

Word Puzzles

from *Nelson Biology 11*

Crossword and word search puzzles for every chapter and unit, with solutions.



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Robert Prior

Understanding Biodiversity

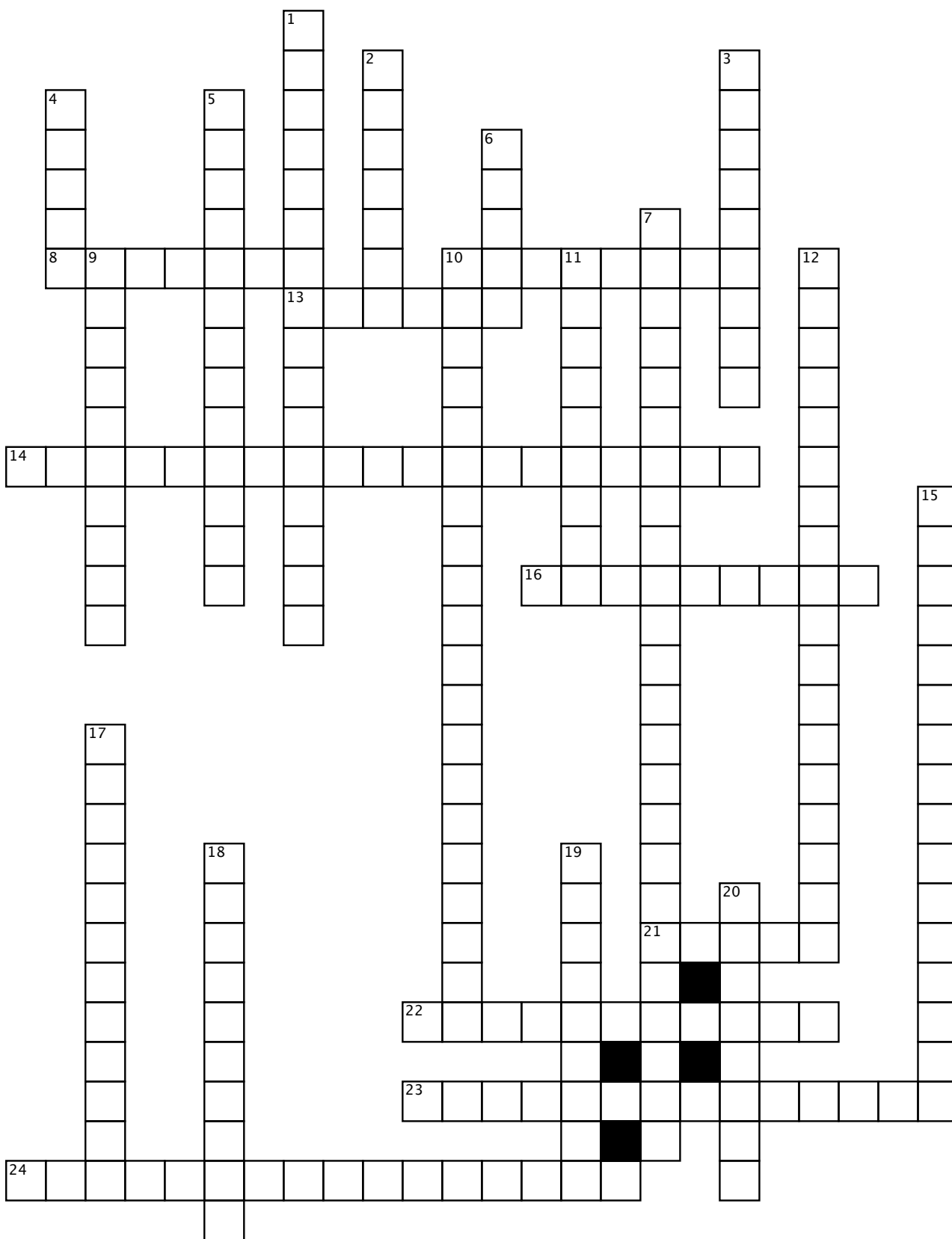
Complete the crossword puzzle.

Across

8. all organisms capable of breeding freely with each other under natural conditions
10. a scientist specializing in the study of plants; also called a plant biologist
13. the highest taxonomic level
14. the range of physical shapes and sizes within a habitat or ecosystem (two words)
16. the study of the evolutionary relatedness between, and among, species
21. a taxonomic group that includes a single common ancestor and all its descendants
22. an organism that obtains energy-rich nutrients by consuming living or dead organisms
23. a series of branching, two-part statements used to identify organisms (or objects) (two words)
24. a diagram depicting the evolutionary relationships between different species or groups (two words)
6. a category used to classify organisms
7. the systemic grouping of organisms into biological categories based on physical and evolutionary relationships (two words)
9. a single-celled organism that does not contain membrane-bound organelles
10. the formal system of naming species whereby each species is assigned a genus name followed by a specific name; the two words taken together form the species name (two words)
11. an organism that uses sources of energy to produce nutrients from water, gases, and/or minerals
12. a change that occurs in an entire population; usually occurs over a long period of time (two words)
15. the genetic variability among organisms—usually referring to individuals of the same species (two words)
17. the number and variety of species and ecosystems on Earth

Down

1. a measure of diversity that takes into account the quantity of each species present, as well as the variety of different species present (two words)
2. the highest taxonomic level of the traditional Linnaean system of classification
3. the scientific theory that describes changes in species over time and their shared ancestry
4. a taxonomic level consisting of a group of similar species
5. the crossbreeding of two different species
18. the physical appearance and characteristics of an organism; also the science of the study of these physical characteristics
19. any organism whose cells contain organelles; some are single-celled, while others are multicellular
20. the science of classifying all organisms, both living and fossil species



The Prokaryotes, Viruses, and Protists

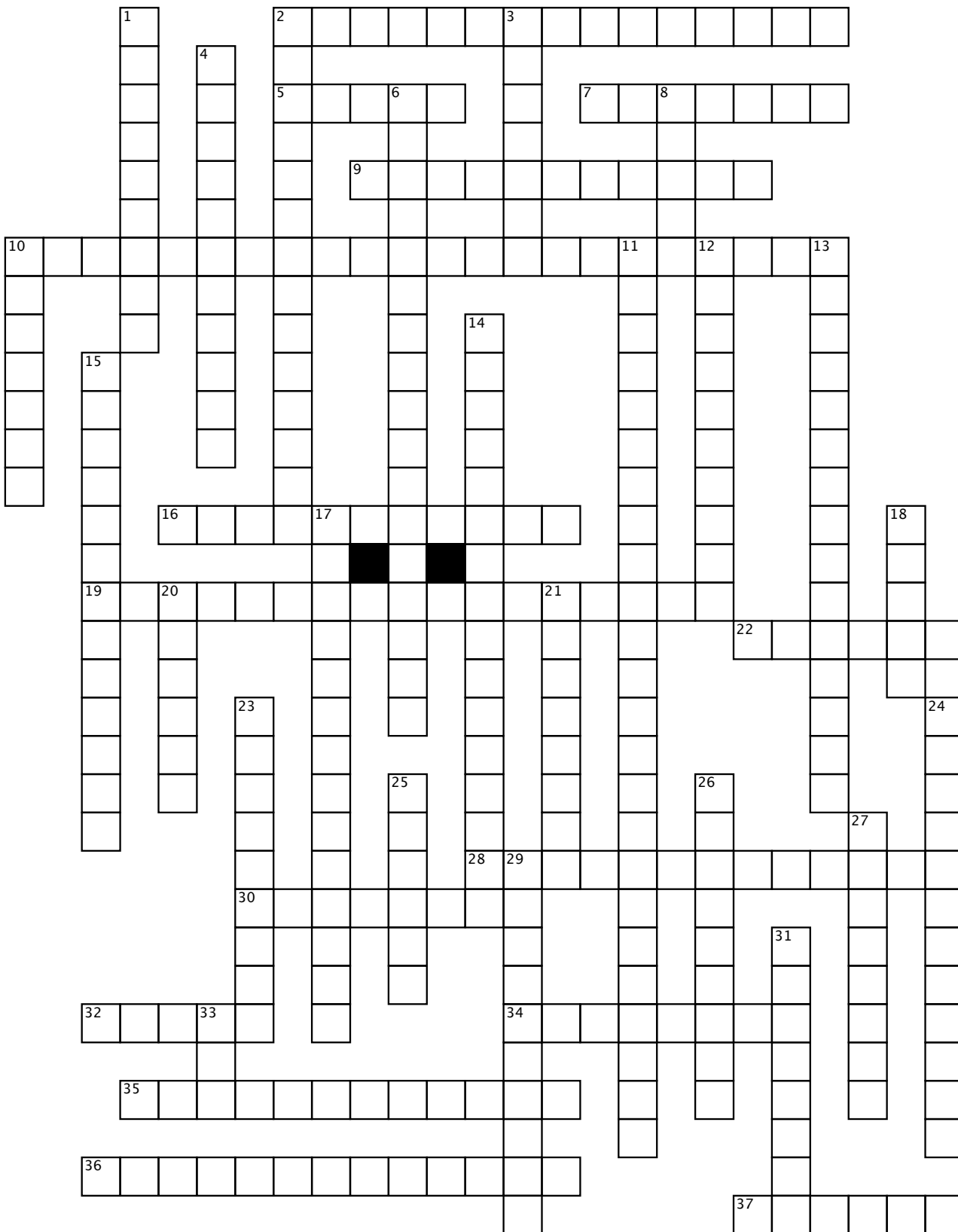
Complete the crossword puzzle.

Across

2. in biology, any chemical that contains carbon and is produced by living things (except carbon dioxide) (two words)
5. the rupturing of a cell; can occur when newly made viruses are released from a host cell
7. a cell containing two copies of each chromosome (2n)
9. a form of sexual reproduction in which two cells join to exchange genetic information
10. any process in which one species gets DNA from a different species; also called "lateral gene transfer" (three words)
16. a method of treating disease in which genes are introduced into cells to replace, supplement, or repair a defective gene (two words)
19. an organism that can live with or without oxygen (two words)
22. round bacterial cell
28. a virus that infects bacteria
30. a disease-causing agent, often a virus or micro-organism
32. a haploid reproductive structure; usually a single cell; capable of growing a new individual rod-shaped bacterial cell
35. a type of gene transfer in which a virus transfers DNA from one bacterium to another
36. relationship in which a single-celled organism lives within the cell(s) of another organism; recent findings suggest this may be very common
37. a cell formed by the fusion of two sex cells; it is diploid (2n)
3. an outer layer on some bacteria; provides some protection for the cell
4. a haploid organism that produces haploid sex cells in an alternation of generations life cycle
6. a chemical that has an abiotic origin; some simple substances that are produced by organisms are also classified this way (two words)
8. abnormally shaped infectious protein responsible for some brain diseases of mammals, including humans
10. a cell containing half the usual complement of chromosomes (n)
11. a life cycle in which diploid individuals produce spores that create haploid individuals; the haploid individuals reproduce sexually, producing sporophyte individuals and completing the cycle (three words)
12. a diploid organism that produced haploid spores in an alternation of generations life cycle
13. a nucleic acid found in all cells and some viruses; usually carries genetic information that provides instructions for synthesizing protein (two words)
14. an organism that cannot survive in the presence of oxygen (two words)
15. the division of one parent cell into two genetically identical daughter cells; a form of asexual reproduction (two words)
17. a process in which a bacterial cell takes in and uses pieces of DNA from its environment
18. a small infectious particle containing genetic material in the form of DNA or RNA within a protein capsule
20. a protein coat that surrounds the DNA or RNA of a virus
21. a large-scale outbreak of disease; usually confined to a limited geographic region
23. a dormant structure that forms inside certain bacteria in response to stress; protects the cell's chromosome from damage

Down

1. a relationship between two species that live in very close association with each other, whereby each benefits from the association
2. an organism that cannot survive without oxygen (two words)



The Fungi, Plants, and Animals

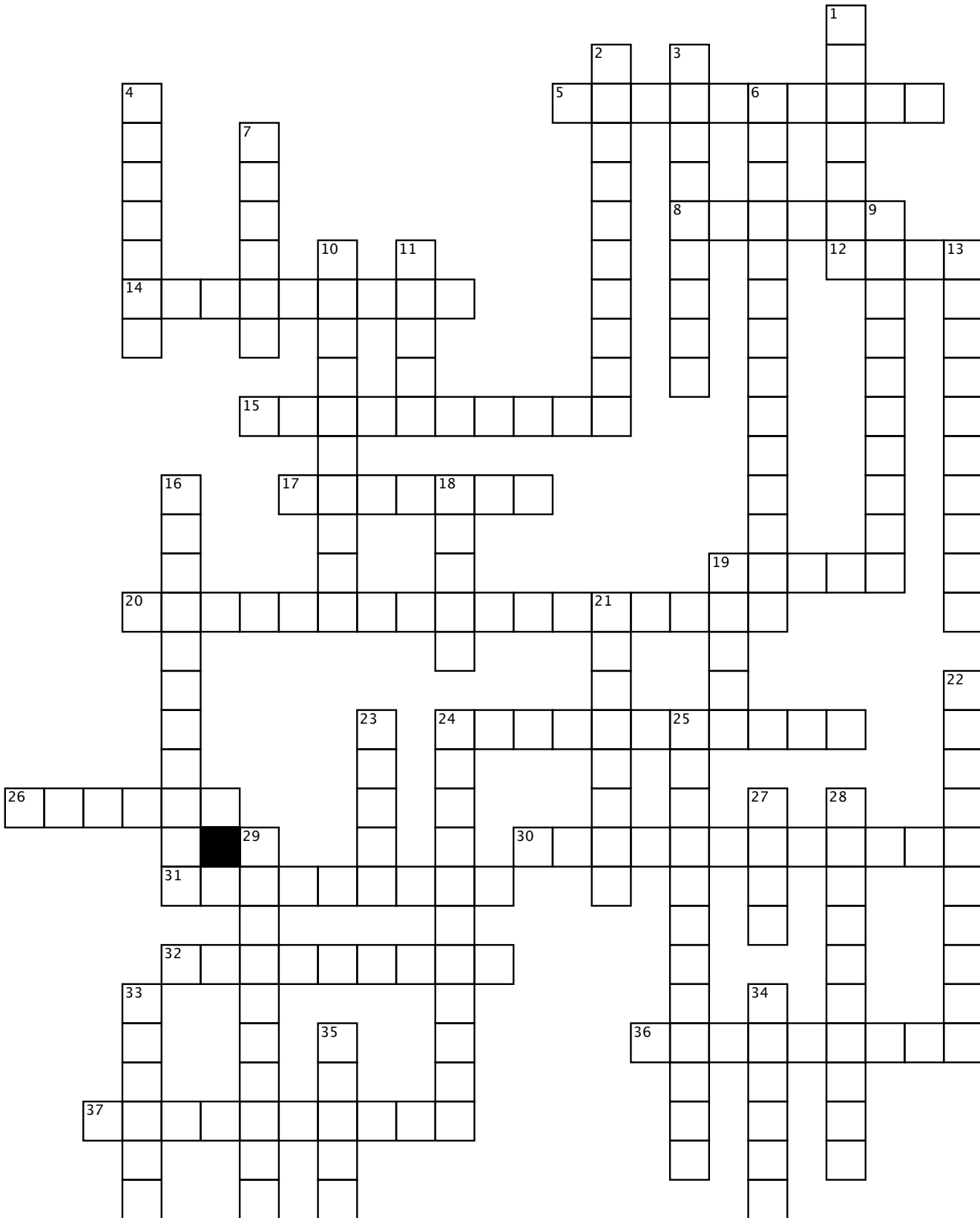
Complete the crossword puzzle.

Across

5. a symbiotic relationship between a fungus and a plant root
8. a complex chemical found in the cell walls of fungi and in the external coverings of insects and crustaceans such as lobsters and crabs
12. a plant structure containing an embryo and a food supply, surrounded by a protective outer covering called the seed coat
14. a seedless vascular plant; for example, club mosses
15. the structure in which spores are produced
17. a horizontal underground stem
19. the mature ovary (or ovaries) of flowering plants that contain seeds; helps protect and disperse seeds
20. symmetry around a midline (two words)
24. the specialized structure on a gametophyte that produces sperm
26. the specialized reproductive structure of an angiosperm; produces pollen and/or ovules
30. an animal with bilateral symmetry; during embryonic development, the anus forms before the mouth
31. one of three layers that form during early embryonic development in most animals (two words)
32. a structure in the seeds of flowering plants that stores nutrients
36. a small seedless plant that lacks vascular tissue
37. a plant that produces flowers; forms the largest group of living plants
7. a body cavity present in some animals; contains the animal's internal organs
9. a capsule within specialized cells containing toxins that can be propelled towards attackers and prey, causing them to become paralyzed; also called a stinging cell
10. the common name for organisms of the order Charophyceae; green algae in the kingdom Protista
11. a small opening in the epidermis of a plant that allows gas exchange
13. containing two separate nuclei
16. an egg with an outer leathery or hard shell and specialized internal membranes that protect and nourish the embryo (two words)
18. a small structure that contains a microscopic haploid female gametophyte
19. a fern leaf; often called "fiddleheads" when young because of their shape; some are edible, but many are toxic
21. a branched mass of hyphae
22. an animal with a backbone or a notochord
23. a small clump of haploid photosynthetic cells produced in little cup-shaped structures on the gametophyte plant; dispersed by splashes of rain to grow into another gametophyte plant
24. the specialized structure on a gametophyte that produces eggs
25. an animal that does not have a backbone; the great majority of animal species fit this category
27. in plants, the reproductive structure of a conifer; produce either pollen or ovules

Down

1. a form of cell division in which a single cell gives rise to four haploid daughter cells
2. a vascular plant that produces seeds in special structures called cones; a major plant group
3. a flexible rod found in some chordates; in most modern chordates it is replaced by vertebrae during embryonic development
4. a waterproof, waxy coating produced by the epidermis of most plants
6. symmetry around a central axis (two words)
28. a seedless vascular plant; for example, ferns
29. an animal with bilateral symmetry; during embryonic development, the mouth forms before the anus
33. an important structural compound found in the vascular tissues of plants; it is responsible for the strength of wood
34. small structures called "grains" that contain a microscopic haploid male gametophyte
35. a thin filament that makes up the body of a fungus



