Science – Year 6

Living Things and Their Habitats - Block 6LvH

Classification Connoisseurs

Session 1

Resource Pack

Classification crowns

Copy onto A3, cut out and make into crowns. Use only the first 5 crowns to start with.

Kingdom

Class

Species

Genus

Order

Extra Classification crowns

Family

Phylum

Classification terms

Kingdom: Most scientists now list 5 kingdoms – Animal, Plant, Protists (amoebas and such), Fungi and Montera (bacteria).

Phylum: There are more than 30 phyla in the Animal Kingdom and 9 or 10 in the Plant Kingdom. Phylum Chordata is the one we're most familiar with – it includes humans, birds, fish, and all other vertebrates (animals with a backbone). Phylum Arthropoda includes insects, spiders, lobsters, etc. Arthropods have segmented bodies with the segments grouped into two or three distinct sections. They have hard external skeletons, or exoskeletons, that are shed and regenerated as the animals grow.

Class: The various phyla are divided into classes – Phylum Chordata is divided into the classes: amphibians, birds, mammals, reptiles and fish.

Order: Scientific groupings don't follow hard and fast rules. Once we get to the 'order' of a living thing, there sometimes begins to be some disagreement about where it belongs. You may find that different sources group creatures in different orders or families. And you may find that a creature has its order or family changed as more information is learned.

Family: The family is a relatively new scientific concept. It is a way scientists group similar genera together. This is not the 'mum, dad, brother and sister' type of family!

Genus: Two or more species that share unique body structures or other characteristics are considered to be closely related and are placed together in a genus. Sometimes a genus might include only a single species if there is nothing else in the world that has similarities with it. The genus is the first part of the scientific name of a species. The genus is always spelled with a capital letter and in italics.

Species: A species can be defined as a group of individuals that breed together to produce fertile offspring. Individuals of a species cannot breed with other such groups. It is sometimes possible for different species to breed, but the offspring will be sterile. A mule is the sterile offspring of a donkey and a horse, and the mule can never mate and reproduce itself. The species is the second part of the scientific name of a species. The species is always spelled with a lower-case letter and in italics.

Characteristics of Five Kingdoms

Animals:
Multicellular
No cell walls
Do not produce their own food

Plants:
Multicellular
Usually have thick cell walls
Produce their own food (photosynthesis)

Fungi:
Can be unicellular or multicellular
Look like plants but cannot produce their own food
Live off dead or decaying plant & animal material
Reproduce asexually by spores

Protista/Protoctista:
Unicellular
Have a nucleus
Some act like plants and make their own food
Some are more like animal or fungi cells

Monera:
Bacteria
Unicellular
No nucleus
Reproduce by dividing

Examples of classification 'routes'

Kingdom: *Animalia (Animal)*
Phylum: *Chordata (Vertebrate)*
Class: *Mammalia (Mammal)*
Order: Carnivora (Carnivore)
Family: *Felidae (Cat)*
Genus: *Panthera*
Species: *Panthera tigris (Tiger)*

Kingdom*: Plantae (Plant)*
Phylum*: Spermatophyta (Seed Plants)*
Class*: Dicotyledonae (Dicotyledons)*
Order*: Rosales (Rosales)*
Family*: Rosaceae (Roses)*
Genus*: Rubus*
Species*: Rubus fruticosus (Blackberry)*

Kingdom: *Animalia (Animal)*
Phylum: *Chordata (Vertebrate)*
Class: *Mammalia (Mammal)*
Order: *Primates (Primate)*
Family: *Hominidae (Great Apes)*
Genus: *Homo (Humans)*
Species: *Homo sapiens (Modern Humans)*

Kingdom: *Fungi*
Phylum: *Basidiomycota (Basidiomycetes)*
Class: *Agaricomycetes (Mushroom-forming Fungi)*
Order: *Agaricales (Gilled Mushrooms)*
Family: *Amanitaceae (Amanitas)*
Genus: *Amanita (Agarics)*
Species: *Amanita muscaria (Fly Agaric)*

Kingdom: *Bacteria*
Phylum: *Proteobacteria*
Class: *Gamma Proteobacteria*
Order: *Enterobacteriales*
Family: *Enterobacteriaceae*
Genus: *Escherichia*
Species: *Escherichia coli (E. coli)*

Kingdom: *Eukaryota*
Phylum: *Tubulinea*
Class: *Loboda*
Order: *Tubulinea*
Family: *Amoebidae*
Genus: *Amoeba*
Species: *Proteus*

Classification Code record card

Can you identify the two words and find out how they relate to classification?

Session	Activity	Code revealed
Session 1	Classification routes	
Session 2	Classification keys	
Session 3	Creating keys	
Session 4	Leaf key	
Session 5	Descriptions	
Session 6	New creatures	
	Crack the code (clue: 4 letter word + 8 letter word)	

Session	Activity	Code revealed
Session 1	Classification routes	
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Session 3	Creating keys	
Session 4	Leaf key	
Session 5	Descriptions	
Session 6	New creatures	
	Crack the code (clue: 4 letter word + 8 letter word)	

Classification Code record card (letters to be awarded after each session)

Can you identify the two words and find out how they relate to classification?

Session	Activity	Code revealed
Session 1	Classification routes	T C
Session 2	Classification keys	S M
Session 3	Creating keys	Y N
Session 4	Leaf key	P I
Session 5	Descriptions	E E
Session 6	New creatures	P E
	Crack the code (clue: 4 letter word + 8 letter word)	TYPE SPECIMEN

Type specimen: the actual specimen that the description and name of a new species is based on.

Classification Code challenge (Yr5): groups of 4

Your Classification Code challenge is to create 'pairs' playing cards.

1. Collect a set of the 'living things images' and have a go at grouping them into the same kingdom, then phylum groups.
2. Now collect a set of classification routes cards (to match and colour).
3. Cut out the route cards and match the corresponding images.
4. Stick the images and route cards onto the same side of a piece of A6 card.
5. Now colour-code the route cards, matching those things that are the most closely related. Do this by colouring all the cards that have the same kingdom, phylum ***and*** Class (you will find that some may be even more related than this) – were your original groups (with just the images) right?
6. You are now ready to play 'pairs' (or 'threes'!).

Classification Code challenge (Yr6): groups of 6

Your Classification Code challenge is to research and create 'pairs' playing cards.

