners make the mistake of not using proper identification systems. They commonly identify plants by simply accepting the name on a label when they purchase a plant or the name they are offered by someone else who gives them that plant. They may also identify plants by looking at photographs in a book until an image can be matched with the plant being observed. Such methods may be adequate for some plants grown in a home garden, but

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Suggested Tasks

For each of the following plant categories, find one species. Type your chosen species into the search engine and look up images. View the different images to gain an appreciation of variation within the same species.

- Grass
- Climber
- Hedge
- Shrub
- Fruit tree

Spend about 10 minutes on this task.