Diversity of Living Things

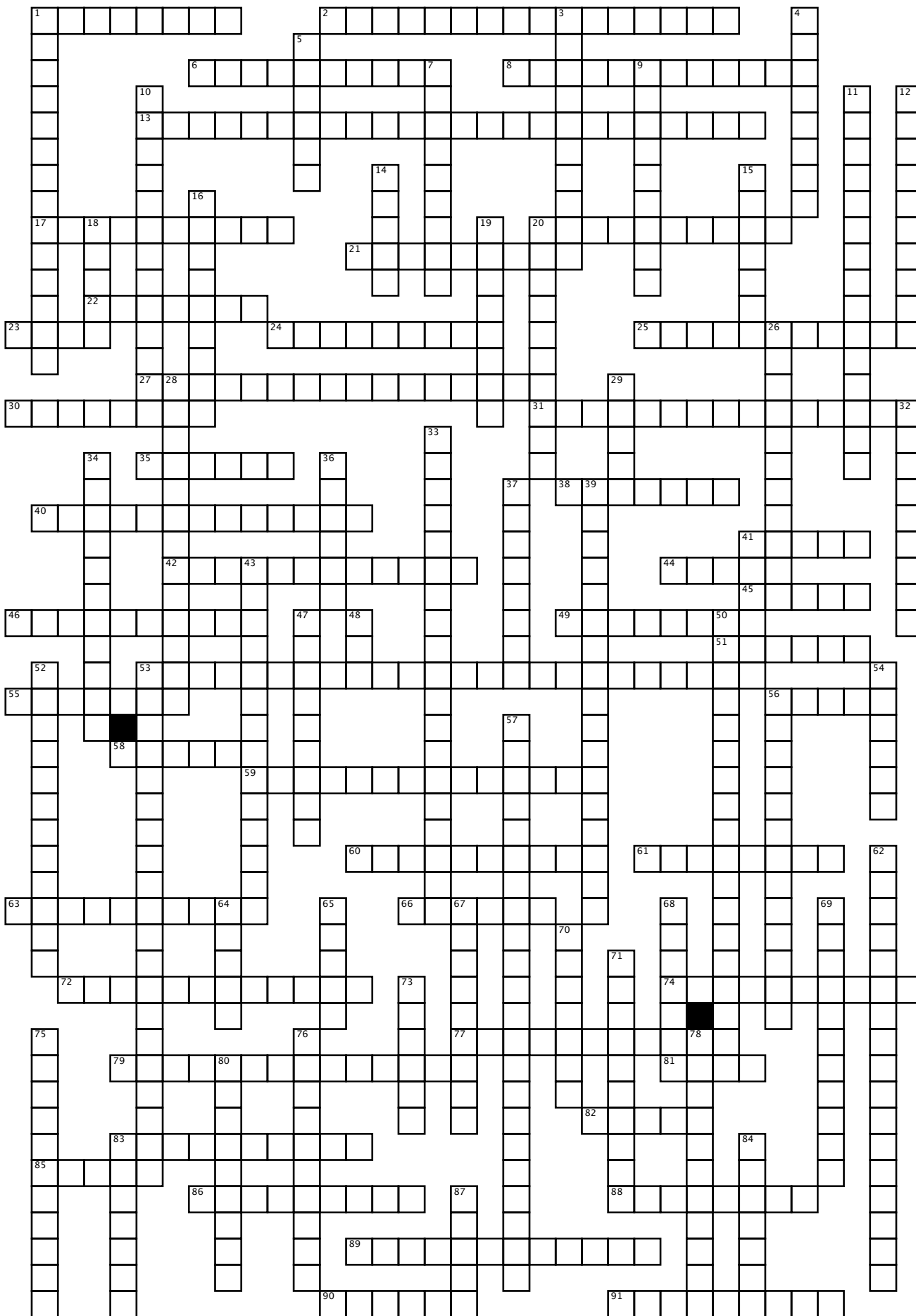
Complete the crossword puzzle.

Across

- the science of classifying all organisms, both living and fossil species
- a measure of diversity that takes into account the quantity of each species present, as well as the variety of different species present (two words)
- a diploid organism that produced haploid spores in an alternation of generations life cycle
- an anaerobic process that releases chemical energy from food
- a life cycle in which diploid individuals produce spores that create haploid individuals; the haploid individuals reproduce sexually, producing sporophyte individuals and completing the cycle (three words)
- a symbiotic relationship between a fungus and a plant root
- a seedless vascular plant; for example, ferns
- a dormant structure that forms inside certain bacteria in response to stress; protects the cell's chromosome from damage
- a cell containing two copies of each chromosome (2n)
- in plants, the reproductive structure of a conifer; produce either pollen or ovules
- any organism whose cells contain organelles; some are single-celled, while others are multicellular
- the specialized structure on a gametophyte that produces eggs
- the genetic variability among organisms—usually referring to individuals of the same species (two words)
- a state of dormancy in which viral DNA may remain within a host cell's chromosomes for many cell cycle generations
- in biology, any chemical that contains carbon and is produced by living things (except carbon dioxide) (two words)
- small structures called "grains" that contain a microscopic haploid male gametophyte
- the highest taxonomic level of the traditional Linnaean system of classification
- the division of one parent cell into two genetically identical daughter cells; a form of asexual reproduction (two words)
- the rupturing of a cell; can occur when newly made viruses are released from a host cell
- the number and variety of species and ecosystems on Earth
- the mature ovary (or ovaries) of flowering plants that contain seeds; helps protect and disperse seeds
- a small clump of haploid photosynthetic cells produced in little cup-shaped structures on the gametophyte plant; dispersed by splashes of rain to grow into another gametophyte plant
- containing two separate nuclei
- a disease-causing agent, often a virus or micro-organism
- very small infectious piece of RNA responsible for some serious diseases in plants
- the systematic grouping of organisms into biological categories based on physical and evolutionary relationships (two words)
- a form of cell division in which a single cell gives rise to four haploid daughter cells
- a thin filament that makes up the body of a fungus
- a body cavity present in some animals; contains the animal's internal organs
- an organism that cannot survive without oxygen (two words)
- a substance that can kill or weaken micro-organisms; may be naturally produced by bacteria or fungi, or manufactured
- a scientist specializing in the study of plants; also called a plant biologist
- the physical appearance and characteristics of an organism; also the science of the study of these physical characteristics
- a cell formed by the fusion of two sex cells; it is diploid (2n)
- a type of gene transfer in which a virus transfers DNA from one bacterium to another
- the common name for organisms of the order Charophyceae; green algae in the kingdom Protista
- an egg with an outer leathery or hard shell and specialized internal membranes that protect and nourish the embryo (two words)
- symmetry around a central axis (two words)
- a plant structure containing an embryo and a food supply, surrounded by a protective outer covering called the seed coat
- a haploid reproductive structure; usually a single cell; capable of growing a new individual
- an animal with bilateral symmetry; during embryonic development, the mouth forms before the anus
- a small structure that contains a microscopic haploid female gametophyte
- a small seedless plant that lacks vascular tissue
- a branched mass of hyphae
- an animal that does not have a backbone; the great majority of animal species fit this category
- round bacterial cell
- a structure in the seeds of flowering plants that stores nutrients

Down

- a process in which a bacterial cell takes in and uses pieces of DNA from its environment
- an animal with a backbone or a notochord
- an epidemic that occurs over a widespread geographic area, often globally
- the highest taxonomic level
- the scientific theory that describes changes in species over time and their shared ancestry
- a flexible rod found in some chordates; in most modern chordates it is replaced by vertebrae during embryonic development
- a virus that infects bacteria
- a nucleic acid found in all cells and some viruses; usually carries genetic information that provides instructions for synthesizing protein (two words)
- the structure in which spores are produced
- a fern leaf; often called "fiddleheads" when young because of their shape; some are edible, but many are toxic
- a waterproof, waxy coating produced by the epidermis of most plants
- the study of the evolutionary relatedness between, and among, species
- a taxonomic group that includes a single common ancestor and all its descendants
- a large-scale outbreak of disease; usually confined to a limited geographic region
- a single-celled organism that does not contain membrane-bound organelles
- a haploid organism that produces haploid sex cells in an alternation of generations life cycle
- relationship in which a single-celled organism lives within the cell(s) of another organism; recent findings suggest this may be very common
- a category used to classify organisms
- a seedless vascular plant; for example, club mosses
- the range of physical shapes and sizes within a habitat or ecosystem (two words)
- a form of sexual reproduction in which two cells join to exchange genetic information
- the specialized reproductive structure of an angiosperm; produces pollen and/or ovules
- rod-shaped bacterial cell
- a chemical that has an abiotic origin; some simple substances that are produced by organisms are also classified this way (two words)
- an important structural compound found in the vascular tissues of plants; it is responsible for the strength of wood
- a series of branching, two-part statements used to identify organisms (or objects) (two words)
- spiral or corkscrew-shaped bacterial cell
- a nucleic acid found in all cells and some viruses; usually carries genetic information that provides instructions for synthesizing protein
- a change that occurs in an entire population; usually occurs over a long period of time (two words)
- an animal with bilateral symmetry; during embryonic development, the anus forms before the mouth
- the formal system of naming species whereby each species is assigned a genus name followed by a specific name; the two words taken together form the species name (two words)
- a protein coat that surrounds the DNA or RNA of a virus
- the crossbreeding of two different species
- any process in which one species gets DNA from a different species; also called "lateral gene transfer" (three words)
- an organism that can live with or without oxygen (two words)
- a taxonomic level consisting of a group of similar species
- abnormally shaped infectious protein responsible for some brain diseases of mammals, including humans
- one of three layers that form during early embryonic development in most animals (two words)
- all organisms capable of breeding freely with each other under natural conditions
- the specialized structure on a gametophyte that produces sperm
- a cell containing half the usual complement of chromosomes (n)
- a plant that produces flowers; forms the largest group of living plants
- a complex chemical found in the cell walls of fungi and in the external coverings of insects and crustaceans such as lobsters and crabs
- an organism that obtains energy-rich nutrients by consuming living or dead organisms
- a vascular plant that produces seeds in special structures called cones; a major plant group
- a method of treating disease in which genes are introduced into cells to replace, supplement, or repair a defective gene (two words)
- an organism that uses sources of energy to produce nutrients from water, gases, and/or minerals
- a small loop of DNA often found in prokaryotic cells; usually contains a small number of genes
- a horizontal underground stem
- a small infectious particle containing genetic material in the form of DNA or RNA within a protein capsule



Understanding Biodiversity

Find the words in the puzzle.

- all organisms capable of breeding freely with each other under natural conditions
- a scientist specializing in the study of plants; also called a plant biologist
- the highest taxonomic level
- the range of physical shapes and sizes within a habitat or ecosystem (two words)
- the study of the evolutionary relatedness between, and among, species
- a taxonomic group that includes a single common ancestor and all its descendants
- an organism that obtains energy-rich nutrients by consuming living or dead organisms
- a series of branching, two-part statements used to identify organisms (or objects) (two words)
- a diagram depicting the evolutionary relationships between different species or groups (two words)
- a measure of diversity that takes into account the quantity of each species present, as well as the variety of different species present (two words)
- the highest taxonomic level of the traditional Linnaean system of classification
- the scientific theory that describes changes in species over time and their shared ancestry
- a taxonomic level consisting of a group of similar species
- the crossbreeding of two different species
- a category used to classify organisms
- the systemic grouping of organisms into biological categories based on physical and evolutionary relationships (two words)
- a single-celled organism that does not contain membrane-bound organelles
- the formal system of naming species whereby each species is assigned a genus name followed by a specific name; the two words taken together form the species name (two words)
- an organism that uses sources of energy to produce nutrients from water, gases, and/or minerals
- a change that occurs in an entire population; usually occurs over a long period of time (two words)
- the genetic variability among organisms—usually referring to individuals of the same species (two words)
- the number and variety of species and ecosystems on Earth
- the physical appearance and characteristics of an organism; also the science of the study of these physical characteristics
- any organism whose cells contain organelles; some are single-celled, while others are multicellular
- the science of classifying all organisms, both living and fossil species

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| L | N | L | A | R | S | Z | B | R | N | D | L | E | U | E | N | J | E | B | T | H | Y | O | S | H |
| O | V | Z | Z | Z | A | V | W | I | C | C | H | P | W | E | H | S | U | F | U | P | B | L | I | Q |
| M | M | Y | G | C | A | N | X | V | L | G | K | B | G | Z | X | R | K | W | R | Y | R | U | T | P |
| C | D | I | X | C | D | F | U | A | A | S | I | X | P | N | H | L | A | D | A | N | I | T | Y | H |
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| A | P | A | U | Q | P | I | L | K | U | E | G | G | T | R | N | R | Y | F | D | X | I | O | B | L |
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| G | I | V | E | R | N | M | M | Q | Q | D | L | R | L | V | R | O | E | Q | S | N | O | O | W | E |
| B | M | H | L | G | K | G | L | Y | Q | I | F | T | G | H | F | W | S | O | I | B | N | Q | F | T |
| M | D | C | I | S | Q | E | G | K | H | V | Z | Y | M | F | P | N | Q | J | T | J | V | I | S | I |
| Z | O | H | P | X | D | W | U | K | B | E | V | Y | F | W | F | M | U | G | Y | G | G | L | P | C |
| M | M | R | F | A | H | J | H | K | E | R | K | A | P | P | Y | E | E | O | Z | A | Z | Z | E | T |
| N | A | F | L | D | O | Z | M | R | O | S | N | H | P | R | O | K | A | R | Y | O | T | E | C | R |
| C | I | C | L | Z | G | P | X | G | S | I | V | M | R | L | V | E | R | I | M | B | A | S | I | E |
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| L | Y | R | W | W | T | Z | G | D | Q | E | W | B | H | Y | I | Q | Y | R | X | I | L | X | I | I |
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The Prokaryotes, Viruses, and Protists

Find the words in the puzzle.

- in biology, any chemical that contains carbon and is produced by living things (except carbon dioxide) (two words)
- the rupturing of a cell; can occur when newly made viruses are released from a host cell
- a cell containing two copies of each chromosome (2n)
- a form of sexual reproduction in which two cells join to exchange genetic information
- any process in which one species gets DNA from a different species; also called "lateral gene transfer" (three words)
- a method of treating disease in which genes are introduced into cells to replace, supplement, or repair a defective gene (two words)
- an organism that can live with or without oxygen (two words)
- round bacterial cell
- a virus that infects bacteria
- a disease-causing agent, often a virus or micro-organism
- a haploid reproductive structure; usually a single cell; capable of growing a new individual rod-shaped bacterial cell
- a type of gene transfer in which a virus transfers DNA from one bacterium to another
- relationship in which a single-celled organism lives within the cell(s) of another organism; recent findings suggest this may be very common
- a cell formed by the fusion of two sex cells; it is diploid (2n)
- a relationship between two species that live in very close association with each other, whereby each benefits from the association
- an organism that cannot survive without oxygen (two words)
- an outer layer on some bacteria; provides some protection for the cell
- a haploid organism that produces haploid sex cells in an alternation of generations life cycle
- a chemical that has an abiotic origin; some simple substances that are produced by organisms are also classified this way (two words)
- abnormally shaped infectious protein responsible for some brain diseases of mammals, including humans
- a cell containing half the usual complement of chromosomes (n)
- a life cycle in which diploid individuals produce spores that create haploid individuals; the haploid individuals reproduce sexually, producing sporophyte individuals and completing the cycle (three words)
- a diploid organism that produced haploid spores in an alternation of generations life cycle
- a nucleic acid found in all cells and some viruses; usually carries genetic information that provides instructions for synthesizing protein (two words)
- an organism that cannot survive in the presence of oxygen (two words)
- the division of one parent cell into two genetically identical daughter cells; a form of asexual reproduction (two words)
- a process in which a bacterial cell takes in and uses pieces of DNA from its environment
- a small infectious particle containing genetic material in the form of DNA or RNA within a protein capsule
- a protein coat that surrounds the DNA or RNA of a virus
- a large-scale outbreak of disease; usually confined to a limited geographic region
- a dormant structure that forms inside certain bacteria in response to stress; protects the cell's chromosome from damage

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| T | N | L | L | A | L | O | F | I | B | U | H | Z | Y | S | F | A | O | X | M | T | O | V | R | M |
| X | F | A | B | P | Y | M | E | N | R | K | V | I | R | U | S | Q | R | L | W | E | O | F | V | C |
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| Q | O | D | P | I | O | U | M | R | B | A | C | I | L | L | U | S | Z | A | C | N | G | D | P | X |
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| L | C | G | I | R | A | O | T | C | C | G | A | Y | R | C | Q | A | T | U | T | N | C | D | Q | I |
| I | S | F | C | S | O | E | R | Z | I | O | P | G | E | H | H | N | R | P | U | E | A | Q | G | D |
| G | T | H | A | M | T | D | N | G | D | F | Y | O | Y | S | A | A | A | C | A | R | L | W | X | S |
| A | M | N | P | C | L | R | J | D | A | Q | S | T | D | S | P | E | N | A | L | A | O | G | X | P |
| T | S | R | M | N | U | L | A | D | O | N | K | E | Y | K | L | R | S | P | I | T | I | N | V | I |
| E | Q | G | O | K | B | L | C | N | I | S | I | W | Q | F | O | O | F | S | S | I | J | E | M | R |
| A | G | U | U | W | Y | T | T | O | S | P | Y | C | Y | T | I | B | E | U | M | O | L | N | K | I |
| E | A | J | V | W | J | K | R | A | N | F | L | M | C | N | D | E | R | L | Y | N | B | D | D | L |
| R | M | P | J | A | K | T | X | A | T | J | O | O | B | H | L | D | M | E | V | S | T | O | P | L |
| O | E | P | A | H | O | K | L | P | N | I | U | R | I | I | E | O | W | S | B | D | T | S | G | U |
| B | T | L | H | N | L | W | U | S | C | S | V | G | M | D | O | M | D | S | Z | L | T | P | V | M |
| E | O | A | L | O | D | B | X | K | L | V | D | E | A | A | Q | S | I | Z | O | G | B | O | O | G |
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| T | H | M | A | L | F | F | M | R | Z | G | C | Y | C | E | I | I | N | S | A | Y | H | E | S | M |
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| U | L | C | G | I | Q | I | L | W | X | P | G | G | K | E | T | O | M | Y | E | J | Q | T | U | T |
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The Fungi, Plants, and Animals

Find the words in the puzzle.