1. Collect a set of the 'living things images' and have a go at grouping them into the same kingdom, then phylum, then class groups.
2. Now research the classification routes for each image that you haven't been given a classification route for (split these into 'animals', 'plants' and 'others', and share them out across your group to research. Note that the 'plants' are the trickiest to research while the 'animals' are the easiest – you may find lots of sub classes!). You will need to find out the scientific names (in Latin) to complete your research. Useful websites:
    - http://www.cabi.org/isc/datasheet/113896
    - https://a-z-animals.com/animals/
    - http://www.animalfactsencyclopedia.com/
    - https://en.wikipedia.org/ - use with caution and always cross reference your research elsewhere, but this is a useful site to get you started
    - https://www.rhs.org.uk/plants/search-form - this will give you the family and genus only
3. Did you find any conflicting information? How do you know your information is accurate? Why do you think the classification of plants seems much more complicated than animals?
4. Cut out the completed route cards and match the corresponding images.
5. Stick the images and route cards onto the same side of a piece of A6 card.
6. Now colour-code the route cards, matching those things that are the most closely related. Do this by colouring all the cards that have the same kingdom, phylum ***and*** class (you will find that some may be even more related than this) – were your original groups (with just the images) right? Were there any surprises?
7. You are now ready to play 'pairs' (or 'threes'!).

Route cards (Colour coded version – for reference only)

Parasitic Bolete	
Kingdom:	*Fungi*
Phylum:	*Basidiomycota*
Class:	*Agaricomycetes*
Order:	*Boletales*
Family:	*Boletaceae*
Genus:	*Pseudoboletus*
Species:	*Pseudoboletus parasiticus*

Euglena gracilis	
Kingdom:	*Eukaryota*
Phylum:	*Euglenozoa*
Class:	*Euglenoidea*
Order:	*Euglenales*
Family:	*Euglenaceae*
Genus:	*Euglena*
Species:	*Euglena gracilis*

E. coli	
Kingdom:	*Eubacteria*
Phylum:	*Proteobacteria*
Class:	*Gammaproteobacteria*
Order:	*Enterobacteriales*
Family:	*Enterobacteriaceae*
Genus:	*Escherichia*
Species:	*Escherichia coli*

Fly agaric	
Kingdom:	*Fungi*
Phylum:	*Basidiomycota*
Class:	*Agaricomycetes*
Order:	*Agaricales*
Family:	*Amanitaceae*
Genus:	*Amanita*
Species:	*Amanita muscaria*

Amoeba proteus	
Kingdom:	*Eukaryota*
Phylum:	*Amoebozoa*
Class:	*Tubulinea*
Order:	*Tubulinida*
Family:	*Amoebidae*
Genus:	*Amoeba*
Species:	*Amoeba proteus*

Salmonella	
Kingdom:	*Eubacteria*
Phylum:	*Proteobacteria*
Class:	*Gammaproteobacteria*
Order:	*Enterobacteriales*
Family:	*Enterobacteriaceae*
Genus:	*Salmonella*
Species:	*Salmonella Enteritidis*

Lion	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Mammalia*
Order:	*Carnivora*
Family:	*Felidae*
Genus:	*Panthera*
Species:	*Panthera leo*

Mediterranean House Gecko	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Reptilia*
Order:	*Squamata*
Family:	*Gekkonidae*
Genus:	*Hemidactylus*
Species:	*Hemidactylus turcicus*

European Robin	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Aves*
Order:	*Passeriformes*
Family:	*Muscicapidae*
Genus:	*Erithacus*
Species:	*Erithacus rubecula*

Lesser Water Boatman	
Kingdom:	*Animalia*
Phylum:	*Arthropoda*
Class:	*Insecta*
Order:	*Hemiptera*
Family:	*Corixidae*
Genus:	*Corixa*
Species:	*Corixa punctata*

Emperor Penguin	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Aves*
Order:	*Sphenisciformes*
Family:	*Spheniscidae*
Genus:	*Aptenodytes*
Species:	*Aptenodytes forsteri*

Eastern Brown Snake	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Reptilia*
Order:	*Squamata*
Family:	*Elapidae*
Genus:	*Pseudonaja*
Species:	*Pseudonaja textilis*

Marble Angelfish	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Actinopterygii*
Order:	*Perciformes*
Family:	*Cichlidae*
Genus:	*Pterophyllum*
Species:	*Pterophyllum scalare*

Golden Eagle	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Aves*
Order:	*Accipitriformes*
Family:	*Accipitridae*
Genus:	*Aquila*
Species:	*Aquila chrysaetos*

Common Earthworm	
Kingdom:	*Animalia*
Phylum:	*Annelida*
Class:	*Sedentaria*
Order:	*Clitellata*
Family:	*Lumbricidae*
Genus:	*Lumbricus*
Species:	*Lumbricus terrestris*

Koala Bear	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Mammalia*
Order:	*Diprotodontia*
Family:	*Phascolarctidae*
Genus:	*Phascolarctos*
Species:	*Phascolarctos cinereus*

Nile Crocodile	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Reptilia*
Order:	*Crocodilia*
Family:	*Crocodylidae*
Genus:	*Crocodylus*
Species:	*Crocodylus niloticus*

European garden spider	
Kingdom:	*Animalia*
Phylum:	*Arthropoda*
Class:	*Arachnida*
Order:	*Araneae*
Family:	*Araneidae*
Genus:	*Araneus*
Species:	*Araneus diadematus*

Giant African Snail	
Kingdom:	*Animalia*
Phylum:	*Mollusca*
Class:	*Gastropoda*
Order:	*Stylommatophora*
Family:	*Achatinidae*
Genus:	*Achatina*
Species:	*Achatina achatina*

Border Collie	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Mammalia*
Order:	*Carnivora*
Family:	*Canidae*
Genus:	*Canis*
Species:	*Canis lupus familiaris*

Pederson's shrimp	
Kingdom:	*Animalia*
Phylum:	*Arthropoda*
Class:	*Malacostraca*
Order:	*Decapoda*
Family:	*Palaemonidae*
Genus:	*Ancylomenes*
Species:	*Ancylomenes pedersoni*

Blue Poison Dart Frog	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Amphibia*
Order:	*Anura*
Family:	*Dendrobatidae*
Genus:	*Dendrobates*
Species:	*Dendrobates tinctorius*

Angular Unicorn Sea Snail	
Kingdom:	*Animalia*
Phylum:	*Mollusca*
Class:	*Gastropoda*
Order:	*Neogastropoda*
Family:	*Muricidae*
Genus:	*Acanthinucella*
Species:	*Acanthinucella spirata*

Humpback whale	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Mammalia*
Order:	*Artiodactyla*
Family:	*Balaenopteridae*
Genus:	*Megaptera*
Species:	*Megaptera novaeangliae*

Giraffe	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Mammalia*
Order:	*Artiodactyla*
Family:	*Giraffidae*
Genus:	*Giraffa*
Species:	*Giraffa giraffa*

Brown Bear	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Mammalia*
Order:	*Carnivora*
Family:	*Ursidae*
Genus:	*Ursus*
Species:	*Ursus arctos*

Channel Catfish	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Actinopterygii*
Order:	*Siluriformes*
Family:	*Ictaluridae*
Genus:	*Ictalurus*
Species:	*Ictalurus punctatus*

