



Answers

Classification

Year 7 Science

Chapter 5

p98	<ol style="list-style-type: none">1 Classification is the act of sorting things into groups.2 It is important that everyone in the world uses the same classification system for books so that everyone knows where books are placed, not just the librarian in each library.3 Zoology is a branch of biology that deals with the scientific study of animals.4 The first two Dewey number digits for zoology is 59.5 Botany is a branch of biology that deals with the scientific study of plants.6 The first two Dewey number digits for botany is 58.7 Go to a library and check your answers to Q4 and Q6.8 Dewey number 599.2 = Marsupials and Monotremes.9 In biology, an organism is a living thing, such as an animal, plant or bacteria.10 Examples of classification (the act of sorting things into groups) are car spare parts, sports events, soil types, rock types.
p101	<ol style="list-style-type: none">1 Correctly reorder the seven divisions: Kingdom, Phylum, Class, Order, Family, Genus, Species2 The seven divisions in order: Kingdom, Phylum, Class, Order, Family, Genus, Species3 How many different organisms can you find in the schoolgrounds?4 The classification of organisms makes it:<ul style="list-style-type: none">• easier to identify an organism.• easier to study an organism.• easier to communicate about an organism.• easier to categorise a new organism.
p102	<ol style="list-style-type: none">1 The features I would consider using to classify these animals are: The number of toes in the hoof, the type of plants eaten, the teeth used to chew the plant, the digestive system used to digest the plant eaten.2 Ungulates, hoofed mammals, include many of the large herbivores. Many hoofed mammals live in grasslands and savannahs. Ungulates have evolved features that are adaptive for life on open grasslands, in particular long legs to increase running speed. To lengthen the legs, ungulates evolved digitigrade locomotion: that is, they walk on their toes. The hoof of a horse or cow is anatomically an enlarged toe. Artiodactyls such as deer, sheep, and goats walk on two toes; perissodactyls walk either on three toes (rhinos, tapirs, some extinct horses) or on one toe (living horses). The remaining toes not used for walking are either reduced, as in pigs and tapirs, or completely lost, as in rhinos and most ruminants. Many ungulates have also evolved large, complexly grooved molar teeth to grind their food of grasses and other plants.3 Most of the ungulates tend to eat plants.4 Two faults are: There is a link missing on the linked key from Horns to 1 horn or two horns, What is the difference between a tusk and a horn (Difficult using just the photos)?

p103	<ol style="list-style-type: none"> 1 Top, left to right: Seal, beetle, owl, starfish. Middle, left to right: Hawk, killer whale, grub, dolphin. Bottom, left to right: Fish, dog, kangaroo, cat. 2 I would use the following to classify these animals: Land or sea, number of legs, type of feathers, fur, scales. 3 Make your own key, nested or linked, to classify these animals.
p104	<ol style="list-style-type: none"> 1 I would you use the following to classify these plants: Flower shape, flower size, leaf shape, leaf size. 2 Acacia, wattle, is a genus of shrubs and trees belonging to the subfamily Mimosoideae. Many non-Australian species tend to be thorny, whereas the majority of Australian acacias are not. All species are pod-bearing, with sap and leaves often bearing large amounts of tannins and condensed tannins that historically found use as pharmaceuticals and preservatives. The genus Acacia previously contained roughly 1,300 species, about 960 of them native to Australia, with the remainder spread around the tropical to warm-temperate regions of both hemispheres, including Europe, Africa, southern Asia, and the Americas 4 Two faults: The key would be very little use without the flowers, large wide leaf is a vague description.
p105	<ol style="list-style-type: none"> 1 Common names for these plants: Top, left to right: Oil palm tree, cactus, coconut tree. Bottom, left to right: Orchid, water lily. 2 I would use the following to classify these plants: leaf shape, leaf size, flower shape, flower colour, presence of a trunk, trunk features. 3 Make your own key, nested or linked, to classify these plants.
p107	<ol style="list-style-type: none"> 1 The microscope was invented around 1866 (Inclusion of Protista). 2 The electron microscope was invented around 1938 (Inclusion of Monera).
p109	<ol style="list-style-type: none"> 1 The five kingdoms are: Animalia, Plantae, Fungi, Protista, Monera. 2 Paramecium to move through water by beating their outside hairs (cilia). 3 A single-celled organism with a nucleus belongs to the kingdom: Protista. 4 An organism that looks very much like a plant but doesn't have any chlorophyll probably belongs to the kingdom: Plantae - There are plants without chlorophyll (This conclusion is based on the description that it looks very much like a plant). 5 The seven divisions in order: Kingdom, Phylum, Class, Order, Family, Genus, Species 6 The seven divisions in order: Kingdom, Phylum, Class, Order, Family, Genus, Species
p111	<ol style="list-style-type: none"> 1 Phylum is singular and phyla is plural. 2 Chordata is derived from the Greek chorde meaning 'cord' and ata meaning 'bearing'. Echinodermata is derived from the Greek echinos meaning 'hedgehog' and derma meaning 'skin'. Arthropoda is derived from the Greek arthro meaning 'jointed' and pod meaning 'foot'. Annelida is derived from the Latin anellus meaning 'little ring'. Mollusca is derived from the Latin mollis which means 'soft'. Nematoda is derived from the Greek nema meaning 'thread'. Platyhelminthes is derived from the Greek platy meaning 'flat' and helminth meaning 'worm'. Porifera is derived from the Latin porus meaning 'pore' and fer meaning 'bearing'. 3 Insects belong to the arthropoda phyla. 4 Humans belong to the chordata phyla.