- a symbiotic relationship between a fungus and a plant root
- a complex chemical found in the cell walls of fungi and in the external coverings of insects and crustaceans such as lobsters and crabs
- a plant structure containing an embryo and a food supply, surrounded by a protective outer covering called the seed coat
- a seedless vascular plant; for example, club mosses
- the structure in which spores are produced
- a horizontal underground stem
- the mature ovary (or ovaries) of flowering plants that contain seeds; helps protect and disperse seeds
- symmetry around a midline (two words)
- the specialized structure on a gametophyte that produces sperm
- the specialized reproductive structure of an angiosperm; produces pollen and/or ovules
- an animal with bilateral symmetry; during embryonic development, the anus forms before the mouth
- one of three layers that form during early embryonic development in most animals (two words)
- a structure in the seeds of flowering plants that stores nutrients
- a small seedless plant that lacks vascular tissue
- a plant that produces flowers; forms the largest group of living plants
- a form of cell division in which a single cell gives rise to four haploid daughter cells
- a vascular plant that produces seeds in special structures called cones; a major plant group
- a flexible rod found in some chordates; in most modern chordates it is replaced by vertebrae during embryonic development
- a waterproof, waxy coating produced by the epidermis of most plants
- symmetry around a central axis (two words)
- a body cavity present in some animals; contains the animal's internal organs
- a capsule within specialized cells containing toxins that can be propelled towards attackers and prey, causing them to become paralyzed; also called a stinging cell
- the common name for organisms of the order Charophyceae; green algae in the kingdom Protista
- a small opening in the epidermis of a plant that allows gas exchange
- containing two separate nuclei
- an egg with an outer leathery or hard shell and specialized internal membranes that protect and nourish the embryo (two words)
- a small structure that contains a microscopic haploid female gametophyte
- a fern leaf; often called "fiddleheads" when young because of their shape; some are edible, but many are toxic
- a branched mass of hyphae
- an animal with a backbone or a notochord
- a small clump of haploid photosynthetic cells produced in little cup-shaped structures on the gametophyte plant; dispersed by splashes of rain to grow into another gametophyte plant
- the specialized structure on a gametophyte that produces eggs
- an animal that does not have a backbone; the great majority of animal species fit this category
- in plants, the reproductive structure of a conifer; produce either pollen or ovules
- a seedless vascular plant; for example, ferns
- an animal with bilateral symmetry; during embryonic development, the mouth forms before the anus
- an important structural compound found in the vascular tissues of plants; it is responsible for the strength of wood
- small structures called "grains" that contain a microscopic haploid male gametophyte
- a thin filament that makes up the body of a fungus

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| T | B | C | A | V | N | O | B | M | X | K | J | D | J | T | Y | W | Y | H | X | S | T | O | M | A |
| W | M | G | F | J | O | U | R | Y | S | T | Q | P | S | P | O | R | A | N | G | I | U | M | F | Y |
| K | Y | E | P | R | T | D | H | X | K | C | O | E | L | O | M | A | U | A | J | T | R | G | L | A |
| J | I | M | J | V | O | W | Q | A | C | U | T | I | C | L | E | G | K | B | N | E | B | I | O | N |
| U | Q | M | F | Q | C | N | E | P | U | Y | E | S | A | F | M | D | E | H | P | R | V | G | W | T |
| L | K | A | P | T | H | N | D | J | Y | K | O | E | F | R | P | V | M | S | G | L | E | T | E | J |
| H | Q | A | E | I | O | S | L | M | X | W | M | E | S | U | B | Q | O | N | R | Q | B | Y | R | R |
| L | P | R | G | E | R | M | L | A | Y | E | R | D | S | I | B | I | Q | T | G | Z | M | L | T | R |
| G | S | F | Y | O | D | M | W | M | S | T | F | I | F | T | G | T | Z | V | Q | I | A | U | I | I |
| E | I | P | T | E | R | O | P | H | Y | T | E | E | A | N | T | H | E | R | I | D | I | U | M | Z |
| U | Y | N | S | O | L | K | C | U | J | L | J | L | A | U | U | G | R | S | Q | M | Z | S | V | L |
| B | P | K | W | E | B | U | T | X | Q | F | V | S | N | O | L | Y | M | Z | K | A | E | T | Y | L |
| O | R | P | Z | X | V | D | I | K | A | R | Y | O | T | I | C | M | R | C | B | M | L | E | I | E |
| K | O | R | U | W | V | J | I | C | Y | G | A | Y | U | N | F | N | Q | K | K | C | Y | V | G | S |
| V | T | R | M | E | I | O | S | I | S | C | D | T | I | P | Y | O | I | T | I | F | C | R | A | L |
| H | O | C | O | T | Y | L | E | D | O | N | O | N | M | X | E | S | N | D | P | Q | O | A | C | F |
| Y | S | B | F | T | Z | V | O | I | B | J | G | N | U | P | U | P | V | H | Y | S | P | D | J | C |
| P | T | R | B | Q | H | X | O | U | Z | I | B | T | E | W | B | E | E | D | K | X | H | I | Z | F |
| H | O | Y | M | R | T | H | M | I | L | T | L | R | B | I | I | R | R | C | C | Y | Y | A | I | C |
| A | M | O | X | M | J | M | Y | U | D | V | P | C | M | R | L | M | T | I | V | U | T | L | E | M |
| Z | E | P | P | K | W | Y | C | K | E | K | J | K | G | N | A | P | E | B | W | N | E | S | B | A |
| W | S | H | Q | V | L | C | E | V | U | J | H | K | W | F | T | O | B | S | Q | R | T | Y | B | R |
| P | R | Y | G | M | B | O | L | E | T | R | S | S | O | M | E | L | R | E | B | I | T | M | T | C |
| B | V | T | L | G | C | R | I | D | E | X | S | G | V | Q | R | L | A | U | T | V | Y | M | Z | H |
| L | P | E | B | W | H | R | U | R | R | N | E | W | I | N | A | E | T | R | Y | E | B | E | D | E |
| P | U | L | I | K | A | H | M | R | O | E | L | Y | D | W | L | N | E | S | E | R | H | T | B | G |
| O | P | L | E | Z | R | I | D | H | S | M | C | I | V | A | S | Y | Y | S | G | T | L | R | V | O |
| D | I | P | K | Z | O | Z | J | I | T | A | S | W | G | W | Y | Y | U | Y | K | E | O | Y | V | N |
| E | N | I | V | J | P | A | Y | Z | O | T | K | W | O | O | M | A | L | H | G | B | X | S | E | I |
| Z | H | S | N | R | H | V | G | O | M | O | E | I | E | V | M | Q | F | N | L | R | K | O | Q | U |
| W | Y | H | Z | A | Y | N | N | M | E | C | R | T | U | U | E | S | W | I | D | A | S | P | D | M |
| S | I | I | S | B | T | H | T | E | L | Y | E | W | L | L | T | P | C | H | I | T | I | N | O | N |
| P | I | O | I | Z | E | M | B | Q | U | S | L | D | Q | E | R | E | B | V | N | E | H | U | O | U |
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Diversity of Living Things

Find the words in the puzzle.

- the cyclical motion of an object about an equilibrium point
- the transfer of energy through a material due to vibration (two words)
- the material that permits the transmission of energy through vibrations
- the displacement of a particle over a certain time interval; the difference between the particle's initial and final positions (two words)
- the property of a medium that returns to its original shape after being disturbed
- the straight-line motion of a molecule; this motion is typical of gases because the particles in liquids and solids are not free to move in this manner (three words)
- a wave in which particles vibrate perpendicular to the direction of the flow of energy (two words)
- a wave in which particles vibrate parallel to the direction of the flow of energy (two words)
- the region in a longitudinal wave in which the medium's particles are closer together
- the region in a longitudinal wave in which the medium's particles are farther apart
- a form of energy produced by rapidly vibrating objects detectable by sensory organs such as the ear
- the maximum displacement of a wave from its equilibrium point
- the shape of a wave when graphed
- the maximum point of a transverse wave
- the minimum point of a transverse wave
- the distance between two similar points in successive identical cycles in a wave, such as from crest to crest or trough to trough
- in a continuous transverse or longitudinal wave, the x-coordinate of a unique point of the wave
- a shift of an entire wave along the x-axis with respect to an otherwise identical wave (two words)
- the state of two identical waves that have the same phase shift (two words)
- the state of two identical waves that have different phase shifts (three words)
- the number of complete cycles that occur in unit time, usually 1 s; measured in Hertz (Hz)
- the time for a vibrating particle to complete one cycle
- the rate at which a wave is travelling through a medium; also a measure of how fast the energy of a wave is moving (two words)
- the mass per unit distance of a string; units are kilograms per metre (kg/m) (two words)
- sound wave in the range of human hearing, 20 Hz to 20 kHz (three words)
- sound wave with a frequency below 20 Hz (two words)
- sound wave with a frequency above 20 kHz (two words)
- the sound energy reflected off a surface back to the producer of the sound
- the ratio of the airspeed of an object to the local speed of sound (two words)
- the force per unit area
- the amount of sound energy being transferred per unit area (two words)
- the unit of sound level used to describe sound intensity level
- the process of generating a new wave when two or more waves meet
- at any point the amplitude of two interfering waves with the sum of the amplitudes of the individual waves (three words)
- the process of forming a wave with a larger amplitude when two or more waves combine (two words)
- the process of forming a wave with a smaller amplitude when two or more waves combine (two words)
- a reflection that occurs at a media boundary where the second medium is less dense than the first medium; reflections have an amplitude with the same orientation as the original wave (two words)
- a reflection that occurs at a media boundary where one end of the medium is unable to vibrate; reflections are inverted (two words)
- the motion of a wave through a medium, or motion of a wave from one medium to another medium
- an interference pattern produced when incoming and reflected waves interfere with each other; the effect is a wave pattern that appears stationary (two words)
- in a standing wave, the location where the particles of the medium are at rest
- in a standing wave, the location where the particles of the medium are moving with greatest speed; the amplitude will be twice the amplitude of the original wave
- the lowest frequency that can produce a standing wave in a given medium (two words)
- whole-number multiples of the fundamental frequency
- a sound resulting from a string that vibrates with more than one frequency
- periodic change in sound intensity caused by the interference between two nearly identical sound waves
- the frequency of beats produced by the interference of two waves with slightly different frequencies; equal to the difference in the frequencies of the interfering waves (two words)
- a reduction in the amplitude of a wave as a result of energy absorption or destructive interference
- the frequency at which a medium vibrates most easily (two words)
- the condition in which the frequency of a wave equals the resonant frequency of the wave's medium
- when a source of sound approaches an observer, the observed frequency of the sound increases; when the source moves away from an observer, the observed frequency of the sound decreases (two words)
- sound that originates from a combination of musical notes that originate from a source that vibrates in a uniform manner with one or more constant frequencies
- sound that originates from a source that vibrates in a random manner
- the general perception of highness or lowness of a sound; depends on the frequency, complexity, and loudness of the sound
- the pleasantness of a sound; related to the waveform of the sound
- an object, usually a hollow chamber called a case box or a sounding board, that vibrates in resonance with the source of sound
- the total effect of sound produced in an enclosed or restricted space (two words)
- the time required for the loudness of the sound to drop by 60 dB or until the sound is inaudible (two words)
- the transfer of energy from one object to another, causing large-amplitude vibrations when the second object has the same resonant frequency as the first (two words)
- the response to a vibration with the same resonant frequency (two words)
- the response when the energy added to a structure vibrating in air exceeds the energy lost due to damping, causing large vibrations (two words)
- an enormous sea wave or a series of enormous sea waves caused by an earthquake or other disturbance
- waves of energy that travel through Earth (two words)
- the location of objects through the analysis of echoes, or reflected sound

X T E X C L A D E P O L L E N H X N O T O C H O R D G A Q J B D G B K
G K B K G S K Y Q B R E C J L M B S B E N D O S P O R E X U K E E S F
V Z B Q L E C U T I C L E F H H Y O P T R A N S D U C T I O N U R T U
I L M Y C E L I U M C D O Z L C L C T E S D G B I Y B E I Z S T M O F
U C T A X O N R P R O K A R Y O T E O A C Z O C F B R F N U P E L M G
Q E J I D D D F D G A U T O T R O P H R N I Y M R D D K R V A R A A O
D N L J X T B X E W B E V O L U T I O N R I E G A M T I H R T O Y Q V
I D U P F A C U L T A T I V E A E R O B E H S S O I V T O Y H S E U U
P O P A A G B U K J E H U R P C O C C U S D I T D T N Z P E O T R S L
L S G K T F B N M G J S Z J S G N K J Q A O W Z J I E C L F G O D C E
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D B S P O R E N M N Q B I I N B F C N S V A J V E P F F R L R R B W N
K I E H R E E P O E Q L A M V E T B P W D H K Y A H S P Z S H G O R W
J O U T M D W C R R B C R S P O R O P H Y T E C A N D A U F I L Z R N
P S X A B B C C I I N O R G A N I C C H E M I C A L Y T P J Z T K Q V
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P S A O Q C Z C O N I V O Y V A W J Y T E U T L T Z T I A V M T E G L
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G P H O O E Y H U O A S F N L F E M N G N M M R H T P E E C W X W N G
V T Y M R R N D C T R T Q M C G C A G E K M E P O D X M T Q L U F E E
H X B Y N I C H L Y Y L O D O I P E G B Y P O Y B C H O O C H L E T M
A W R K P O L Y E L O G F S M S C L S S S Y R K I A M S P H U S R I M
S G I M H P I T I E T K Y E I I A B L O R A Q B O P C P H A P O V C A
K S D U Y H A I C D I L D S T T M A N B K Q T A L S R E Y R E K I D F
V M I A L A R N A O C I O O N P I M Y U J U H C O I E C T O V O B I Q
M S Z N O G C V C N P I I O R D Y Y E E O J E I G D G I E P O B I V P
U P A E G E H E I E E N Z G A G B E R Q U B U L I F X E D H L L N E O
O I T M E Q E R D M M I U R N I O U T J O I V L C L Q S S Y U I A R E
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T I O T E K O E P O S M R R L A K T E T E A X S L W L N R E I A Y I A
X L N O T E N B H X G H K B L Q F A K E D T M J C E I Z U S O T F T K
O L J C I C I R Q D R M L C N Z N R H P E E T K L R G S C G N E I Y V
Y U P Y C C U A M E P H N D Y A C T O E J R P L A K N L T N A A S O D
S M L S T Y M T M E P E I G E U K U M N W A H N S N I Y U F R E S H I
P Q Y T R P K E T O M O O T H B H O L A D L Y T S O N N R E Y R I X C
O F S A E M W Y R O L L A C H I T I N N G S L A I U C V A R C O O B H
R Z I N E Z H T N P O G P A P S C C V T E Y O K F U O I L M H B N E O
A B S E A P O L A H I M H N O D I G E H N M G Y I P N R D E A E R V T
N J S N O R A H P L S Y D T V T V B R E U M E D C L J O I N N L W R O
G J V C E I Z R B I P E O E O W O P T R S E N A A A U I V T G F K H M
I U Y T M O O L A E R T I D T P K E I D T Y A T S G D E A E N D U O
U L E O E M A A R S P Y B F A Y D T B D E R S K I M A R R T U T A W U
M H N J S N U E G C H I O W M B R U R I F Y D L O I T N S I O D W Z S
Y I E A O T H G I P T B G J H Y P H A U S C R R N D I A I O Q F N H K
B V I I U T T W O N F I L X B C J A T M D H A D V R O Z T N T Q U U E
J Z R M E Z R R A V W O X A X O R W E L C O E L O M N B Y E Z Z O L Y
L P P N V C E V Q K A L T E R N A T I O N O F G E N E R A T I O N S R
O Y E P Q T K I N G D O M W H N K N I B I O D I V E R S I T Y X I X Y
I G X N P T L G N W F O R G A N I C C H E M I C A L J C H B M X F L W

Heredity and Reproduction

Complete the crossword puzzle.