Indian Red Scorpion	
Kingdom:	*Animalia*
Phylum:	*Arthropoda*
Class:	*Arachnida*
Order:	*Scorpiones*
Family:	*Buthidae*
Genus:	*Hottentotta*
Species:	*Hottentotta tamulus*

Red Admiral Butterfly	
Kingdom:	*Animalia*
Phylum:	*Arthropoda*
Class:	*Insecta*
Order:	*Lepidoptera*
Family:	*Nymphalidae*
Genus:	*Vanessa*
Species:	*Vanessa atalanta*

Mexican Burrowing Caecilian	
Kingdom:	*Animalia*
Phylum:	*Chordata*
Class:	*Amphibia*
Order:	*Gymnophiona*
Family:	*Dermophiidae*
Genus:	*Dermophis*
Species:	*Dermophis mexicanus*

Pineapple	
Kingdom:	*Plantae*
Phylum:	*Spermatophyta*
Class:	*Monocotyledonae*
Order:	*Poales*
Family:	*Bromeliaceae*
Genus:	*Ananas*
Species:	*Ananas comosus*

Greater Stitchwort	
Kingdom:	*Plantae*
Phylum:	*Tracheophyta*
Class:	*Magnoliopsida*
Order:	*Caryophyllales*
Family:	*Caryophyllaceae*
Genus:	*Stellaria*
Species:	*Stellaria holostea*

Blackcurrant	
Kingdom:	*Plantae*
Phylum:	*Tracheophyta*
Class:	*Magnoliopsida*
Order:	*Saxifragales*
Family:	*Grossulariaceae*
Genus:	*Ribes*
Species:	*Ribes nigrum*

Baobab Tree	
Kingdom:	*Plantae*
Phylum:	*Tracheophyta*
Class:	*Magnoliopsida*
Order:	*Malvales*
Family:	*Malvaceae*
Genus:	*Adansonia*
Species:	*Adansonia kilima*

Teasel	
Kingdom:	*Plantae*
Phylum:	*Spermatophyta*
Class:	*Dicotyledonae*
Order:	*Dipsacales*
Family:	*Dipsacaceae*
Genus:	*Dipsacus*
Species:	*Dipsacus fullonum*

Old Man's Beard	
Kingdom:	*Plantae*
Phylum:	*Spermatophyta*
Class:	*Dicotyledonae*
Order:	*Ranunculales*
Family:	*Ranunculaceae*
Genus:	*Clematis*
Species:	*Clematis vitalba*

Fescue Grass	
Kingdom:	*Plantae*
Phylum:	*Spermatophyta*
Class:	*Monocotyledonae*
Order:	*Ranunculales*
Family:	*Ranunculaceae*
Genus:	*Clematis*
Species:	*Clematis vitalba*

English Oak Tree	
Kingdom:	*Plantae*
Phylum:	*Spermatophyta*
Class:	*Dicotyledoneae*
Order:	*Fagales*
Family:	*Fagaceae*
Genus:	*Quercus*
Species:	*Quercus robur*

Kelp	
Kingdom:	*Protoctista*
Phylum:	*Ochrophyta*
Class:	*Phaeophyceae*
Order:	*Laminariales*
Family:	*Laminariaceae*
Genus:	*Nereocystis*
Species:	*Nereocystis luetkeana*

Ivy	
Kingdom:	*Plantae*
Phylum:	*Spermatophyta*
Class:	*Dicotyledonae*
Order:	*Apiales*
Family:	*Araliaceae*
Genus:	*Hedera*
Species:	*Hedera helix*

Common Foxglove	
Kingdom:	*Plantae*
Phylum:	*Spermatophyta*
Class:	*Dicotyledonae*
Order:	*Scrophulariales*
Family:	*Scrophulariaceae*
Genus:	*Digitalis*
Species:	*Digitalis purpurea*

Wheat	
Kingdom:	*Plantae*
Phylum:	*Spermatophyta*
Class:	*Monocotyledonae*
Order:	*Poales*
Family:	*Poaceae*
Genus:	*Triticum*
Species:	*Triticum aestivum*

Route cards (Y5 Classification Code challenge: to match and colour code; Y6 – give chn a few of these completed routes (a mix) then get them to research the remaining ones)

Parasitic Bolete	
Kingdom*:*	*Fungi*
Phylum*:*	*Basidiomycota*
Class*:*	*Agaricomycetes*
Order*:*	*Boletales*
Family*:*	*Boletaceae*
Genus*:*	*Pseudoboletus*
Species:	*Pseudoboletus parasiticus*

Euglena gracilis	
Kingdom*:*	*Eukaryota*
Phylum*:*	*Euglenozoa*
Class*:*	*Euglenoidea*
Order*:*	*Euglenales*
Family*:*	*Euglenaceae*
Genus*:*	*Euglena*
Species:	*Euglena gracilis*

E. coli	
Kingdom*:*	*Eubacteria*
Phylum*:*	*Proteobacteria*
Class*:*	*Gammaproteobacteria*
Order*:*	*Enterobacteriales*
Family*:*	*Enterobacteriaceae*
Genus*:*	*Escherichia*
Species:	*Escherichia coli*

Fly agaric	
Kingdom*:*	*Fungi*
Phylum*:*	*Basidiomycota*
Class*:*	*Agaricomycetes*
Order*:*	*Agaricales*
Family*:*	*Amanitaceae*
Genus*:*	*Amanita*
Species:	*Amanita muscaria*

Amoeba proteus	
Kingdom*:*	*Eukaryota*
Phylum*:*	*Amoebozoa*
Class*:*	*Tubulinea*
Order*:*	*Tubulinida*
Family*:*	*Amoebidae*
Genus*:*	*Amoeba*
Species:	*Amoeba proteus*

Salmonella	
Kingdom*:*	*Eubacteria*
Phylum*:*	*Proteobacteria*
Class*:*	*Gammaproteobacteria*
Order*:*	*Enterobacteriales*
Family*:*	*Enterobacteriaceae*
Genus*:*	*Salmonella*
Species:	*Salmonella Enteritidis*

Lion	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Mammalia*
Order*:*	*Carnivora*
Family*:*	*Felidae*
Genus*:*	*Panthera*
Species:	*Panthera leo*

Mediterranean House Gecko	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Reptilia*
Order*:*	*Squamata*
Family*:*	*Gekkonidae*
Genus*:*	*Hemidactylus*
Species:	*Hemidactylus turcicus*

European Robin	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Aves*
Order*:*	*Passeriformes*
Family*:*	*Muscicapidae*
Genus*:*	*Erithacus*
Species:	*Erithacus rubecula*

Lesser Water Boatman	
Kingdom*:*	*Animalia*
Phylum*:*	*Arthropoda*
Class*:*	*Insecta*
Order*:*	*Hemiptera*
Family*:*	*Corixidae*
Genus*:*	*Corixa*
Species:	*Corixa punctata*

