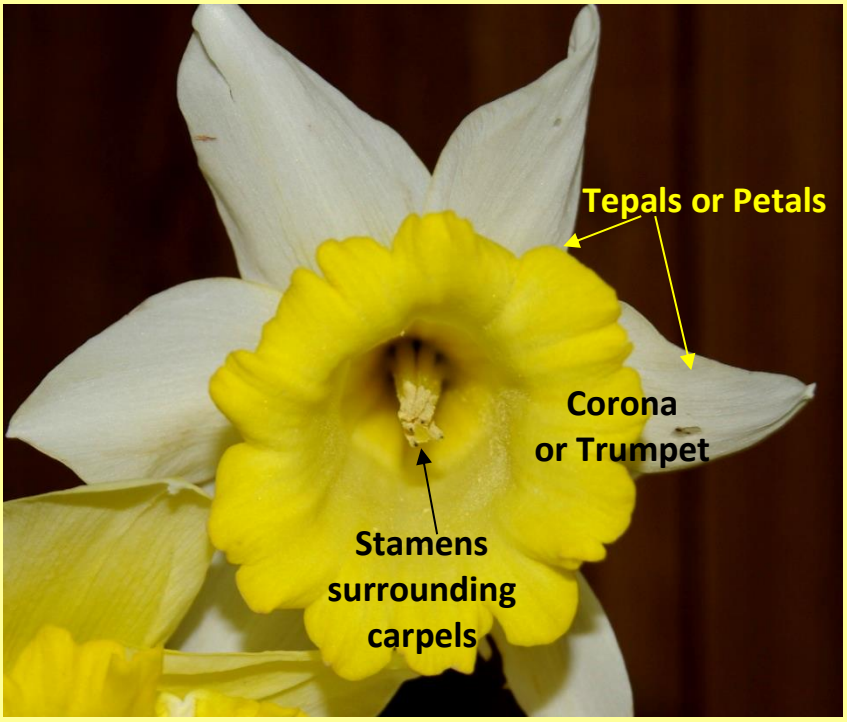
Daffodils
Narcissus



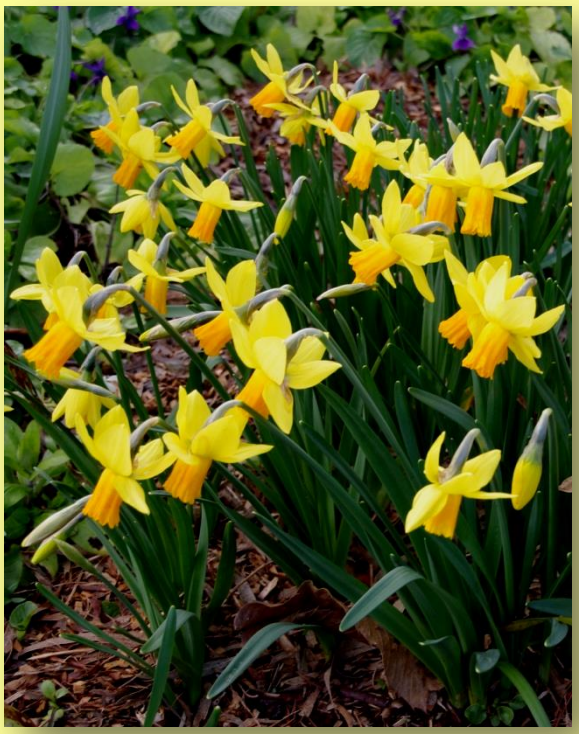
The **Daffodil** must surely be one of the world's most iconic spring flowers and has great cultural significance in many countries. There are approximately 100 different species of these hardy, (mostly) golden flowered bulbous perennials, distributed from Asia (Japan and China) eastward through to the Mediterranean, Europe and North Africa[1].

Daffodils (***Narcissus*** species) are monocots, and thus their flower parts are organised in multiples of three. However, instead of three green sepals then three coloured petals, Daffodils have **six 'petals'** (technically, 'tepals' or 'perianth segments'), and then **six stamens** arranged around the central ovary. However, the daffodil has another '**floral whorl**' between the 'petals' and stamens and this is usually referred to as the '**trumpet'** (or '**corona'**).





The origin of the 'trumpet' or 'corona' has long been a mystery but recently Robert Scotland, Reader in Systematic Botany at Oxford, and colleagues decided to investigate. In the early stages of flower development, flower parts are so small, they are very difficult to dissect. So Scotland and his colleagues used genes that identified various floral organs to track the origin and development of the 'trumpet'. He used B & C class genes to identify components of the flowers: 'petals' have B genes, stamens have B & C genes and carpels have C genes. By cloning these genes from the various flower parts, they were able to determine which genes were expressed in the 'trumpet', finding that the expression pattern of the C-class gene was closer to that of the stamens than of the 'petals'. The team was able to demonstrate that the 'trumpet' begins life as six separate groups of cells between the stamens and 'petals'. These six groups grow upwards, eventually developing into a complete ring of tissue forming the 'trumpet' between the stamens and 'petals'[2,3].



[1]Encyclopedia of Life: http://eol.org/pages/29121/details
[2]Robert Scotland 2013 *Homology of the Daffodil Corona*, Oxford Plant Systematics 19:8-9.
[3]Waters M T, Tiley A M M, Kramer E M, Meerow A W, Langdale J A & Scotland R W 2013. The corona of the daffodil *Narcissus bulbocodium* shares stamen-like identity and is distinct from the orthodox floral whorls. The Plant Journal 74: 615-625.

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Jonquils
Narcissus but not quite Daffodils



What are the differences between *Narcissus*, daffodil and jonquil? For a start, all daffodils and jonquils belong to the genus *Narcissus*, thus the 'King Alfred Daffodil' is *Narcissus pseudonarcissus*, 'Hoop Petticoat Daffodil' is *Narcissus bulbocodium* and the 'Rush Daffodil' or 'Jonquil' is *Narcissus jonquilla.* However, it's much more difficult to separate daffodils from jonquils.

As a general rule, we think of daffodils as having only one flower per stem and leaves that are blue-grey in colour whereas jonquils have numerous, **fragrant** flowers per stem and green leaves. However it isn't straightforward. *Plantnet*, the on-line flora of the National Herbarium of New South Wales, includes jonquils in *Narcissus tazetta*, a native of southern Europe, cultivated in many countries of the world but you would wonder why jonquils don't belong in *Narcissus jonquilla*, a species native to SW Europe and North Africa and naturalised throughout Europe and North America. *Encyclopedia of Life* reports that natural hybrids exist between the two. We have decided that, as daffodils have been cultivated and hybridized for centuries, perhaps this puzzle is best left to horticultural experts from the Royal Horticultural Society (UK) and the American Daffodil Society.



Sydney is now becoming just a tad too warm for trumpet daffodils such as the ever popular 'King Alfred'. Certainly, fresh bulbs will flower in their first year but only sporadically thereafter unless you live in one of the cooler, higher suburbs of Sydney. Jonquils, on the other hand, do well everywhere. They are tough, one could almost say almost indestructible, fragrant and flower regularly every year. If you live near bushland, just be careful where you plant, as *N. tazetta* is listed as an environmental weed in Victoria, SA and WA and *N. psuedonarcissus* is naturalised in coastal and highland areas of southern Australia.

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