Across

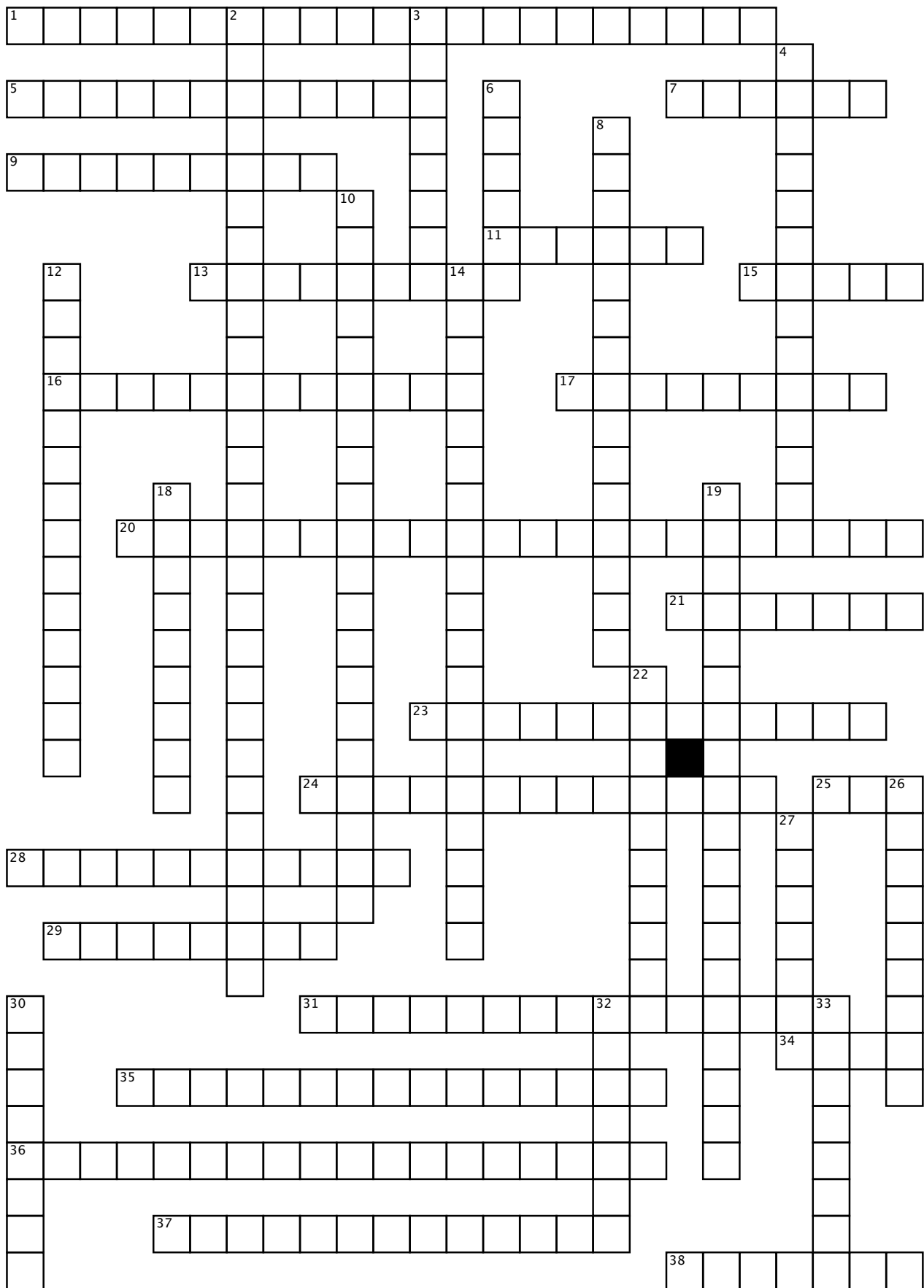
1. matching pairs of chromosomes, similar in size and carrying information for the same genes (two words)
5. the exchange of chromosome segments between homologous pairs during synapsis (two words)
7. a sex cell; includes sperm cells in males and egg cells in females
9. the tangled strands of DNA and protein within a eukaryotic nucleus
11. a pair of homologous chromosomes, each with two sister chromatids
13. the chromosomes of an individual that have been sorted and arranged according to size and type
15. the location of a gene on a chromosome
16. a chromosomal abnormality in which an individual has three copies of chromosome number 21; also referred to as trisomy 21 (two words)
17. the production of mature egg cells
20. the transfer of genetic information from one species into a different species (three words)
21. a two-stage cell division in which the resulting daughter cells have half the number of chromosomes as the parent cell; results in the formation of gametes or spores
23. a method of asexual reproduction in which a piece or body fragment of the parent organism develops into a mature individual
24. the production of gametes (sex cells) in animals
25. a molecule that carries genetic information in cells
28. the process in which a eukaryotic cell divides its cytoplasm into two new daughter cells
29. the physical pairing up of homologous chromosomes during prophase I of meiosis
31. testing for a genetic disorder that occurs prior to birth (two words)
34. a segment of a DNA molecule that codes for a particular trait; found at a specific location on a chromosome
35. the identical copy of a single chromosome that remains attached to the original chromosome at the centromere (two words)
36. the production of offspring from the fusion of two sex cells (usually from two different parents); the genetic makeup of the offspring is different from that of either parent (two words)

37. the use and modification of organisms for applications in engineering, industry, and medicine

38. the process by which a eukaryotic cell divides the genetic material in its nucleus into two identical nuclei

Down

2. an organism in which the genetic material has been altered using genetic engineering techniques (three words)
3. the passing of traits from parents to offspring
4. chromosomes that differ in males and females of the same species; the combination of these chromosomes determines the sex of the offspring (two words)
6. a cell produced by the fusion of two gametes
8. the production of mature sperm cells
10. a molecule that carries genetic information in cells (two words)
12. the failure of homologous chromosomes to move to opposite poles of the cell during meiosis; results in an abnormal number of chromosomes in the daughter cells
14. a type of inheritance in which a zygote formed from two gametes inherits cytoplasmic DNA from only the male gamete (two words)
18. having more than two sets of chromosomes; many plants have this characteristic
19. a type of inheritance in which a zygote formed from two gametes inherits cytoplasmic DNA from only the female gamete (two words)
22. the portion of the cell cycle between mitotic divisions when the genetic material (in the form of chromatin) is duplicated
26. non-sex chromosomes
27. the process of producing one individual that is genetically identical to another, using a single cell or tissue
30. a chromosomal abnormality in which there is a single chromosome in place of a homologous pair
32. a chromosomal abnormality in which there are three homologous chromosomes in place of a homologous pair
33. the branch of biology dealing with heredity and the variation of inherited characteristics



Mendelian Genetics—Patterns of Inheritance

Complete the crossword puzzle.

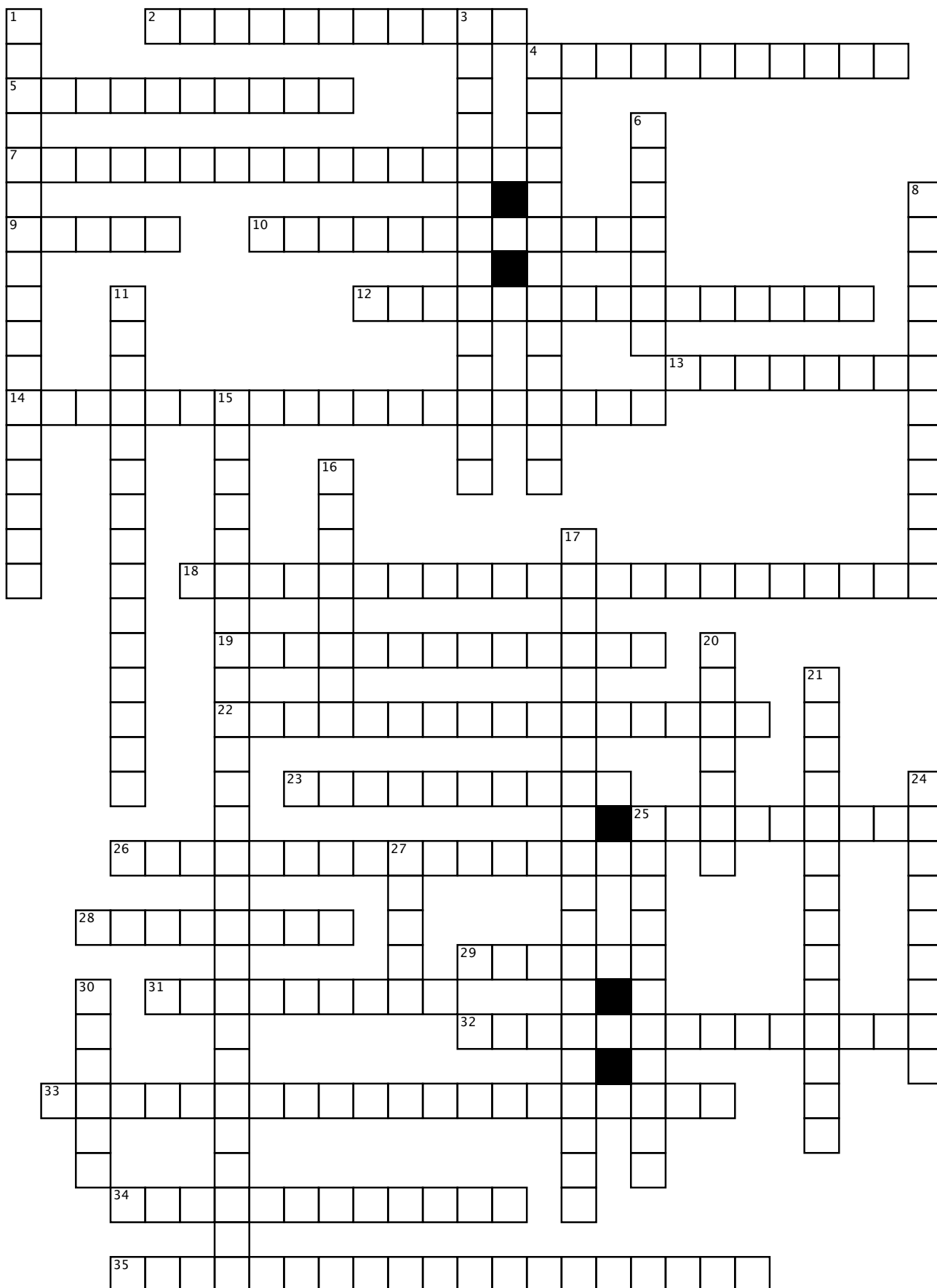
Across

2. a situation where both alleles are expressed fully to produce offspring with a third phenotype
4. the likelihood that an outcome will occur if it is a matter of chance
5. the offspring of two different true-breeding plants that differ in only one characteristic
7. a scientific law stating that (1) organisms inherit two copies of genes, one from each parent, and (2) organisms donate only one copy of each gene to their gametes because the genes separate during gamete formation (three words)
9. a particular version of a characteristic that is inherited, such as hair colour or blood type
10. offspring of an F1-generation cross (two words)
12. the allele that is expressed only if it is not in the presence of the dominant allele, i.e., if the individual is homozygous for the allele (two words)
13. a diagram of an individual's ancestors used in human genetics to analyze the Mendelian inheritance of a certain trait; also used for selective breeding of plants and animals
14. a situation where neither allele dominates the other and both exercise an influence on the individual; results in partial expression of both traits (two words)
18. when the expression of the products of one gene has no bearing on the expression of the products of a second gene (two words)
19. a cross that involves two genes, each consisting of heterozygous alleles (two words)
22. an autosomal, recessive, inherited disorder that results in the accumulation of phenylalanine in the tissues and blood
23. the probability of two random events both occurring is the product of the individual probabilities of each event (two words)
25. an individual's outward appearance with respect to a specific characteristic
26. tests used to identify the presence of a defective allele that leads to a genetic disorder (two words)
28. a change in the genetic code of an allele; the change may have a positive effect, a negative effect, or no effect
29. a specific form of a gene
31. a cross used to determine the genotype of an individual expressing a dominant trait (two words)

32. the allele that, if present, is always expressed (two words)
33. an organism that produces offspring that are genetically identical for one or more traits when self-pollinated or when crossed with another true-breeding organism for the same traits (two words)
34. describes an individual that carries two different same alleles for a given characteristic
35. when the product of one gene is affected by the product of another gene; the gene products may be additive, or one product may negate another product (two words)

Down

1. a situation where an allele will determine the phenotype, regardless of the presence of another allele (two words)
3. a genetic test that determines whether an individual is heterozygous for a given gene that results in a genetic disorder (two words)
4. a diagram that summarizes every possible combination of each allele from each parent; a tool for determining the probability of a single offspring having a particular genotype (two words)
6. phenotypic expression of an allele that is found on the X chromosome
8. offspring of a P-generation cross (two words)
11. a cross designed to study the inheritance of only one trait (two words)
15. if genes are located on separate chromosomes, they will be inherited independently of one another (four words)
16. the genetic makeup of an individual
17. inheritance of alleles located on autosomal (non-sex) chromosomes (two words)
20. phenotypic expression of an allele that is found on the Y chromosome
21. the product of the allele comprises one part of the total for a phenotype (two words)
24. describes an allele that is found on one of the sex chromosomes, X or Y, and when passed on to offspring is expressed
25. parent plants used in a cross (two words)
27. the successful mating of two organisms from distinct genetic lines
30. the offspring of two different true-breeding plants



Genetics Beyond Mendel

Complete the crossword puzzle.

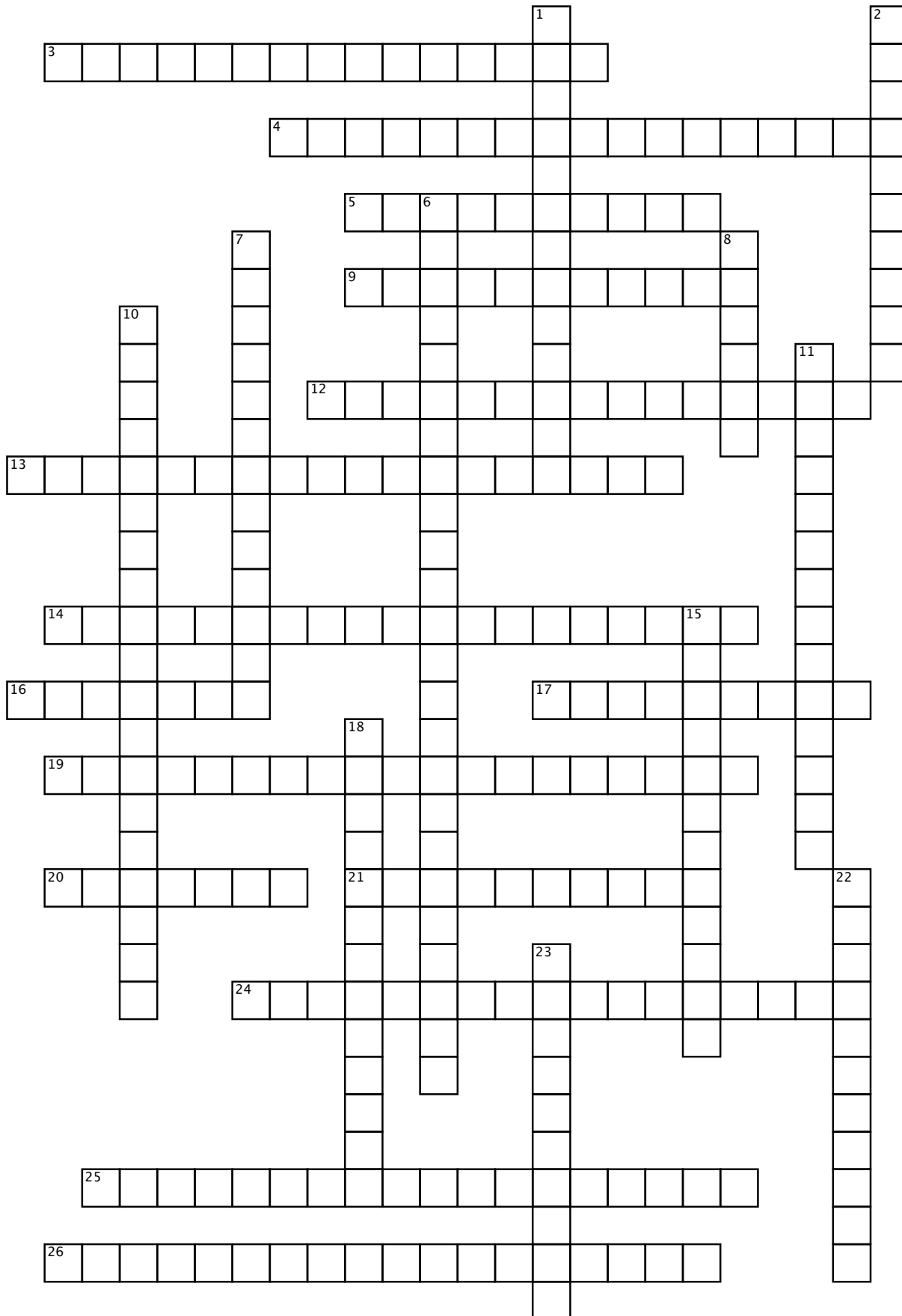
Across

3. a mutation that occurs because of exposure to an outside factor; second-hand smoke increases the chance of developing lung cancer (two words)
4. a pattern of bands on a gel that is unique to each individual (two words)
5. the repeating unit in DNA; it comprises a deoxyribose sugar, a phosphate group, and one of the four nitrogenous bases
9. the sequence of DNA nitrogenous bases found on the 23 sets of chromosomes in humans (two words)
12. a simplified representation of a concept; can be tangible or conceptual (two words)
13. the study of the relationship between genes and their function (two words)
14. describes strains of bacteria that are no longer susceptible to the effects of antibiotics; are sometimes called "superbugs" and are prevalent in hospital settings (two words)
16. the original name given to DNA when it was discovered in the nucleus of cells by Friedrich Miescher in 1869
17. a region of DNA that contains a sequence of nucleotides that will be expressed; is a gene (two words)
19. a mutation that is not caused by any outside factors; it occurs randomly (two words)
20. a database of DNA sequences; the sequences can be from plants, animals, or humans (two words)
21. a specific segment of DNA that can move along or between chromosomes
24. molecule that has the ability to cut DNA at a specific site; different molecules recognize and cut different sites (two words)
25. a collaborative worldwide project to sequence the nitrogenous bases in human DNA (three words)

26. an error occurring during meiosis that results in the production of possible gametes that contain too many or too few chromosomes or chromosome sections (two words)

Down

1. an organism that can be used to study biological functions of another organism, due to its genetic similarity (two words)
2. one of the cells that contain the faulty gene to be corrected (two words)
6. pairing of the nitrogenous base of one strand of DNA with the nitrogenous base of another strand; adenine (A) pairs with thymine (T), and guanine (G) pairs with cytosine (C) (three words)
7. the process of moving a gene sequence from one part of the chromosome to another part of the chromosome
8. any agent, such as a plasmid or a virus, capable of inserting a piece of foreign DNA into a cell
10. a technique in which a pure substance is subjected to X-rays; the pattern in which the X-rays bend and spread helps reveal the structure of the pure substance (two words)
11. a fragment of DNA consisting of nucleotide sequences from at least two different sources (two words)
15. a region of DNA that does not contain a sequence of nucleotides that will be expressed (two words)
18. a small-scale change in the nitrogenous base sequence of DNA; the mutation may be beneficial, harmful, or neutral (having no effect on the organism) (two words)
22. the process by which defective genes in a genome are corrected with a normal copy of the gene (two words)
23. a small membrane or glass slide that has been coated in a predictable and organized manner with a genomic sequence



Genetic Processes

Complete the crossword puzzle.