Emperor Penguin	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Aves*
Order*:*	*Sphenisciformes*
Family*:*	*Spheniscidae*
Genus*:*	*Aptenodytes*
Species:	*Aptenodytes forsteri*

Eastern Brown Snake	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Reptilia*
Order*:*	*Squamata*
Family*:*	*Elapidae*
Genus*:*	*Pseudonaja*
Species:	*Pseudonaja textilis*

Marble Angelfish	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Actinopterygii*
Order*:*	*Perciformes*
Family*:*	*Cichlidae*
Genus*:*	*Pterophyllum*
Species:	*Pterophyllum scalare*

Golden Eagle	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Aves*
Order*:*	*Accipitriformes*
Family*:*	*Accipitridae*
Genus*:*	*Aquila*
Species:	*Aquila chrysaetos*

Common Earthworm	
Kingdom*:*	*Animalia*
Phylum*:*	*Annelida*
Class*:*	*Sedentaria*
Order*:*	*Clitellata*
Family*:*	*Lumbricidae*
Genus*:*	*Lumbricus*
Species:	*Lumbricus terrestris*

Koala Bear	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Mammalia*
Order*:*	*Diprotodontia*
Family*:*	*Phascolarctidae*
Genus*:*	*Phascolarctos*
Species:	*Phascolarctos cinereus*

Nile Crocodile	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Reptilia*
Order*:*	*Crocodilia*
Family*:*	*Crocodylidae*
Genus*:*	*Crocodylus*
Species:	*Crocodylus niloticus*

European garden spider	
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Phylum*:*	*Arthropoda*
Class*:*	*Arachnida*
Order*:*	*Araneae*
Family*:*	*Araneidae*
Genus*:*	*Araneus*
Species:	*Araneus diadematus*

Giant African Snail	
Kingdom*:*	*Animalia*
Phylum*:*	*Mollusca*
Class*:*	*Gastropoda*
Order*:*	*Stylommatophora*
Family*:*	*Achatinidae*
Genus*:*	*Achatina*
Species:	*Achatina achatina*

Border Collie	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Mammalia*
Order*:*	*Carnivora*
Family*:*	*Canidae*
Genus*:*	*Canis*
Species:	*Canis lupus familiaris*

Pederson's shrimp	
Kingdom*:*	*Animalia*
Phylum*:*	*Arthropoda*
Class*:*	*Malacostraca*
Order*:*	*Decapoda*
Family*:*	*Palaemonidae*
Genus*:*	*Ancylomenes*
Species:	*Ancylomenes pedersoni*

Blue Poison Dart Frog	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Amphibia*
Order*:*	*Anura*
Family*:*	*Dendrobatidae*
Genus*:*	*Dendrobates*
Species:	*Dendrobates tinctorius*

Angular Unicorn Sea Snail	
Kingdom*:*	*Animalia*
Phylum*:*	*Mollusca*
Class*:*	*Gastropoda*
Order*:*	*Neogastropoda*
Family*:*	*Muricidae*
Genus*:*	*Acanthinucella*
Species:	*Acanthinucella spirata*

Humpback whale	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Mammalia*
Order*:*	*Artiodactyla*
Family*:*	*Balaenopteridae*
Genus*:*	*Megaptera*
Species:	*Megaptera novaeangliae*

Giraffe	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Mammalia*
Order*:*	*Artiodactyla*
Family*:*	*Giraffidae*
Genus*:*	*Giraffa*
Species:	*Giraffa giraffa*

Brown Bear	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Mammalia*
Order*:*	*Carnivora*
Family*:*	*Ursidae*
Genus*:*	*Ursus*
Species:	*Ursus arctos*

Channel Catfish	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Actinopterygii*
Order*:*	*Siluriformes*
Family*:*	*Ictaluridae*
Genus*:*	*Ictalurus*
Species:	*Ictalurus punctatus*

Indian Red Scorpion	
Kingdom*:*	*Animalia*
Phylum*:*	*Arthropoda*
Class*:*	*Arachnida*
Order*:*	*Scorpiones*
Family*:*	*Buthidae*
Genus*:*	*Hottentotta*
Species:	*Hottentotta tamulus*

Red Admiral Butterfly	
Kingdom*:*	*Animalia*
Phylum*:*	*Arthropoda*
Class*:*	*Insecta*
Order*:*	*Lepidoptera*
Family*:*	*Nymphalidae*
Genus*:*	*Vanessa*
Species:	*Vanessa atalanta*

Mexican Burrowing Caecilian	
Kingdom*:*	*Animalia*
Phylum*:*	*Chordata*
Class*:*	*Amphibia*
Order*:*	*Gymnophiona*
Family*:*	*Dermophiidae*
Genus*:*	*Dermophis*
Species:	*Dermophis mexicanus*

Pineapple	
Kingdom*:*	*Plantae*
Phylum*:*	*Spermatophyta*
Class*:*	*Monocotyledonae*
Order*:*	*Poales*
Family*:*	*Bromeliaceae*
Genus*:*	*Ananas*
Species:	*Ananas comosus*

Greater Stitchwort	
Kingdom*:*	*Plantae*
Phylum*:*	*Tracheophyta*
Class*:*	*Magnoliopsida*
Order*:*	*Caryophyllales*
Family*:*	*Caryophyllaceae*
Genus*:*	*Stellaria*
Species:	*Stellaria holostea*

Blackcurrant	
Kingdom*:*	*Plantae*
Phylum*:*	*Tracheophyta*
Class*:*	*Magnoliopsida*
Order*:*	*Saxifragales*
Family*:*	*Grossulariaceae*
Genus*:*	*Ribes*
Species:	*Ribes nigrum*

Baobab Tree	
Kingdom*:*	*Plantae*
Phylum*:*	*Tracheophyta*
Class*:*	*Magnoliopsida*
Order*:*	*Malvales*
Family*:*	*Malvaceae*
Genus*:*	*Adansonia*
Species:	*Adansonia kilima*

Teasel	
Kingdom*:*	*Plantae*
Phylum*:*	*Spermatophyta*
Class*:*	*Dicotyledonae*
Order*:*	*Dipsacales*
Family*:*	*Dipsacaceae*
Genus*:*	*Dipsacus*
Species:	*Dipsacus fullonum*

Old Man's Beard	
Kingdom*:*	*Plantae*
Phylum*:*	*Spermatophyta*
Class*:*	*Dicotyledonae*
Order*:*	*Ranunculales*
Family*:*	*Ranunculaceae*
Genus*:*	*Clematis*
Species:	*Clematis vitalba*

Fescue Grass	
Kingdom*:*	*Plantae*
Phylum*:*	*Spermatophyta*
Class*:*	*Monocotyledonae*
Order*:*	*Ranunculales*
Family*:*	*Ranunculaceae*
Genus*:*	*Clematis*
Species:	*Clematis vitalba*