p115	<ol style="list-style-type: none"> 1 The fish's air bladder is able to inflate and deflate. Without an air bladder a fish would sink because its tissues are denser than water. 2 Gills to extract oxygen from the water. Fins to help the fish move through water. Fish have an air bladder to prevent them from sinking or floating. Many fish have scales for
p116	<ol style="list-style-type: none"> 1 Frogs need to live near water, have smooth, moist slimy skin, have longer hind legs, have many predators. Toads do not need to live near water, have rough, dry skin, have shorter legs, take small hops rather than jump, do not have many predators. 2 Amphibians are ectotherms. Ectotherms are animals that gain the majority of their heat from their environment. 3 Very few cold-blooded animals live in cold climates because they are unable to gain enough heat from their environment to support internal functions.
p117	<ol style="list-style-type: none"> 1 Reptiles and amphibians need to be warm (24°C-35°C) before they can move about. They get their warmth by absorbing heat, through their skin, from their surroundings and the warmth of the Sun. 2 Why are reptiles covered in scales to provide protection from the loss of body moisture, from exposure to UV rays from the Sun, from abrasions as they move. 3 Generally, the difference between a turtles and tortoises is that tortoises live on land and the turtles live in or near freshwater or saltwater.
p121	<ol style="list-style-type: none"> 1 The study of plants called botany. 2 The vascular system of a plant distributes water, nutrients, and sucrose throughout the plant. 3 A plant phyla that doesn't have a vascular system is bryophyta (the mosses). 4 The conifers develop seeds in cones - no flowers. Conifers have a vascular system. Many have needle shaped leaves. Mosses develop spores in capsules - no flowers. Mosses have no vascular system. 5 The coniferophyta develops seeds in cones. 6 Monocots have: Flower parts in multiples of 3, major leaf veins are parallel, embryo with single cotyledon. Dicots have: Flower parts in multiples of four or five, major leaf veins are netted, embryo with two cotyledons. 7 The phloem carries sucrose from the leaf. The sucrose is produced in the leaf as a product of photosynthesis. 8 Trees with needle-shaped leaves are especially well suited to drier soils and drier climates because the needle shape prevents excessive loss of water.

p124	<ol style="list-style-type: none"> 1 Classification is the act of sorting things into groups. 2 Classification of organisms makes it: <ul style="list-style-type: none"> • easier to identify an organism. • easier to study an organism. • easier to communicate about an organism. • easier to categorise a new organism. 3 It is important that everyone in the world uses the same classification system for books so that everyone knows where books are placed, not just the librarian in each library. 4 Taxonomy is a branch of science concerned with the science of classification, especially of organisms. 5 In biology, an organism is a living thing, such as an animal, plant or bacteria. 6 Zoology is a branch of biology that deals with the scientific study of animals. 7 Botany is the study of plants. 8 Examples of classification (the act of sorting things into groups) are car spare parts, sports events, soil types, rock types.
p124	<ol style="list-style-type: none"> 1 Monera 2 Protista
p125	<ol style="list-style-type: none"> 1 The five kingdoms are: Animalia, Plantae, Fungi, Protista, Monera. 2 Monera. 3 An organism that looks very much like a plant but doesn't have any chlorophyll probably belongs to the kingdom: Plantae - There are plants without chlorophyll (This conclusion is based on the description that it looks very much like a plant). 4 The seven divisions in order: Kingdom, Phylum, Class, Order, Family, Genus, Species 5 The seven divisions in order: Kingdom, Phylum, Class, Order, Family, Genus, Species
p125	<ol style="list-style-type: none"> 1 Organisms that belong to the animal kingdom: Mammals, birds, reptiles, amphibians, fish, jellyfish, insects, spiders, crabs, snails, earthworms. 2 Organisms that belong to the plant kingdom: Flowering plants, ferns, pines, mosses. 3 Organisms that belong to the fungi kingdom: Mushrooms, yeasts, moulds, mildew. 4 Amphibians are ectotherms. Ectotherms are animals that gain the majority of their heat from their environment. 5 Reptiles and amphibians need to be warm (24°C-35°C) before they can move about. They get their warmth by absorbing heat, through their skin, from their surroundings and the warmth of the Sun. 6 Very few cold-blooded animals live in cold climates because they are unable to gain enough heat from their environment to support internal functions.