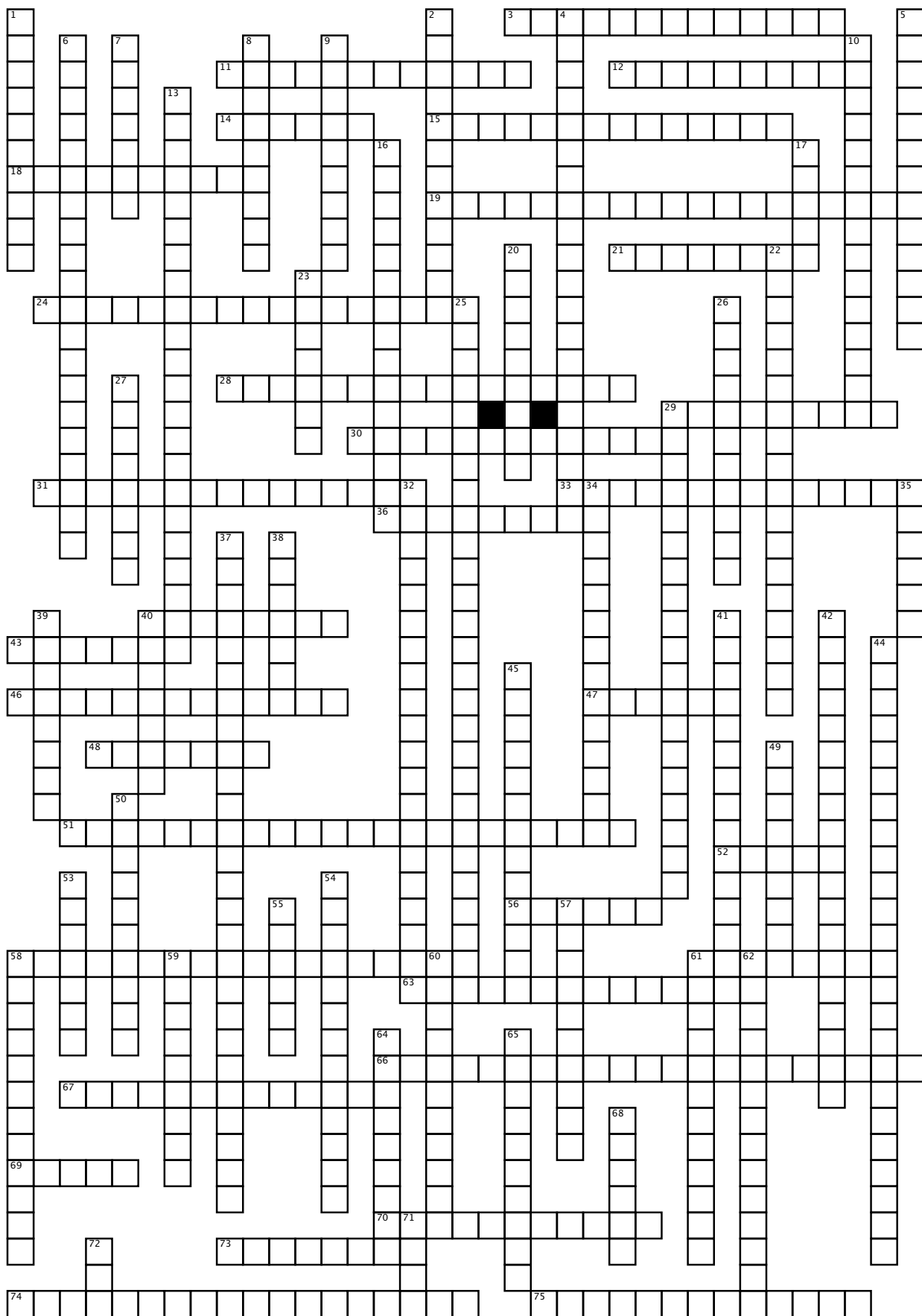
Across

3. the process of moving a gene sequence from one part of the chromosome to another part of the chromosome
11. a region of DNA that does not contain a sequence of nucleotides that will be expressed (two words)
12. the portion of the cell cycle between mitotic divisions when the genetic material (in the form of chromatin) is duplicated
14. the offspring of two different true-breeding plants
15. the failure of homologous chromosomes to move to opposite poles of the cell during meiosis; results in an abnormal number of chromosomes in the daughter cells
18. one of the cells that contain the faulty gene to be corrected (two words)
19. the production of offspring from a single parent; the genetic makeup of the offspring is identical to that of the parent (two words)
21. the branch of biology dealing with heredity and the variation of inherited characteristics
24. a pattern of bands on a gel that is unique to each individual (two words)
28. a scientific law stating that (1) organisms inherit two copies of genes, one from each parent, and (2) organisms donate only one copy of each gene to their gametes because the genes separate during gamete formation (three words)
29. non-sex chromosomes
30. the formation of a zygote by the joining together, or fusion, of two gametes
31. the identical copy of a single chromosome that remains attached to the original chromosome at the centromere (two words)
33. a genetic test that determines whether an individual is heterozygous for a given gene that results in a genetic disorder (two words)
36. describes an allele that is found on one of the sex chromosomes, X or Y, and when passed on to offspring is expressed
40. a chromosomal abnormality in which there is a single chromosome in place of a homologous pair
43. the original name given to DNA when it was discovered in the nucleus of cells by Friedrich Miescher in 1869
46. the production of gametes (sex cells) in animals
47. a specific form of a gene
48. phenotypic expression of an allele that is found on the Y chromosome
51. the transfer of genetic information from one species into a different species (three words)
52. the successful mating of two organisms from distinct genetic lines
56. a pair of homologous chromosomes, each with two sister chromatids
58. the study of the relationship between genes and their function (two words)
61. the passing of traits from parents to offspring
63. the allele that, if present, is always expressed (two words)
66. matching pairs of chromosomes, similar in size and carrying information for the same genes (two words)
67. a diagram that summarizes every possible combination of each allele from each parent; a tool for determining the probability of a single offspring having a particular genotype (two words)
69. a particular version of a characteristic that is inherited, such as hair colour or blood type
70. parent plants used in a cross (two words)
73. a diagram of an individual's ancestors used in human genetics to analyze the Mendelian inheritance of a certain trait; also used for selective breeding of plants and animals
74. a collaborative worldwide project to sequence the nitrogenous bases in human DNA (three words)
75. an organism that can be used to study biological functions of another organism, due to its genetic similarity (two words)

Down

1. the repeating unit in DNA; it comprises a deoxyribose sugar, a phosphate group, and one of the four nitrogenous bases
2. offspring of a P-generation cross (two words)
4. inheritance of alleles located on autosomal (non-sex) chromosomes (two words)
5. the use and modification of organisms for applications in engineering, industry, and medicine 6. an organism that produces offspring that are genetically identical for one or more traits when self-pollinated or when crossed with another true-breeding organism for the same traits (two words)
7. phenotypic expression of an allele that is found on the X chromosome
8. having more than two sets of chromosomes; many plants have this characteristic
9. a region of DNA that contains a sequence of nucleotides that will be expressed; is a gene (two words)
10. the allele that is expressed only if it is not in the presence of the dominant allele, i.e., if the individual is homozygous for the allele (two words)
13. when the expression of the products of one gene has no bearing on the expression of the products of a second gene (two words)

16. the production of mature sperm cells
17. the location of a gene on a chromosome
20. the tangled strands of DNA and protein within a eukaryotic nucleus
22. an error occurring during meiosis that results in the production of possible gametes that contain too many or too few chromosomes or chromosome sections (two words)
23. a chromosomal abnormality in which there are three homologous chromosomes in place of a homologous pair
25. an organism in which the genetic material has been altered using genetic engineering techniques (three words)
26. the process by which defective genes in a genome are corrected with a normal copy of the gene (two words)
27. the genetic makeup of an individual
29. describes strains of bacteria that are no longer susceptible to the effects of antibiotics; are sometimes called "superbugs" and are prevalent in hospital settings (two words)
32. a molecule that carries genetic information in cells (two words)
34. the product of the allele comprises one part of the total for a phenotype (two words)
35. a sex cell; includes sperm cells in males and egg cells in females
37. if genes are located on separate chromosomes, they will be inherited independently of one another (four words)
38. a two-stage cell division in which the resulting daughter cells have half the number of chromosomes as the parent cell; results in the formation of gametes or spores
39. a change in the genetic code of an allele; the change may have a positive effect, a negative effect, or no effect
40. the process by which a eukaryotic cell divides the genetic material in its nucleus into two identical nuclei
41. a simplified representation of a concept; can be tangible or conceptual (two words)
42. when the product of one gene is affected by the product of another gene; the gene products may be additive, or one product may negate another product (two words)
44. pairing of the nitrogenous base of one strand of DNA with the nitrogenous base of another strand; adenine (A) pairs with thymine (T), and guanine (G) pairs with cytosine (C) (three words)
45. a method of asexual reproduction in which a piece or body fragment of the parent organism develops into a mature individual
49. the chromosomes of an individual that have been sorted and arranged according to size and type
50. the probability of two random events both occurring is the product of the individual probabilities of each event (two words)
53. the process of producing one individual that is genetically identical to another, using a single cell or tissue
54. a small-scale change in the nitrogenous base sequence of DNA; the mutation may be beneficial, harmful, or neutral (having no effect on the organism) (two words)
55. a cell produced by the fusion of two gametes
57. a specific segment of DNA that can move along or between chromosomes
58. offspring of an F1-generation cross (two words)
59. the production of mature egg cells
60. a situation where both alleles are expressed fully to produce offspring with a third phenotype
61. describes an individual that carries two different same alleles for a given characteristic
62. a fragment of DNA consisting of nucleotide sequences from at least two different sources (two words)
64. an individual's outward appearance with respect to a specific characteristic
65. the offspring of two different true-breeding plants that differ in only one characteristic
68. any agent, such as a plasmid or a virus, capable of inserting a piece of foreign DNA into a cell
71. a segment of a DNA molecule that codes for a particular trait; found at a specific location on a chromosome
72. a molecule that carries genetic information in cells



Heredity and Reproduction

Find the words in the puzzle.

- matching pairs of chromosomes, similar in size and carrying information for the same genes (two words)
- the exchange of chromosome segments between homologous pairs during synapsis (two words)
- a sex cell; includes sperm cells in males and egg cells in females
- the tangled strands of DNA and protein within a eukaryotic nucleus
- a pair of homologous chromosomes, each with two sister chromatids
- the chromosomes of an individual that have been sorted and arranged according to size and type
- the location of a gene on a chromosome
- a chromosomal abnormality in which an individual has three copies of chromosome number 21; also referred to as trisomy 21 (two words)
- the production of mature egg cells
- the transfer of genetic information from one species into a different species (three words)
- a two-stage cell division in which the resulting daughter cells have half the number of chromosomes as the parent cell; results in the formation of gametes or spores
- a method of asexual reproduction in which a piece or body fragment of the parent organism develops into a mature individual
- the production of gametes (sex cells) in animals
- a molecule that carries genetic information in cells
- the process in which a eukaryotic cell divides its cytoplasm into two new daughter cells
- the physical pairing up of homologous chromosomes during prophase I of meiosis
- testing for a genetic disorder that occurs prior to birth (two words)
- a segment of a DNA molecule that codes for a particular trait; found at a specific location on a chromosome
- the identical copy of a single chromosome that remains attached to the original chromosome at the centromere (two words)
- the production of offspring from the fusion of two sex cells (usually from two different parents); the genetic makeup of the offspring is different from that of either parent (two words)
- the use and modification of organisms for applications in engineering, industry, and medicine
- the process by which a eukaryotic cell divides the genetic material in its nucleus into two identical nuclei
- an organism in which the genetic material has been altered using genetic engineering techniques (three words)
- the passing of traits from parents to offspring
- chromosomes that differ in males and females of the same species; the combination of these chromosomes determines the sex of the offspring (two words)
- a cell produced by the fusion of two gametes
- the production of mature sperm cells
- a molecule that carries genetic information in cells (two words)
- the failure of homologous chromosomes to move to opposite poles of the cell during meiosis; results in an abnormal number of chromosomes in the daughter cells
- a type of inheritance in which a zygote formed from two gametes inherits cytoplasmic DNA from only the male gamete (two words)
- having more than two sets of chromosomes; many plants have this characteristic
- a type of inheritance in which a zygote formed from two gametes inherits cytoplasmic DNA from only the female gamete (two words)
- the portion of the cell cycle between mitotic divisions when the genetic material (in the form of chromatin) is duplicated
- non-sex chromosomes
- the process of producing one individual that is genetically identical to another, using a single cell or tissue
- a chromosomal abnormality in which there is a single chromosome in place of a homologous pair
- a chromosomal abnormality in which there are three homologous chromosomes in place of a homologous pair
- the branch of biology dealing with heredity and the variation of inherited characteristics

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| X | M | E | R | C | X | H | N | N | O | L | A | A | S | O | K | B | V | I | T | B | H | V | I | J |
| Z | S | R | E | E | J | W | O | O | G | E | N | E | S | I | S | S | T | I | J | B | P | C | X | Q |
| G | B | T | N | T | X | I | B | M | D | G | R | K | P | A | I | A | K | N | C | R | A | V | O | E |
| Z | G | I | A | O | L | V | T | O | F | W | L | K | E | S | M | O | O | O | W | C | F | S | C | U |
| F | T | L | T | N | O | Z | Q | N | C | S | H | X | O | O | E | I | X | L | I | U | D | N | J | V |
| J | B | I | A | G | C | R | K | O | C | T | O | I | R | J | T | E | E | E | Y | X | A | H | L | F |
| E | X | Z | L | L | U | A | S | S | W | C | E | H | C | C | N | T | L | G | P | T | Z | S | Y | H |
| T | T | A | T | J | S | H | I | O | K | M | C | Z | U | E | E | C | O | K | I | G | Y | B | C | O |
| Y | I | T | E | Q | K | S | D | M | T | R | V | D | G | M | U | L | P | R | Z | E | G | N | S | R |
| D | R | I | S | V | O | J | A | Y | E | N | O | L | A | N | O | Q | E | Z | E | N | O | I | P | I |
| A | P | O | T | T | H | N | H | T | D | R | R | G | O | N | W | H | X | M | Z | E | T | H | E | Z |
| T | O | N | I | E | D | N | S | I | P | R | E | B | H | N | N | E | O | B | A | T | E | O | R | O |
| E | P | M | N | N | E | I | O | E | W | P | I | C | O | I | S | R | K | X | R | I | F | M | M | N |
| T | N | C | G | A | S | L | R | N | Y | R | E | I | L | A | D | Z | T | C | N | C | E | O | A | T |
| R | D | Q | I | L | P | L | P | T | Y | T | T | A | H | N | M | Y | R | U | R | A | G | L | T | A |
| A | Y | X | G | Y | A | Q | O | X | O | C | N | P | Y | H | Y | I | I | C | W | L | E | O | O | L |
| D | F | G | L | U | G | Y | O | I | N | R | R | S | L | E | N | K | S | H | D | L | E | G | G | G |
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| P | P | E | S | A | D | I | J | T | T | W | S | A | P | E | X | Z | M | O | J | M | S | U | N | N |
| W | S | C | K | G | P | S | A | N | O | A | U | Q | O | D | H | P | Y | M | D | O | Y | S | E | E |
| A | A | M | H | L | I | M | I | D | L | G | O | U | F | I | O | R | L | A | J | D | N | C | S | T |
| C | W | E | C | D | W | R | C | Y | Y | A | V | L | J | T | A | G | G | T | H | I | A | H | I | R |
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| L | N | P | A | T | E | R | N | A | L | I | N | H | E | R | I | T | A | N | C | E | I | M | M | S |
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| N | Z | F | R | S | E | X | U | A | L | R | E | P | R | O | D | U | C | T | I | O | N | S | U | E |
| I | F | R | A | G | M | E | N | T | A | T | I | O | N | Y | S | Y | R | B | G | R | T | O | Q | R |
| N | Z | Q | F | A | J | G | A | M | E | T | O | G | E | N | E | S | I | S | L | G | S | M | Z | S |
| G | Q | Y | P | M | N | A | U | T | O | S | O | M | E | S | C | R | Y | Z | G | A | P | E | X | E |
| U | E | A | C | H | Z | H | S | C | Y | T | O | K | I | N | E | S | I | S | B | N | M | S | B | J |
| Q | S | Q | S | E | X | C | H | R | O | M | O | S | O | M | E | S | Q | C | E | I | C | X | A | G |
| R | Q | R | C | M | D | X | R | T | M | I | V | B | E | P | T | K | H | S | T | S | U | E | S | L |
| Z | Q | V | S | Y | E | R | C | Y | Q | Q | F | L | B | V | Z | D | G | Y | Q | M | Q | B | M | D |

Mendelian Genetics—Patterns of Inheritance

Find the words in the puzzle.

- a situation where both alleles are expressed fully to produce offspring with a third phenotype
- the likelihood that an outcome will occur if it is a matter of chance
- the offspring of two different true-breeding plants that differ in only one characteristic
- a scientific law stating that (1) organisms inherit two copies of genes, one from each parent, and (2) organisms donate only one copy of each gene to their gametes because the genes separate during gamete formation (three words)
- a particular version of a characteristic that is inherited, such as hair colour or blood type
- offspring of an F1-generation cross (two words)
- the allele that is expressed only if it is not in the presence of the dominant allele, i.e., if the individual is homozygous for the allele (two words)
- a diagram of an individual's ancestors used in human genetics to analyze the Mendelian inheritance of a certain trait; also used for selective breeding of plants and animals
- a situation where neither allele dominates the other and both exercise an influence on the individual; results in partial expression of both traits (two words)
- when the expression of the products of one gene has no bearing on the expression of the products of a second gene (two words)
- a cross that involves two genes, each consisting of heterozygous alleles (two words)
- an autosomal, recessive, inherited disorder that results in the accumulation of phenylalanine in the tissues and blood
- the probability of two random events both occurring is the product of the individual probabilities of each event (two words)
- an individual's outward appearance with respect to a specific characteristic
- tests used to identify the presence of a defective allele that leads to a genetic disorder (two words)
- a change in the genetic code of an allele; the change may have a positive effect, a negative effect, or no effect
- a specific form of a gene
- a cross used to determine the genotype of an individual expressing a dominant trait (two words)
- the allele that, if present, is always expressed (two words)
- an organism that produces offspring that are genetically identical for one or more traits when self-pollinated or when crossed with another true-breeding organism for the same traits (two words)
- describes an individual that carries two different same alleles for a given characteristic
- when the product of one gene is affected by the product of another gene; the gene products may be additive, or one product may negate another product (two words)
- a situation where an allele will determine the phenotype, regardless of the presence of another allele (two words)
- a genetic test that determines whether an individual is heterozygous for a given gene that results in a genetic disorder (two words)
- a diagram that summarizes every possible combination of each allele from each parent; a tool for determining the probability of a single offspring having a particular genotype (two words)
- phenotypic expression of an allele that is found on the X chromosome
- offspring of a P-generation cross (two words)
- a cross designed to study the inheritance of only one trait (two words)
- if genes are located on separate chromosomes, they will be inherited independently of one another (four words)
- the genetic makeup of an individual
- inheritance of alleles located on autosomal (non-sex) chromosomes (two words)
- phenotypic expression of an allele that is found on the Y chromosome
- the product of the allele comprises one part of the total for a phenotype (two words)
- describes an allele that is found on one of the sex chromosomes, X or Y, and when passed on to offspring is expressed
- parent plants used in a cross (two words)
- the successful mating of two organisms from distinct genetic lines
- the offspring of two different true-breeding plants

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| H | Q | Z | Q | O | R | X | O | A | E | Z | L | M | E | H | G | A | F | D | O | D | H | C | Y | S |
| U | D | I | Z | C | O | D | O | M | I | N | A | N | C | E | E | W | I | D | G | I | A | X | L | V |
| L | J | Z | V | X | B | J | R | V | M | E | I | V | E | J | N | O | Q | I | F | S | L | Q | I | C |
| V | Q | F | B | M | T | N | E | R | E | C | F | P | S | Q | E | F | F | T | S | C | F | T | N | Q |
| Q | J | B | R | W | U | E | T | R | E | A | 2 | S | S | Q | T | I | K | I | P | O | S | C | K | H |
| Z | C | R | B | T | R | C | G | V | M | R | G | P | I | S | I | N | X | V | U | N | Z | R | E | B |
| Q | G | R | V | G | G | I | G | P | Y | R | E | H | V | U | C | D | I | E | N | T | M | O | D | W |
| I | Q | I | Y | R | D | G | E | Q | G | I | N | E | E | K | S | E | F | A | N | I | H | S | F | B |
| L | N | K | N | E | D | I | N | W | S | E | E | N | A | O | C | P | J | L | E | N | O | S | L | W |
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| E | U | P | K | M | C | Z | Y | B | Y | E | T | Y | E | R | E | D | Q | L | S | U | O | N | I | O |
| L | N | H | A | T | P | Z | P | R | H | S | I | P | L | E | N | E | C | E | Q | S | N | X | A | G |
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Genetics Beyond Mendel

Find the words in the puzzle.