English Oak Tree	
Kingdom*:*	*Plantae*
Phylum*:*	*Spermatophyta*
Class*:*	*Dicotyledoneae*
Order*:*	*Fagales*
Family*:*	*Fagaceae*
Genus*:*	*Quercus*
Species:	*Quercus robur*

Kelp	
Kingdom*:*	*Protoctista*
Phylum*:*	*Ochrophyta*
Class*:*	*Phaeophyceae*
Order*:*	*Laminariales*
Family*:*	*Laminariaceae*
Genus*:*	*Nereocystis*
Species:	*Nereocystis luetkeana*

Ivy	
Kingdom*:*	*Plantae*
Phylum*:*	*Spermatophyta*
Class*:*	*Dicotyledonae*
Order*:*	*Apiales*
Family*:*	*Araliaceae*
Genus*:*	*Hedera*
Species:	*Hedera helix*

Common Foxglove	
Kingdom*:*	*Plantae*
Phylum*:*	*Spermatophyta*
Class*:*	*Dicotyledonae*
Order*:*	*Scrophulariales*
Family*:*	*Scrophulariaceae*
Genus*:*	*Digitalis*
Species:	*Digitalis purpurea*

Wheat	
Kingdom*:*	*Plantae*
Phylum*:*	*Spermatophyta*
Class*:*	*Monocotyledonae*
Order*:*	*Poales*
Family*:*	*Poaceae*
Genus*:*	*Triticum*
Species:	*Triticum aestivum*

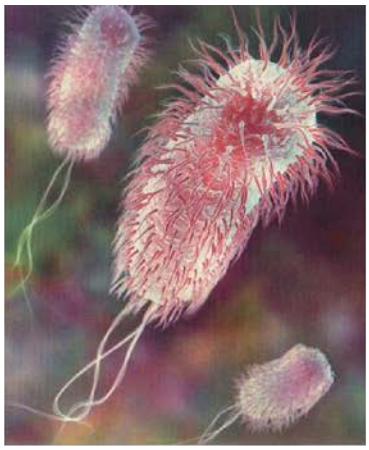
Route Cards (Yr6 Classification Code challenge: blank for research)

Kingdom*:*		**Kingdom***:*		**Kingdom***:*	
Phylum*:*		**Phylum***:*		**Phylum***:*	
Class*:*		**Class***:*		**Class***:*	
Order*:*		**Order***:*		**Order***:*	
Family*:*		**Family***:*		**Family***:*	
Genus*:*		**Genus***:*		**Genus***:*	
Species:		**Species:**		**Species:**	
Kingdom*:*		**Kingdom***:*		**Kingdom***:*	
Phylum*:*		**Phylum***:*		**Phylum***:*	
Class*:*		**Class***:*		**Class***:*	
Order*:*		**Order***:*		**Order***:*	
Family*:*		**Family***:*		**Family***:*	
Genus*:*		**Genus***:*		**Genus***:*	
Species:		**Species:**		**Species:**	