p126	<ol style="list-style-type: none"> 1 Has a vertebrae, is warm-blooded and has hair - Chordata. 2 A microscopic worm, not round - Platyhelminthes. 3 A segmented body with a shell. Six legs attached to the thorax - Arthropoda. 4 Aquatic and transparent. Many long stinging tentacles - Cnidaria. 5 Spider - Arthropoda. 6 Humans - Chordata. 7 Snails - Mollusca. 8 Starfish - Echinodermata. 9 Garden worms - Annelida. 10 A marine animal covered in spines - Echinodermata.
p126	<ol style="list-style-type: none"> 1 Phylum is singular and phyla is plural. 2 Vertebrate means having a backbone. 3 Herbivore refers to an organism that eats plants. 4 Omnivore refers to an organism that eats both plants and animals.
p127	<ol style="list-style-type: none"> 1 The container would be half full just before doubling to become full. The container was half full at 10:59 am. 2 Possibly, the bull ant attacked the spider in a tree. Both of them fell from the tree and are suspended in midair by the spider's thread.
p128	<ol style="list-style-type: none"> 1 The study of plants called botany. 2 The vascular system of a plant distributes water, nutrients, and sucrose throughout the plant. 3 A plant phyla that doesn't have a vascular system is bryophyta (the mosses). 4 The conifers develop seeds in cones - no flowers. Conifers have a vascular system. Many have needle shaped leaves. Mosses develop spores in capsules - no flowers. Mosses have no vascular system. 5 The coniferophyta develops seeds in cones. 6 Monocots have: Flower parts in multiples of 3, major leaf veins are parallel, embryo with single cotyledon. Dicots have: Flower parts in multiples of four or five, major leaf veins are netted, embryo with two cotyledons. 7 The phloem carries sucrose from the leaf. The sucrose is produced in the leaf as a product of photosynthesis. 8 Trees with needle-shaped leaves are especially well suited to drier soils and drier climates because the needle shape prevents excessive loss of water.
p128	<ol style="list-style-type: none"> 1 Develop your own key to classify plants into the phyla: flowering plants, conifers, mosses, and ferns. 2 Organisms of the same genus most likely to have the more in common than organisms of the same family. 3 There are about 300 000 different organisms at the plant kingdom level. There is just one organism at the plant species level.

p129

- 1 The plant cell has a cell wall.
- 2 Earthworm - annelida. Snake - Chordata.
- 3 c)

p130

- 1 Mushrooms is the odd one out because both birds and reptiles have backbones.
- 2 Pines is the odd one out because it isn't a flowering plant. Both grasses and fruit trees are flowering plants.
- 3 Insects is the odd one out because both mammals and birds have backbones.
- 4 Kangaroos is the odd one out because it is a marsupial.
- 5 Bacteria is the odd one out because it belongs to the monera kingdom while ferns and mosses belong to the plant kingdom.
- 6 Spiders is the odd one out because spiders have pincer mouthparts while mayflies and butterflies don't have pincer mouthparts.
- 7 The microscope led to the expansion of two kingdoms to five kingdoms.
- 8 Dinosaurs are considered to be reptiles. Reptiles breathe air, lay shelled eggs, and are covered with scales. Reptiles are cold blooded and are tetrapods (four limbs) or are descended from tetrapods.
- 9 It is thought that dinosaurs were warm-blooded. Most living reptiles are cold-blooded.
- 10 It has been estimated that about 7 million species are yet to be discovered. There are so many because many of them are microscopic.
- 11 Which kingdom is least likely to have organisms that depend on other organisms for their supply of nutrients? Most plants are able to produce their own food supply through photosynthesis.
- 12 Which kingdom is most likely to have organisms that depend on other organisms for their supply of nutrients? Animals and fungi are unable to make their own food and thus tend to depend on other organisms for their food supply.
- 13
 - a) Vertebrate.
 - b) Cold-blooded.
 - c) Chondrichthyes (Sharks have a skeleton of cartilage rather than bone. Five to seven gills. Tough skin that feels like sandpaper.
- 14 The following newly discovered organism is a moss (Bryophyta).
Mosses develop spores in capsules.
Mosses have no vascular system (No xylem or phloem).
Mosses have a simple form of roots called rhizomes.