- a mutation that occurs because of exposure to an outside factor; second-hand smoke increases the chance of developing lung cancer (two words)
- a pattern of bands on a gel that is unique to each individual (two words)
- the repeating unit in DNA; it comprises a deoxyribose sugar, a phosphate group, and one of the four nitrogenous bases
- the sequence of DNA nitrogenous bases found on the 23 sets of chromosomes in humans (two words)
- a simplified representation of a concept; can be tangible or conceptual (two words)
- the study of the relationship between genes and their function (two words)
- describes strains of bacteria that are no longer susceptible to the effects of antibiotics; are sometimes called “superbugs” and are prevalent in hospital settings (two words)
- the original name given to DNA when it was discovered in the nucleus of cells by Friedrich Miescher in 1869
- a region of DNA that contains a sequence of nucleotides that will be expressed; is a gene (two words)
- a mutation that is not caused by any outside factors; it occurs randomly (two words)
- a database of DNA sequences; the sequences can be from plants, animals, or humans (two words)
- a specific segment of DNA that can move along or between chromosomes
- molecule that has the ability to cut DNA at a specific site; different molecules recognize and cut different sites (two words)
- a collaborative worldwide project to sequence the nitrogenous bases in human DNA (three words)
- an error occurring during meiosis that results in the production of possible gametes that contain too many or too few chromosomes or chromosome sections (two words)
- an organism that can be used to study biological functions of another organism, due to its genetic similarity (two words)
- one of the cells that contain the faulty gene to be corrected (two words)
- pairing of the nitrogenous base of one strand of DNA with the nitrogenous base of another strand; adenine (A) pairs with thymine (T), and guanine (G) pairs with cytosine (C) (three words)
- the process of moving a gene sequence from one part of the chromosome to another part of the chromosome
- any agent, such as a plasmid or a virus, capable of inserting a piece of foreign DNA into a cell
- a technique in which a pure substance is subjected to X-rays; the pattern in which the X-rays bend and spread helps reveal the structure of the pure substance (two words)
- a fragment of DNA consisting of nucleotide sequences from at least two different sources (two words)
- a region of DNA that does not contain a sequence of nucleotides that will be expressed (two words)
- a small-scale change in the nitrogenous base sequence of DNA; the mutation may be beneficial, harmful, or neutral (having no effect on the organism) (two words)
- the process by which defective genes in a genome are corrected with a normal copy of the gene (two words)
- a small membrane or glass slide that has been coated in a predictable and organized manner with a genomic sequence

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Genetic Processes

Find the words in the puzzle.

- the process of moving a gene sequence from one part of the chromosome to another part of the chromosome
- a region of DNA that does not contain a sequence of nucleotides that will be expressed (two words)
- the portion of the cell cycle between mitotic divisions when the genetic material (in the form of chromatin) is duplicated
- the offspring of two different true-breeding plants
- the failure of homologous chromosomes to move to opposite poles of the cell during meiosis; results in an abnormal number of chromosomes in the daughter cells
- one of the cells that contain the faulty gene to be corrected (two words)
- the production of offspring from a single parent; the genetic makeup of the offspring is identical to that of the parent (two words)
- the branch of biology dealing with heredity and the variation of inherited characteristics
- a pattern of bands on a gel that is unique to each individual (two words)
- a scientific law stating that (1) organisms inherit two copies of genes, one from each parent, and (2) organisms donate only one copy of each gene to their gametes because the genes separate during gamete formation (three words)
- non-sex chromosomes
- the formation of a zygote by the joining together, or fusion, of two gametes
- the identical copy of a single chromosome that remains attached to the original chromosome at the centromere (two words)
- a genetic test that determines whether an individual is heterozygous for a given gene that results in a genetic disorder (two words)
- describes an allele that is found on one of the sex chromosomes, X or Y, and when passed on to offspring is expressed
- a chromosomal abnormality in which there is a single chromosome in place of a homologous pair
- the original name given to DNA when it was discovered in the nucleus of cells by Friedrich Miescher in 1869
- the production of gametes (sex cells) in animals
- a specific form of a gene
- phenotypic expression of an allele that is found on the Y chromosome
- the transfer of genetic information from one species into a different species (three words)
- the successful mating of two organisms from distinct genetic lines
- a pair of homologous chromosomes, each with two sister chromatids
- the study of the relationship between genes and their function (two words)
- the passing of traits from parents to offspring
- the allele that, if present, is always expressed (two words)
- matching pairs of chromosomes, similar in size and carrying information for the same genes (two words)
- a diagram that summarizes every possible combination of each allele from each parent; a tool for determining the probability of a single offspring having a particular genotype (two words)
- a particular version of a characteristic that is inherited, such as hair colour or blood type
- parent plants used in a cross (two words)
- a diagram of an individual's ancestors used in human genetics to analyze the Mendelian inheritance of a certain trait; also used for selective breeding of plants and animals
- a collaborative worldwide project to sequence the nitrogenous bases in human DNA (three words)
- an organism that can be used to study biological functions of another organism, due to its genetic similarity (two words)
- the repeating unit in DNA; it comprises a deoxyribose sugar, a phosphate group, and one of the four nitrogenous bases
- offspring of a P-generation cross (two words)
- inheritance of alleles located on autosomal (non-sex) chromosomes (two words)
- the use and modification of organisms for applications in engineering, industry, and medicine
- 6. an organism that produces offspring that are genetically identical for one or more traits when self-pollinated or when crossed with another true-breeding organism for the same traits (two words)
- phenotypic expression of an allele that is found on the X chromosome
- having more than two sets of chromosomes; many plants have this characteristic
- a region of DNA that contains a sequence of nucleotides that will be expressed; is a gene (two words)
- the allele that is expressed only if it is not in the presence of the dominant allele, i.e., if the individual is homozygous for the allele (two words)
- when the expression of the products of one gene has no bearing on the expression of the products of a second gene (two words)
- the production of mature sperm cells
- the location of a gene on a chromosome
- the tangled strands of DNA and protein within a eukaryotic nucleus
- an error occurring during meiosis that results in the production of possible gametes that contain too many or too few chromosomes or chromosome sections (two words)
- a chromosomal abnormality in which there are three homologous chromosomes in place of a homologous pair
- an organism in which the genetic material has been altered using genetic engineering techniques (three words)
- the process by which defective genes in a genome are corrected with a normal copy of the gene (two words)
- the genetic makeup of an individual
- describes strains of bacteria that are no longer susceptible to the effects of antibiotics; are sometimes called "superbugs" and are prevalent in hospital settings (two words)
- a molecule that carries genetic information in cells (two words)
- the product of the allele comprises one part of the total for a phenotype (two words)
- a sex cell; includes sperm cells in males and egg cells in females
- if genes are located on separate chromosomes, they will be inherited independently of one another (four words)
- a two-stage cell division in which the resulting daughter cells have half the number of chromosomes as the parent cell; results in the formation of gametes or spores
- a change in the genetic code of an allele; the change may have a positive effect, a negative effect, or no effect
- the process by which a eukaryotic cell divides the genetic material in its nucleus into two identical nuclei
- a simplified representation of a concept; can be tangible or conceptual (two words)
- when the product of one gene is affected by the product of another gene; the gene products may be additive, or one product may negate another product (two words)
- pairing of the nitrogenous base of one strand of DNA with the nitrogenous base of another strand; adenine (A) pairs with thymine (T), and guanine (G) pairs with cytosine (C) (three words)
- a method of asexual reproduction in which a piece or body fragment of the parent organism develops into a mature individual
- the chromosomes of an individual that have been sorted and arranged according to size and type
- the probability of two random events both occurring is the product of the individual probabilities of each event (two words)
- the process of producing one individual that is genetically identical to another, using a single cell or tissue
- a small-scale change in the nitrogenous base sequence of DNA; the mutation may be beneficial, harmful, or neutral (having no effect on the organism) (two words)
- a cell produced by the fusion of two gametes
- a specific segment of DNA that can move along or between chromosomes
- offspring of an F1-generation cross (two words)
- the production of mature egg cells
- a situation where both alleles are expressed fully to produce offspring with a third phenotype
- describes an individual that carries two different same alleles for a given characteristic
- a fragment of DNA consisting of nucleotide sequences from at least two different sources (two words)
- an individual's outward appearance with respect to a specific characteristic
- the offspring of two different true-breeding plants that differ in only one characteristic
- any agent, such as a plasmid or a virus, capable of inserting a piece of foreign DNA into a cell
- a segment of a DNA molecule that codes for a particular trait; found at a specific location on a chromosome
- a molecule that carries genetic information in cells

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| S | I | B | E | V | Y | S | N | R | V | Y | O | I | T | X | H | S | O | A | S | O | O | A | I | Z | N | E | R | T | X | N | T | M | K | N |
| M | O | I | X | A | N | I | M | D | J | I | B | I | S | Q | G | D | E | K | T | R | M | B | N | C | X | E | I | O | M | H | Y | S | E | O |
| U | N | Y | Y | R | D | H | V | M | B | E | T | R | I | S | O | M | Y | P | I | I | T | A | A | T | S | X | S | N | A | E | C | Q | D | M |
| T | G | D | A | I | R | E | H | E | T | E | R | O | Z | Y | G | O | U | S | A | N | O | A | T | B | W | C | J | I | R | R | N | T | N | I |
| A | O | M | T | A | O | Y | F | E | P | H | E | N | O | T | Y | P | E | U | K | I | E | N | R | I | I | W | R | N | S | I | R | T | T | C |
| T | D | T | J | T | M | C | T | E | S | T | C | R | O | S | S | T | R | D | N | A | R | S | N | G | D | L | V | E | Q | T | Q | A | R | S |
| I | U | N | P | I | E | C | T | B | L | F | 1 | G | E | N | E | R | A | T | I | O | N | I | I | K | E | P | I | E | E | A | V | G | Y | U |
| O | H | O | M | O | L | O | G | O | U | S | C | H | R | O | M | O | S | O | M | E | S | B | N | S | H | T | I | T | W | N | Y | J | N | Y |
| N | Y | D | P | N | R | F | A | N | O | N | D | I | S | J | U | N | C | T | I | O | N | U | L | G | H | M | C | E | Y | C | I | E | B | W |
| J | Z | Q | E | I | H | N | A | Y | F | Z | F | S | C | I | E | N | T | I | F | I | C | M | O | D | E | L | I | E | R | E | I | N | Z | J |
| N | B | Q | O | A | S | P | E | X | R | A | Y | C | R | Y | S | T | A | L | L | O | G | R | A | P | H | Y | K | V | L | A | Y | Z | G | X |
| B | V | F | Y | D | Z | K | A | S | E | X | U | A | L | R | E | P | R | O | D | U | C | T | I | O | N | K | D | X | H | L | H | P | K | X |

The Theory of Evolution

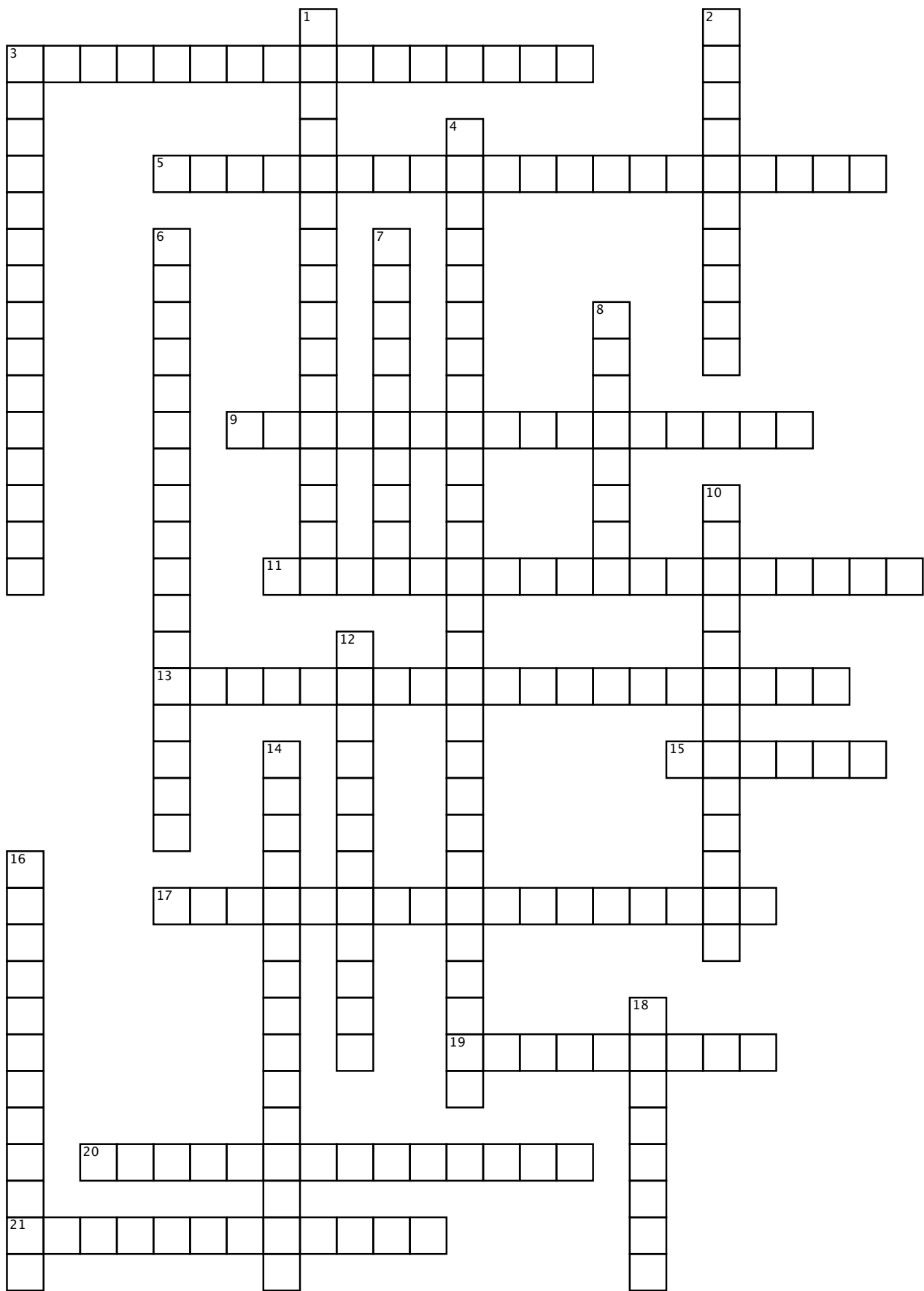
Complete the crossword puzzle.