Images for sorting

Parasitic bolete

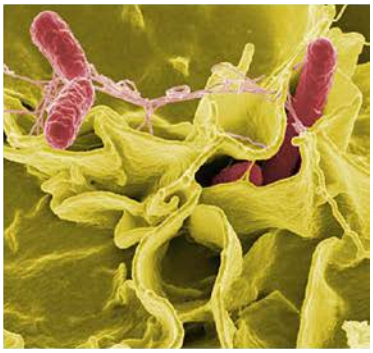
E. coli



Fly agaric

Amoeba proteus

Salmonella



Euglena gracilis

Lion

Mediterranean house gecko

European Robin

Lesser water boatman

Emperor penguin

Eastern brown snake

Golden eagle

Marbled Angelfish

Common earthworm

Nile crocodile

Koala bear

European garden spider

Giant African snail

Border collie

Pederson’s shrimp

Blue poison dart frog

Giraffe

Brown bear

Humpback whale

Channel catfish

Indian red scorpion

Red Admiral butterfly

Mexican Burrowing Caecilian

Angular Unicorn sea snail

Blackcurrants

Ivy

Foxglove

Stitchwort

Pineapple

Old Man's Beard

Teasel

Fescue grass

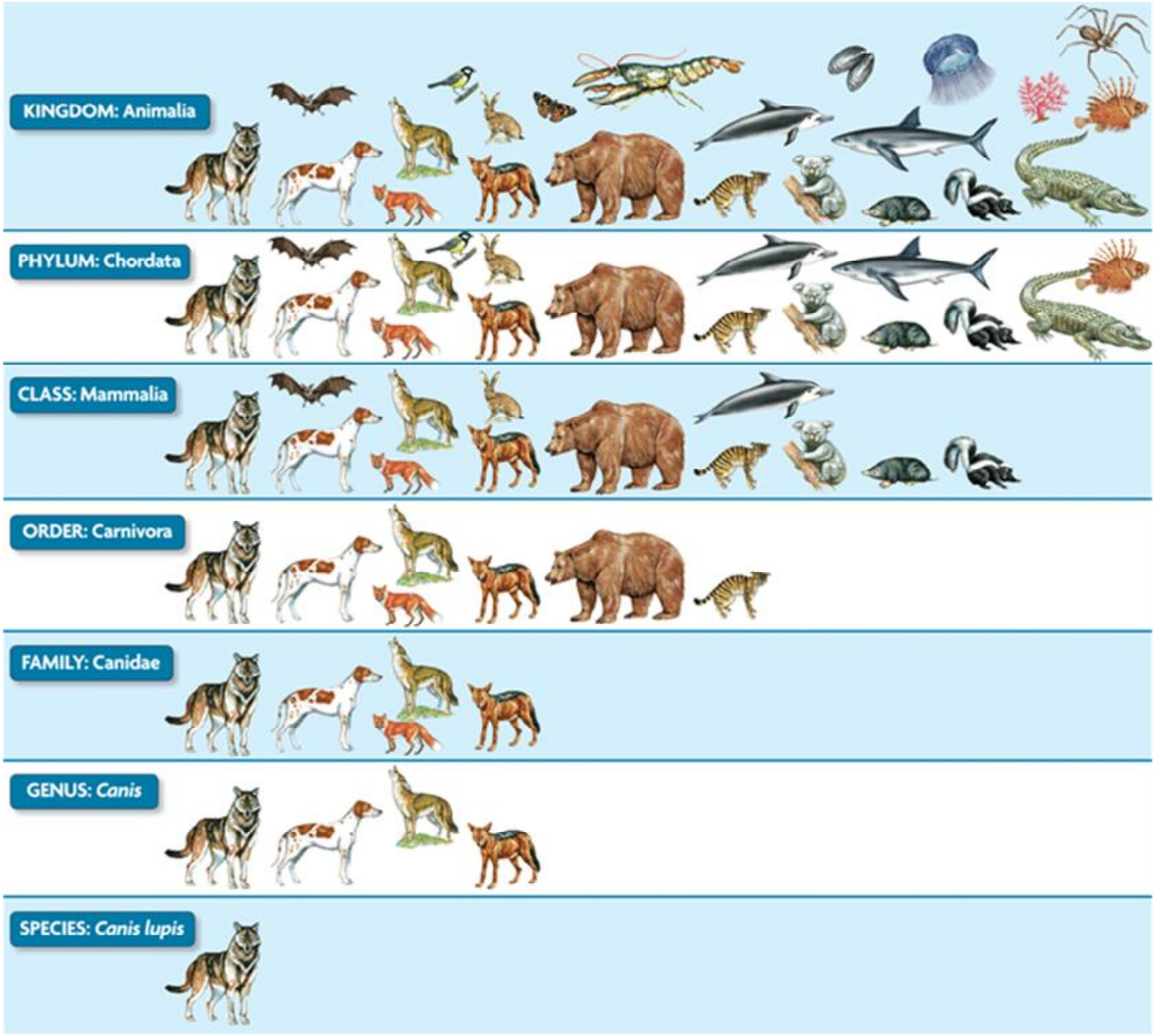
Oak tree

Wheat

Kelp

Baobab tree

Classification route diagram



The tale of the red panda and the giant panda

Once upon a classification system the red panda and the giant panda were grouped together, although scientists disagreed over which family they were in:

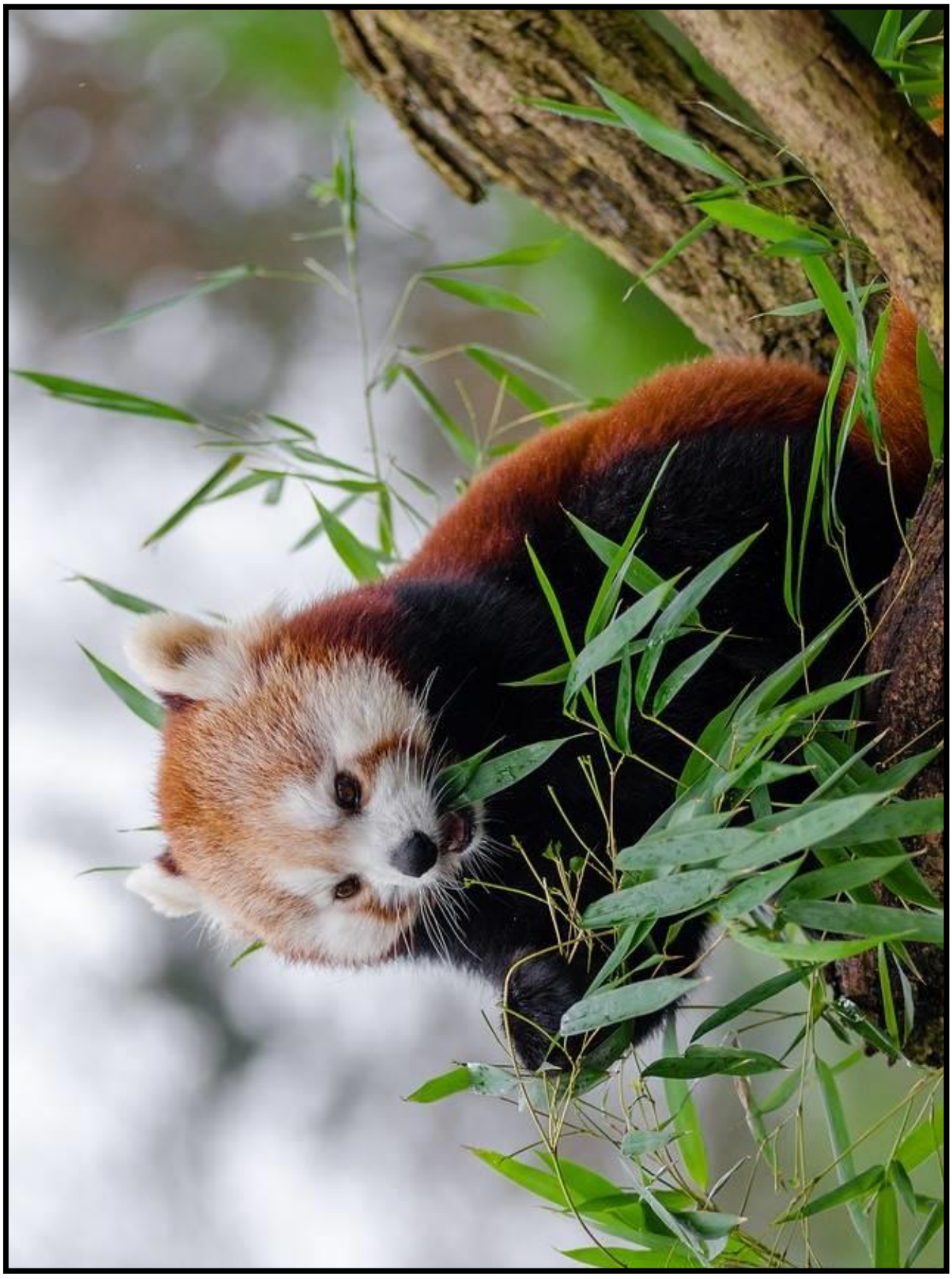
- Bears?
- Raccoons?
- Something else?

They had both bear and raccoon characteristics!

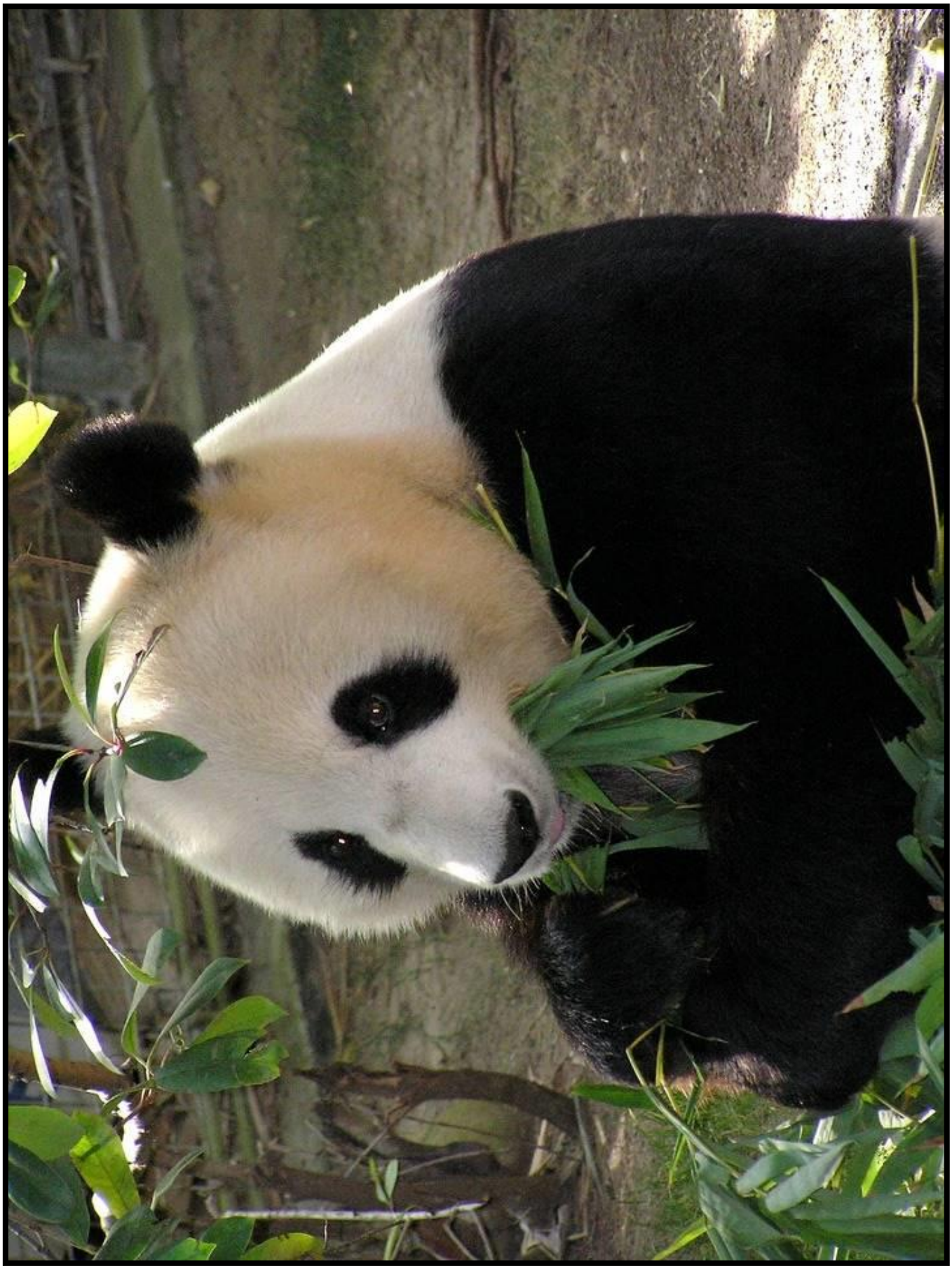
Eventually DNA sequencing held the answer. Giant pandas are true bears (Ursidae), while red pandas are in a family of their own (Ailuridae), which is closely related to raccoons.

Interestingly, and surprising to scientists, red and giant pandas aren't very closely related to each other!

Red Panda



Giant Panda



Mnemonic

K

P

C

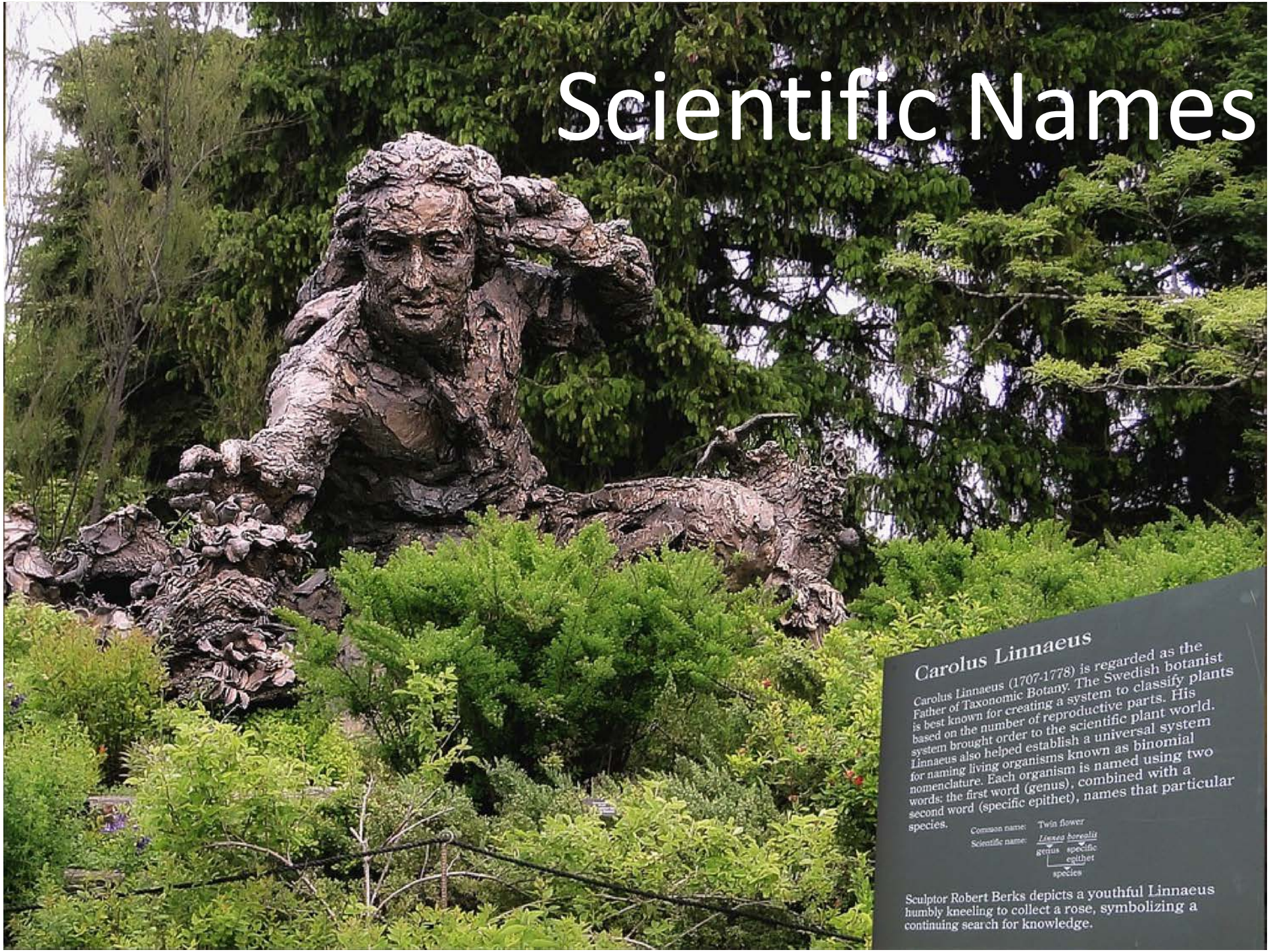
O

F

G

S

Scientific Names



Scientific names are usually made of two words. Look at the following classification 'routes' for a range of living things and see if you can read the scientific names.