Across

3. the way in which nature favours the reproductive success of some individuals within a population over others (two words)
5. a phrase that has been used to describe the process of natural selection (four words)
9. a structure that performs the same function as another but is not similar in origin or anatomic structure; for example bird and insect wings (two words)
11. any mutation that increases the reproductive success of an organism; favoured by natural selection and accumulates over time (two words)
13. directed breeding in which individuals that exhibit a particular trait are chosen as parents of the next generation; used to produce new breeds or varieties of plants and animals (two words)
15. any ancient remains, impressions, or traces of an organism or traces of its activity that have been preserved in rocks or other mineral deposits in Earth's crust
17. the theory that geological changes are slow and gradual and that natural laws and processes have not changed over time
19. the idea that species cannot change
20. the scientific theory that describes the large-scale movements and features of Earth's crust (two words)
21. the scientific investigation of prehistoric life through the study of fossils

Down

1. rudimentary and non-functioning, or only marginally functioning, structure that is homologous to a fully functioning structure in closely related species (two words)
2. a characteristic or feature of a species that makes it well suited for survival or reproductive success in its environment
3. mutation that does not result in any selective advantage or disadvantage (two words)
4. the modern theory of evolution that takes into account all branches of biology (three words)
6. a structure with a common evolutionary origin that may serve different functions in modern species (e.g., bat wing and human arm) (two words)
7. vestigial gene that no longer codes for a functioning protein
8. the complete set of all alleles contained within a species or population (two words)
10. the theory that the pattern of fossils could be accounted for by a series of global catastrophes that wiped out most species on Earth
12. the scientific study of the geographic distribution of organisms based on both living species and fossils
14. any mutation that reduces the reproductive success of an individual and is therefore selected against; does not accumulate over time (two words)
16. an atom with an unstable nucleus that is capable of undergoing radioactive decay
18. the time required for half the quantity of a radioactive substance to undergo decay; it is a constant for any given isotope



The Origin of Species

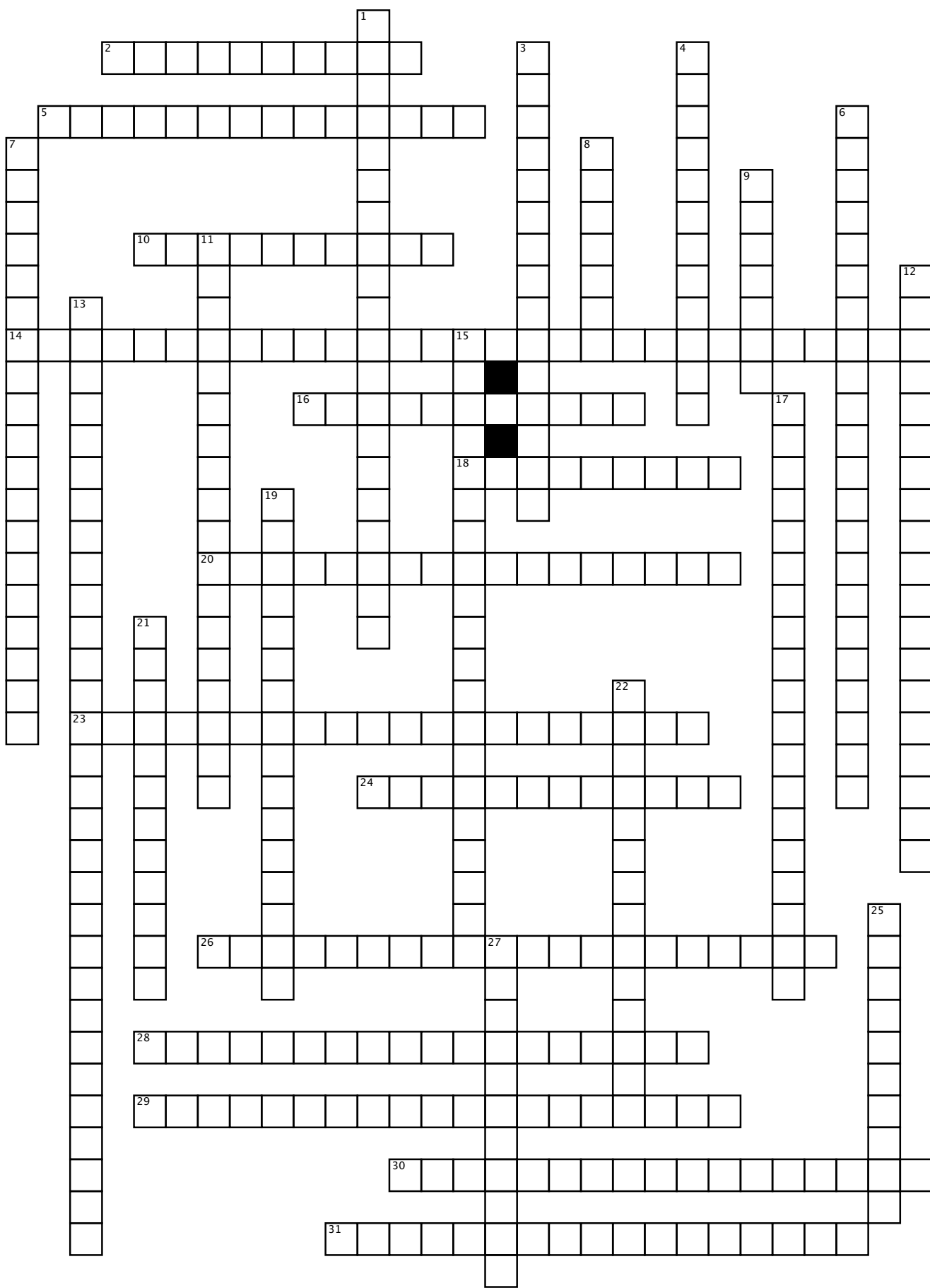
Complete the crossword puzzle.

Across

2. the formation of new species
5. large-scale evolutionary changes including the formation of new species and new taxa
10. the group of primates that includes monkeys, apes, and humans
14. a theory that attributes most evolutionary changes to relatively rapid spurts of change followed by long periods of little or no change (four words)
16. a process in which one species evolves in response to the evolution of another species
18. the group of primates that includes lemurs, lorises, and tarsiers
20. the relatively rapid evolution of a single species into many new species, filling a variety of formerly empty ecological niches (two words)
23. selection against individuals exhibiting traits that deviate from the current population average (two words)
24. a trait that has evolved relatively recently with respect to the species or group being discussed (two words)
26. selection that favours an increase or decrease in the value of a trait from the current population average (two words)
28. the large-scale evolution of a group into many different forms (two words)
29. a reproductive isolating mechanism that prevents interspecies mating and fertilization (e.g., ecological isolation, temporal isolation, and behavioural isolation) (two words)
30. a dramatic, often temporary, reduction in population size, usually resulting in significant genetic drift (two words)
31. the rapid evolution of most major animal phyla that took place over approximately 40 million years during the Cambrian era (two words)
4. changes to allele frequency as a result of change; such changes are much more pronounced in small populations (two words)
6. in large populations in which only random chance is at work, allele frequencies are expected to remain constant from generation to generation (two words)
7. selection that favours two or more variations of a trait that differ from the current population average (two words)
8. a group of relatively large-brained, mostly arboreal mammals that includes prosimians, monkeys, apes, and humans
9. all species descended from the most recent common ancestor of chimpanzees and humans that are on the human side of the lineage
11. a theory that attributes large evolutionary changes in species to the accumulation of many small and ongoing changes and processes (three words)
12. the evolution of populations within the same geographic area into separate species (two words)
13. any behavioural, structural, or biochemical trait that prevents individuals of different species from reproducing successfully together (three words)
15. the formation of a new species as a result of evolutionary changes following a period of geographic isolation (two words)
17. the evolution of similar traits in distantly related species (two words)
19. a fossil or species intermediate in form between two other species in a direct line of descent (two words)
21. a derived trait shared by two or more species or groups
22. changes in gene (allele) frequencies and phenotypic traits within a population and species
25. a method of determining evolutionary relationships based on the presence or absence of recently evolved traits
27. the origin of life from non-living matter

Down

1. a reproductive isolating mechanism that prevents maturation and reproduction in offspring from interspecies reproduction (two words)
3. differential reproductive success caused by variation in the ability to obtain mates; results in sexual dimorphism, and mating and courtship behaviours (two words)



Genetic Processes

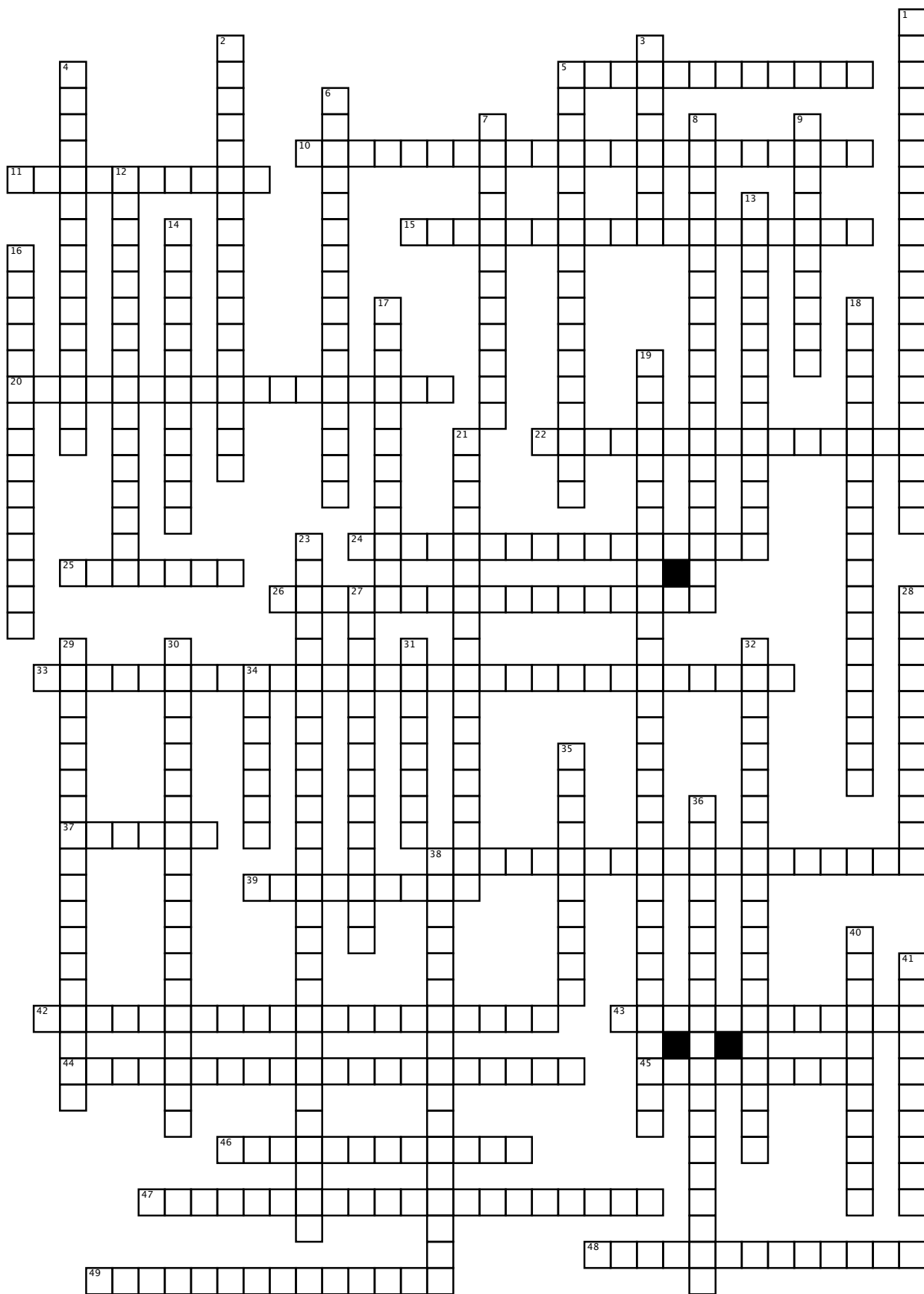
Complete the crossword puzzle.

Across

5. changes to allele frequency as a result of change; such changes are much more pronounced in small populations (two words)
10. in large populations in which only random chance is at work, allele frequencies are expected to remain constant from generation to generation (two words)
11. a characteristic or feature of a species that makes it well suited for survival or reproductive success in its environment
15. any mutation that increases the reproductive success of an organism; favoured by natural selection and accumulates over time (two words)
20. the theory that geological changes are slow and gradual and that natural laws and processes have not changed over time
22. mutation that does not result in any selective advantage or disadvantage (two words)
24. the way in which nature favours the reproductive success of some individuals within a population over others (two words)
25. all species descended from the most recent common ancestor of chimpanzees and humans that are on the human side of the lineage
26. the relatively rapid evolution of a single species into many new species, filling a variety of formerly empty ecological niches (two words)
33. a theory that attributes most evolutionary changes to relatively rapid spurts of change followed by long periods of little or no change (four words)
37. any ancient remains, impressions, or traces of an organism or traces of its activity that have been preserved in rocks or other mineral deposits in Earth's crust
38. the evolution of similar traits in distantly related species (two words)
39. the group of primates that includes lemurs, lorises, and tarsiers
42. the formation of a new species as a result of evolutionary changes following a period of geographic isolation (two words)
43. an atom with an unstable nucleus that is capable of undergoing radioactive decay
44. selection against individuals exhibiting traits that deviate from the current population average (two words)
45. the idea that species cannot change
46. the scientific investigation of prehistoric life through the study of fossils
47. selection that favours an increase or decrease in the value of a trait from the current population average (two words)
48. the theory that the pattern of fossils could be accounted for by a series of global catastrophes that wiped out most species on Earth
49. changes in gene (allele) frequencies and phenotypic traits within a population and species
4. differential reproductive success caused by variation in the ability to obtain mates; results in sexual dimorphism, and mating and courtship behaviours (two words)
5. a dramatic, often temporary, reduction in population size, usually resulting in significant genetic drift (two words)
6. a structure that performs the same function as another but is not similar in origin or anatomic structure; for example bird and insect wings (two words)
7. the scientific study of the geographic distribution of organisms based on both living species and fossils
8. selection that favours two or more variations of a trait that differ from the current population average (two words)
9. the formation of new species
12. a fossil or species intermediate in form between two other species in a direct line of descent (two words)
13. large-scale evolutionary changes including the formation of new species and new taxa
14. a derived trait shared by two or more species or groups
16. any mutation that reduces the reproductive success of an individual and is therefore selected against; does not accumulate over time (two words)
17. a trait that has evolved relatively recently with respect to the species or group being discussed (two words)
18. directed breeding in which individuals that exhibit a particular trait are chosen as parents of the next generation; used to produce new breeds or varieties of plants and animals (two words)
19. any behavioural, structural, or biochemical trait that prevents individuals of different species from reproducing successfully together (three words)
21. the large-scale evolution of a group into many different forms (two words)
23. the modern theory of evolution that takes into account all branches of biology (three words)
27. the scientific theory that describes the large-scale movements and features of Earth's crust (two words)
28. a process in which one species evolves in response to the evolution of another species
29. a theory that attributes large evolutionary changes in species to the accumulation of many small and ongoing changes and processes (three words)
30. the evolution of populations within the same geographic area into separate species (two words)
31. the time required for half the quantity of a radioactive substance to undergo decay; it is a constant for any given isotope
32. a phrase that has been used to describe the process of natural selection (four words)
34. a group of relatively large-brained, mostly arboreal mammals that includes prosimians, monkeys, apes, and humans
35. the group of primates that includes monkeys, apes, and humans
36. a reproductive isolating mechanism that prevents interspecies mating and fertilization (e.g., ecological isolation, temporal isolation, and behavioural isolation) (two words)
38. the rapid evolution of most major animal phyla that took place over approximately 40 million years during the Cambrian era (two words)
40. the origin of life from non-living matter
41. vestigial gene that no longer codes for a functioning protein

Down

1. a reproductive isolating mechanism that prevents maturation and reproduction in offspring from interspecies reproduction (two words)
2. a structure with a common evolutionary origin that may serve different functions in modern species (e.g., bat wing and human arm) (two words)
3. the complete set of all alleles contained within a species or population (two words)



The Theory of Evolution

Find the words in the puzzle.

- the way in which nature favours the reproductive success of some individuals within a population over others (two words)
- a phrase that has been used to describe the process of natural selection (four words)
- a structure that performs the same function as another but is not similar in origin or anatomic structure; for example bird and insect wings (two words)
- any mutation that increases the reproductive success of an organism; favoured by natural selection and accumulates over time (two words)
- directed breeding in which individuals that exhibit a particular trait are chosen as parents of the next generation; used to produce new breeds or varieties of plants and animals (two words)
- any ancient remains, impressions, or traces of an organism or traces of its activity that have been preserved in rocks or other mineral deposits in Earth's crust
- the theory that geological changes are slow and gradual and that natural laws and processes have not changed over time
- the idea that species cannot change
- the scientific theory that describes the large-scale movements and features of Earth's crust (two words)
- the scientific investigation of prehistoric life through the study of fossils
- rudimentary and non-functioning, or only marginally functioning, structure that is homologous to a fully functioning structure in closely related species (two words)
- a characteristic or feature of a species that makes it well suited for survival or reproductive success in its environment
- mutation that does not result in any selective advantage or disadvantage (two words)
- the modern theory of evolution that takes into account account all branches of biology (three words)
- a structure with a common evolutionary origin that may serve different functions in modern species (e.g., bat wing and human arm) (two words)
- vestigial gene that no longer codes for a functioning protein
- the complete set of all alleles contained within a species or population (two words)
- the theory that the pattern of fossils could be accounted for by a series of global catastrophes that wiped out most species on Earth
- the scientific study of the geographic distribution of organisms based on both living species and fossils
- any mutation that reduces the reproductive success of an individual and is therefore selected against; does not accumulate over time (two words)
- an atom with an unstable nucleus that is capable of undergoing radioactive decay
- the time required for half the quantity of a radioactive substance to undergo decay; it is a constant for any given isotope

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| E | N | E | U | T | R | A | L | M | U | T | A | T | I | O | N | R | P | A | A | I | I | Q | X | C |
| G | D | Y | P | B | E | G | Z | C | J | S | L | P | P | G | U | A | R | D | N | F | P | K | O | L |
| A | J | O | Y | R | B | E | R | X | I | S | A | L | O | B | N | N | U | A | A | O | X | B | X | F |
| V | M | A | B | J | S | N | B | R | M | E | Z | A | Y | N | I | Y | O | P | L | S | T | I | D | X |
| H | H | W | Q | I | N | E | M | L | M | X | R | T | N | I | F | N | N | T | O | S | I | O | M | B |
| A | H | W | M | E | N | P | K | S | U | C | M | E | I | B | O | E | E | A | G | I | E | G | O | Z |
| R | T | D | S | W | E | O | U | C | T | N | G | T | Y | Q | R | C | N | T | O | L | W | E | D | J |
| M | R | P | Z | U | E | O | V | G | A | T | O | E | H | B | M | D | S | I | U | Z | B | O | E | U |
| F | G | B | Y | I | R | L | K | Y | B | V | L | C | F | C | I | D | E | O | S | J | N | G | R | U |
| U | A | Z | O | G | H | V | G | E | L | J | V | T | B | T | T | F | L | N | F | X | A | R | N | X |
| L | I | E | V | E | B | C | I | O | E | F | R | O | W | H | A | E | X | P | E | O | T | A | E | M |
| M | X | H | T | I | E | R | X | V | W | H | I | N | Z | H | R | U | K | Z | A | Z | U | P | V | M |
| U | F | O | Q | W | N | A | T | W | A | A | K | I | T | N | I | J | E | Z | T | C | R | H | O | I |
| T | U | M | Q | A | E | T | Z | A | S | L | C | C | G | X | A | U | Q | W | U | M | A | Y | L | I |
| A | B | O | O | B | F | J | H | M | O | F | O | S | D | S | N | H | Q | Z | R | B | L | Q | U | B |
| T | R | L | A | T | I | A | R | B | N | L | F | F | Z | S | I | J | H | O | E | V | S | P | T | D |
| I | H | O | I | Z | C | O | R | H | V | I | W | W | T | Z | S | C | E | D | P | K | E | C | I | W |
| O | T | G | O | V | I | X | S | T | C | F | L | X | S | H | M | D | N | M | J | F | L | P | O | Q |
| N | I | O | K | E | A | M | R | E | I | E | O | F | S | J | E | Z | F | L | B | N | E | H | N | T |
| O | Y | U | I | S | L | B | R | D | K | F | R | D | P | X | V | F | P | C | J | W | C | T | A | J |
| Y | P | S | Y | T | M | J | V | A | U | F | I | A | P | S | P | Y | I | F | J | K | T | C | R | Q |
| J | U | F | W | I | U | N | O | E | D | D | A | C | Y | C | E | L | B | T | V | E | I | H | Y | M |
| X | E | E | Z | G | T | O | Q | Z | B | I | E | T | I | H | Z | U | M | T | T | I | O | P | S | U |
| X | E | A | K | I | A | M | N | R | F | U | O | B | B | A | I | G | D | O | F | E | N | I | Y | G |
| K | P | T | P | A | T | Z | N | G | C | F | D | I | Q | X | L | B | Z | O | Q | B | S | H | N | Z |
| O | W | U | C | L | I | U | B | C | K | L | F | K | S | H | M | S | P | B | G | K | S | T | T | J |
| C | B | R | M | F | O | Q | X | C | E | P | H | B | C | O | V | W | E | L | V | E | O | V | H | E |
| N | X | E | F | E | N | H | T | F | C | N | N | E | V | L | T | G | A | L | H | C | N | I | E | Z |
| L | J | V | U | A | Z | E | D | Q | V | U | U | G | R | J | F | O | L | M | E | V | C | E | S | H |
| A | Q | Z | L | T | A | A | W | M | C | L | B | C | V | W | H | S | P | B | W | C | X | Y | I | U |
| P | Z | R | G | U | N | C | U | B | N | E | G | J | C | M | N | R | O | E | M | A | T | W | S | M |
| O | F | E | L | R | K | D | X | A | P | A | L | E | O | N | T | O | L | O | G | Y | Z | I | G | X |
| R | X | H | X | E | P | B | E | Y | S | L | V | Z | O | X | K | P | Y | Q | U | V | R | A | O | O |
| H | T | K | W | Z | C | A | T | A | S | T | R | O | P | H | I | S | M | W | A | T | E | H | L | N |
| Z | U | N | X | C | T | B | G | H | B | V | T | G | Y | H | K | D | R | R | D | I | B | G | O | M |

The Origin of Species

Find the words in the puzzle.