Can you work out how the names are created from the classification route?

Kingdom: *Animalia (Animal)*
Phylum: *Chordata (Vertebrate)*
Class: *Mammalia (Mammal)*
Order: Carnivora (Carnivore)
Family: *Felidae (Cat)*
Genus: *Panthera*
Species: *Panthera tigris (Tiger)*

Kingdom: *Eukaryota*
Phylum: *Tubulinea*
Class: *Loboda*
Order: *Tubulinea*
Family: *Amoebidae*
Genus: *Amoeba*
Species: *Amoeba Proteus*

Kingdom*: Plantae (Plant)*
Phylum*: Spermatophyta (Seed Plants)*
Class*: Dicotyledonae (Dicotyledons)*
Order*: Rosales (Rosales)*
Family*: Rosaceae (Roses)*
Genus*: Rubus*
Species*: Rubus fruticosus (Blackberry)*

Can you spot how the scientific names of these living things are formed?

Kingdom: *Bacteria*
Phylum: *Proteobacteria*
Class: *Gamma Proteobacteria*
Order: *Enterobacteriales*
Family: *Enterobacteriaceae*
Genus: *Escherichia*
Species: *Escherichia coli (E. coli)*

Kingdom: *Animalia (Animal)*
Phylum: *Chordata (Vertebrate)*
Class: *Mammalia (Mammal)*
Order: *Primates (Primate)*
Family: *Hominidae (Great Apes)*
Genus: *Homo (Humans)*
Species: *Homo sapiens (Modern Humans)*

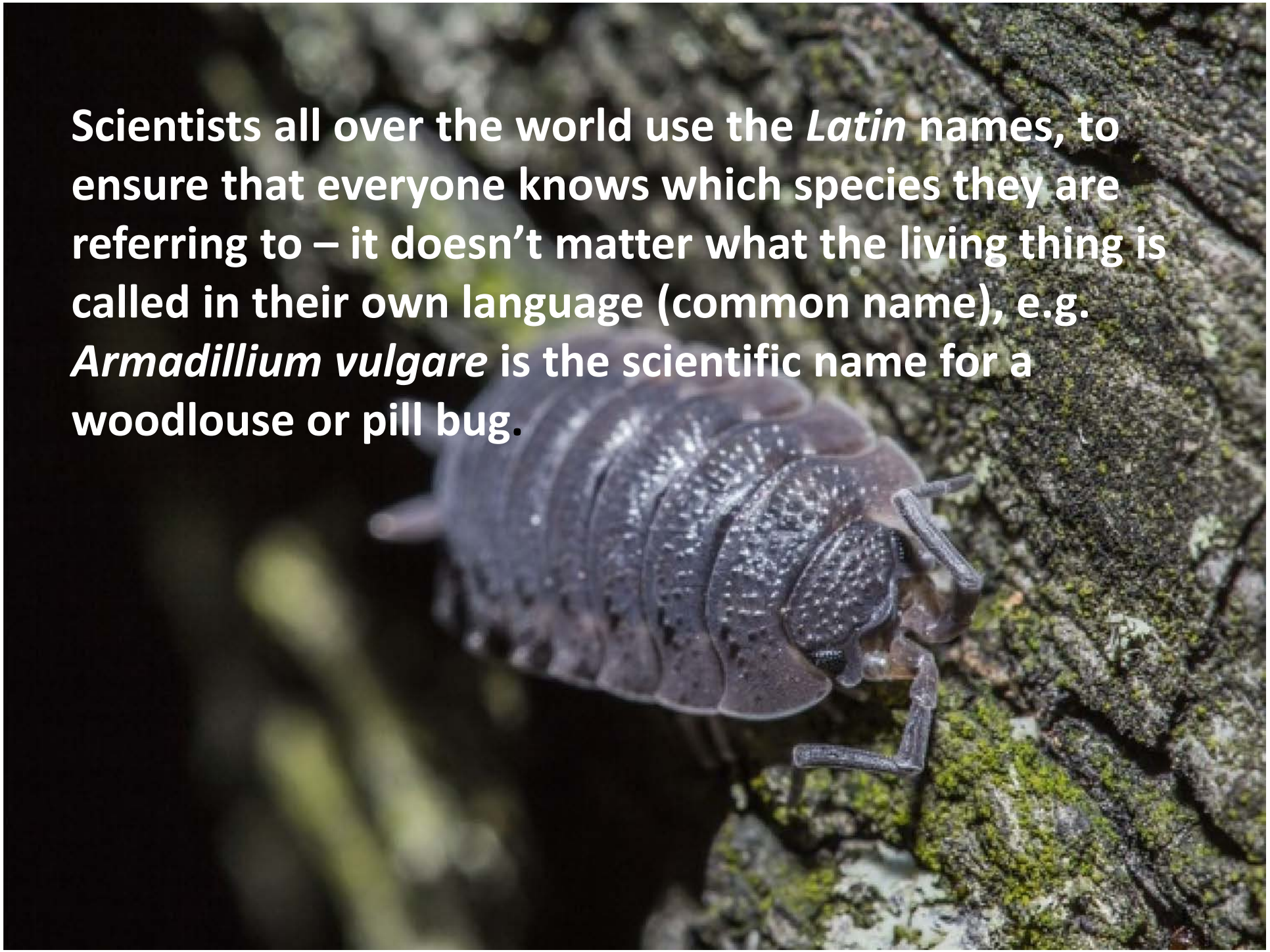
Kingdom: *Fungi*
Phylum: *Basidiomycota (Basidiomycetes)*
Class: *Agaricomycetes (Mushroom-forming Fungi)*
Order: *Agaricales (Gilled Mushrooms)*
Family: *Amanitaceae (Amanitas)*
Genus: *Amanita (Agarics)*
Species: *Amanita muscaria (Fly Agaric)*

Name = Genus + Species

This is Linnaeus's binomial (two names) naming system - a system for clear, simple scientific names.

The genus and species use *Latin* and the genus name always starts with a capital letter, while the species name has a lower case letter.

Things in the same genus will always have the same first name and a unique species name.


Scientists all over the world use the *Latin* names, to ensure that everyone knows which species they are referring to – it doesn't matter what the living thing is called in their own language (common name), e.g. *Armadillium vulgare* is the scientific name for a woodlouse or pill bug.

Note that if an L. appears after a scientific name it means that Linnaeus named it.

If a dagger sign appears it shows that the living thing is extinct!


Just one plant is named after Linnaeus himself
– his favourite, *Linnaea borealis* (twinflower)

Glossary

- Chn – children
- Gp/s – group/s
- H/W – homework