- the formation of new species
- large-scale evolutionary changes including the formation of new species and new taxa
- the group of primates that includes monkeys, apes, and humans
- a theory that attributes most evolutionary changes to relatively rapid spurts of change followed by long periods of little or no change (four words)
- a process in which one species evolves in response to the evolution of another species
- the group of primates that includes lemurs, lorises, and tarsiers
- the relatively rapid evolution of a single species into many new species, filling a variety of formerly empty ecological niches (two words)
- selection against individuals exhibiting traits that deviate from the current population average (two words)
- a trait that has evolved relatively recently with respect to the species or group being discussed (two words)
- selection that favours an increase or decrease in the value of a trait from the current population average (two words)
- the large-scale evolution of a group into many different forms (two words)
- a reproductive isolating mechanism that prevents interspecies mating and fertilization (e.g., ecological isolation, temporal isolation, and behavioural isolation) (two words)
- a dramatic, often temporary, reduction in population size, usually resulting in significant genetic drift (two words)
- the rapid evolution of most major animal phyla that took place over approximately 40 million years during the Cambrian era (two words)
- a reproductive isolating mechanism that prevents maturation and reproduction in offspring from interspecies reproduction (two words)
- differential reproductive success caused by variation in the ability to obtain mates; results in sexual dimorphism, and mating and courtship behaviours (two words)
- changes to allele frequency as a result of change; such changes are much more pronounced in small populations (two words)
- in large populations in which only random chance is at work, allele frequencies are expected to remain constant from generation to generation (two words)
- selection that favours two or more variations of a trait that differ from the current population average (two words)
- a group of relatively large-brained, mostly arboreal mammals that includes prosimians, monkeys, apes, and humans
- all species descended from the most recent common ancestor of chimpanzees and humans that are on the human side of the lineage
- a theory that attributes large evolutionary changes in species to the accumulation of many small and ongoing changes and processes (three words)
- the evolution of populations within the same geographic area into separate species (two words)
- any behavioural, structural, or biochemical trait that prevents individuals of different species from reproducing successfully together (three words)
- the formation of a new species as a result of evolutionary changes following a period of geographic isolation (two words)
- the evolution of similar traits in distantly related species (two words)
- a fossil or species intermediate in form between two other species in a direct line of descent (two words)
- a derived trait shared by two or more species or groups
- changes in gene (allele) frequencies and phenotypic traits within a population and species
- a method of determining evolutionary relationships based on the presence or absence of recently evolved traits
- the origin of life from non-living matter

V G T C D U B O W A S E X U A L S E L E C T I O N V T G Y
 H K C R R D I B D O M I C R O E V O L U T I O N R Q L J A
 J I O X G A F U R I T N M C C E Y C H W N J E A E Y D G S
 G W N K N D A U E O S R J U S P E C I A T I O N S J G A K
 T C V T O D H U P R K R O N F Q S W Y P E P E R C E I V M
 Q D E H S I H S R P G F U U M W D C M F T E O W S F O M N
 E I R E Y V F V O A L L O P A T R I C S P E C I A T I O N
 J R G O N E W Z D L G R N E T C K I U Z B P J H Z W A D U
 I E E R A R U S U H Z R O S Z I U K J L E X O Q X T S A D
 N C N Y P G A K C G A Y I T H P V I J R E S S E P B B N W
 E T T O O E Y T T Y E Y O A C C R E P M O K D M T S J T A
 M I E F M N S Q I P H C X B X V Y O S B R W C O B V W H D
 A O V G O T S A V C O X L I F L S O S E P V V V C O B R A
 P N O R R E G U E D L S A L V H O T S I L B B Q Q C R O P
 K A L A P V P D I P B A T I Z Z Y G Z F M E H U G G O P T
 B L U D H O C N S U N F D Z H N Q Y D X P I C G L Y W O I
 D S T U Y L F U O D T E G I Y O S I A H V R A T P D O I V
 B E I A M U O J L W D G N N S G M V E V R M I N I C P D E
 Z L O L X T H W A W F S Y G K T O I N T D I X M M O A R R
 Y E N I K I Y S T H Q V S S K O I T N H E A J R A H N O A
 N C F S M O C Q I R L R O E B T H C I I N H M H R T B G D
 H T R M E N I V N Q D U F L S C Y Y S C D J N N I M E R I
 H I A A I H E Z G C E L C E K F U G C R M K R I M H A E A
 R O B D V D S H M L I R O C E V K P M P T E D E I D U T T
 Y N I I S T F J E B T D E T J J Z S T Q O G C U L B R L I
 C M O Q S W I K C R J C V I V N Y J U I S H P H G M A R O
 C Y G H T M C H H I G M O O M V S S U V T B N R A I T R N
 I P E Y G Y S U A Q Y P L N A D C C P W U G B U T N M D G
 K L N N D M H Y N T L D U X X P B R I G Z C U N V I I A G
 S E E F Y I B M I W J R T D B A S E T H F P J Y S B Q S G
 L F S Y A M K H S I C H I E U N X G P U E N X H M M K L M
 P U I J T L D G M Y B E O W G E N E T I C D R I F T D C S
 W J S X B Y Y E J K G X N T R A N S I T I O N A L F O R M
 D E R I V E D T R A I T V M A C R O E V O L U T I O N Y X
 T H E O R Y O F P U N C T U A T E D E Q U I L I B R I U M
 X Q O F G E N E T I C B O T T L E N E C K P W W C R R B S
 S R Y P H N T N S Y M P A T R I C S P E C I A T I O N M S
 I S W P R E Z Y G O T I C M E C H A N I S M G U Y M P Z P
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 H A R D Y W E I N B E R G P R I N C I P L E T K C I A J I

Genetic Processes

Find the words in the puzzle.

- changes to allele frequency as a result of change; such changes are much more pronounced in small populations (two words)
- in large populations in which only random chance is at work, allele frequencies are expected to remain constant from generation to generation (two words)
- a characteristic or feature of a species that makes it well suited for survival or reproductive success in its environment
- any mutation that increases the reproductive success of an organism; favoured by natural selection and accumulates over time (two words)
- the theory that geological changes are slow and gradual and that natural laws and processes have not changed over time
- mutation that does not result in any selective advantage or disadvantage (two words)
- the way in which nature favours the reproductive success of some individuals within a population over others (two words)
- all species descended from the most recent common ancestor of chimpanzees and humans that are on the human side of the lineage
- the relatively rapid evolution of a single species into many new species, filling a variety of formerly empty ecological niches (two words)
- a theory that attributes most evolutionary changes to relatively rapid spurts of change followed by long periods of little or no change (four words)
- any ancient remains, impressions, or traces of an organism or traces of its activity that have been preserved in rocks or other mineral deposits in Earth's crust
- the evolution of similar traits in distantly related species (two words)
- the group of primates that includes lemurs, lorises, and tarsiers
- the formation of a new species as a result of evolutionary changes following a period of geographic isolation (two words)
- an atom with an unstable nucleus that is capable of undergoing radioactive decay
- selection against individuals exhibiting traits that deviate from the current population average (two words)
- the idea that species cannot change
- the scientific investigation of prehistoric life through the study of fossils
- selection that favours an increase or decrease in the value of a trait from the current population average (two words)
- the theory that the pattern of fossils could be accounted for by a series of global catastrophes that wiped out most species on Earth
- changes in gene (allele) frequencies and phenotypic traits within a population and species
- a reproductive isolating mechanism that prevents maturation and reproduction in offspring from interspecies reproduction (two words)
- a structure with a common evolutionary origin that may serve different functions in modern species (e.g., bat wing and human arm) (two words)
- the complete set of all alleles contained within a species or population (two words)
- differential reproductive success caused by variation in the ability to obtain mates; results in sexual dimorphism, and mating and courtship behaviours (two words)
- a dramatic, often temporary, reduction in population size, usually resulting in significant genetic drift (two words)
- a structure that performs the same function as another but is not similar in origin or anatomic structure; for example bird and insect wings (two words)
- the scientific study of the geographic distribution of organisms based on both living species and fossils
- selection that favours two or more variations of a trait that differ from the current population average (two words)
- the formation of new species
- a fossil or species intermediate in form between two other species in a direct line of descent (two words)
- large-scale evolutionary changes including the formation of new species and new taxa
- a derived trait shared by two or more species or groups
- any mutation that reduces the reproductive success of an individual and is therefore selected against; does not accumulate over time (two words)
- a trait that has evolved relatively recently with respect to the species or group being discussed (two words)
- directed breeding in which individuals that exhibit a particular trait are chosen as parents of the next generation; used to produce new breeds or varieties of plants and animals (two words)
- any behavioural, structural, or biochemical trait that prevents individuals of different species from reproducing successfully together (three words)
- the large-scale evolution of a group into many different forms (two words)
- the modern theory of evolution that takes into account all branches of biology (three words)
- the scientific theory that describes the large-scale movements and features of Earth's crust (two words)
- a process in which one species evolves in response to the evolution of another species
- a theory that attributes large evolutionary changes in species to the accumulation of many small and ongoing changes and processes (three words)
- the evolution of populations within the same geographic area into separate species (two words)
- the time required for half the quantity of a radioactive substance to undergo decay; it is a constant for any given isotope
- a phrase that has been used to describe the process of natural selection (four words)
- a group of relatively large-brained, mostly arboreal mammals that includes prosimians, monkeys, apes, and humans
- the group of primates that includes monkeys, apes, and humans
- a reproductive isolating mechanism that prevents interspecies mating and fertilization (e.g., ecological isolation, temporal isolation, and behavioural isolation) (two words)
- the rapid evolution of most major animal phyla that took place over approximately 40 million years during the Cambrian era (two words)
- the origin of life from non-living matter
- vestigial gene that no longer codes for a functioning protein

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Nutrition and the Digestive System

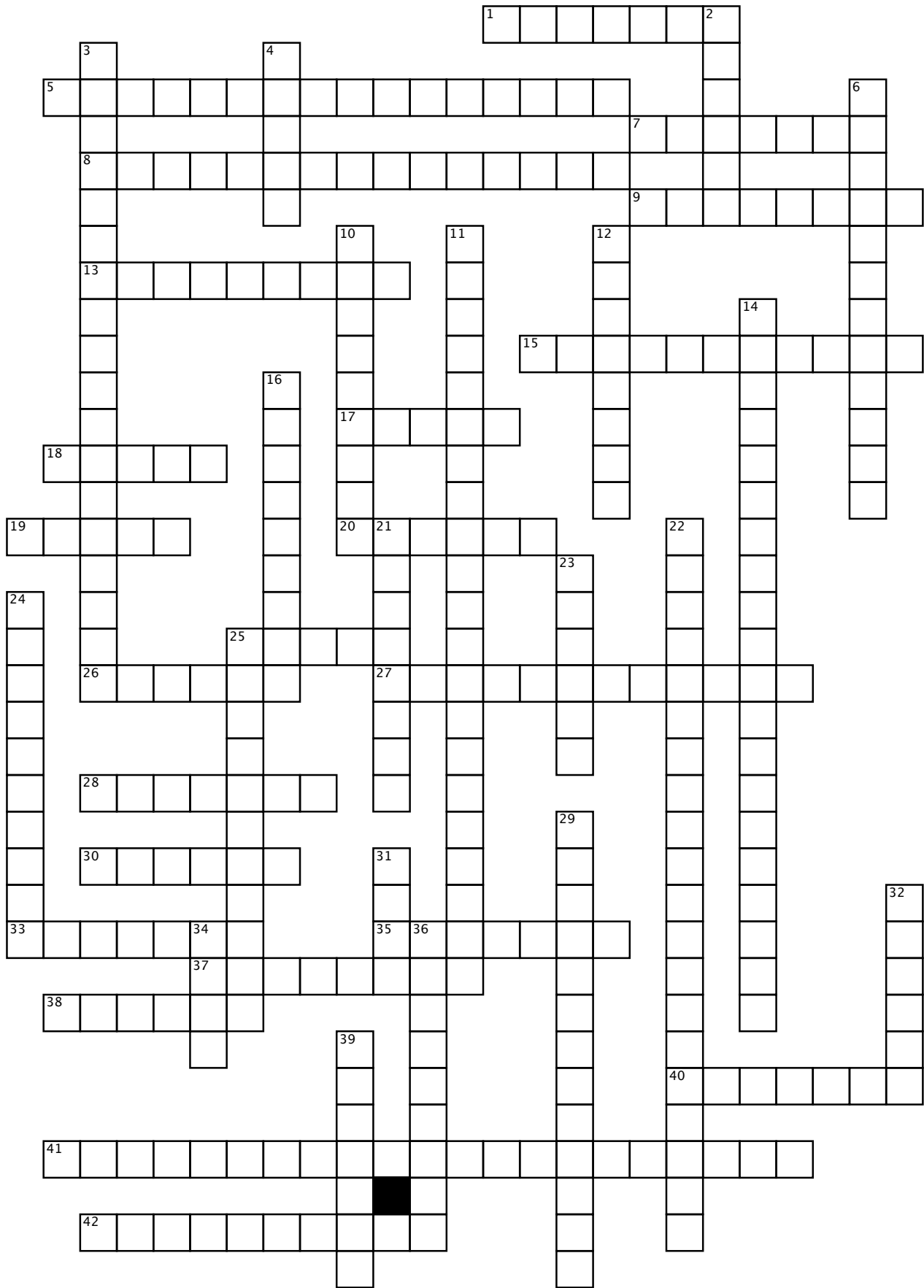
Complete the crossword puzzle.

Across

1. a protein-digesting enzyme produced from trypsinogen
5. the movement of materials across a cell membrane without any expenditure of the cell's energy (two words)
7. a hormone that stimulates the release of hydrochloric acid and pepsinogen in the stomach
8. the transportation of materials through a cell membrane using energy from the cell (two words)
9. loose or watery feces
13. any medical procedure that uses an endoscope to look inside the body
15. the rhythmic, involuntary wavelike contractions of the smooth muscles of the gastrointestinal tract
17. the longest part of the large intestine
18. a lesion or open sore on the epithelium of an organ
19. a blind pouch at the upper end of the large intestine
20. the lower 20 cm of the large intestine, generally referred to as the lower bowel, where feces are stored
25. a protective secretion produced by the epithelial cells that form the mucous membrane
26. the expulsion of stomach contents through the esophagus and the mouth; also known as vomiting
27. a lipid composed of glycerol and three fatty acids that are bonded together
28. a chemical signal or messenger molecule, circulated throughout the body and used to coordinate cellular functions
30. a protein-digesting enzyme produced in the stomach
33. an element, such as calcium and phosphorus, required by the body in small amounts; plays a role in cell processes and repair
35. a lymphatic vessel within a villus, through which digested fats enter the circulatory system
37. a chemical that must be obtained by an organism from its environment in order to survive; provides the raw material for growth and repair and may be a source of energy
38. a small, finger-like projection of the small intestine mucosa
40. an enzyme that breaks down complex carbohydrates
41. a difference in the number of molecules or ions of a substance in a given volume between adjoining areas (two words)
42. the metabolic reactions that break down larger molecules into smaller subunits

Down

2. the feeling associated with having the urge to vomit
3. the minimum amount of energy required to keep you alive (three words)
4. the undigested material that is eliminated as waste from the body
6. an enzyme of the small intestine that converts inactive trypsinogen into trypsin
10. the circular muscle that contracts to close an opening in the body
11. the passageway or tube that extends from the mouth to the anus and in which the process of digestion takes place (two words)
12. a hormone secreted by the duodenum that stimulates pancreatic and bile secretions
14. the diffusion of molecules across a cell membrane, via a transport protein (two words)
16. an organ consisting of a muscular tube that passes food from the pharynx to the stomach
21. the removal of waste materials from the body
22. a simple, sac-like digestive cavity that has only one opening through which food is taken in and wastes are expelled (two words)
23. any chemical produced by cells that facilitates biochemical reactions in the body, such as those involved in digestion and metabolism; all of these chemicals are proteins
24. the set of chemical reactions that occur in living organisms that are necessary to maintain life
25. a microscopic projection of the cell membrane of certain types of epithelial cells; greatly increases the surface area of the cell
29. the rate at which the body converts stored energy into working energy (two words)
31. a substance that emulsifies fats for faster breakdown by lipases; produced by the liver
32. an enzyme that digests lipids
34. the opening at the lower end of the large intestine through which digestive wastes are eliminated from the body
36. the metabolic reactions that use energy to produce larger molecules from smaller subunits
39. an organic molecule that the body requires in small amounts as an essential nutrient



The Respiratory System

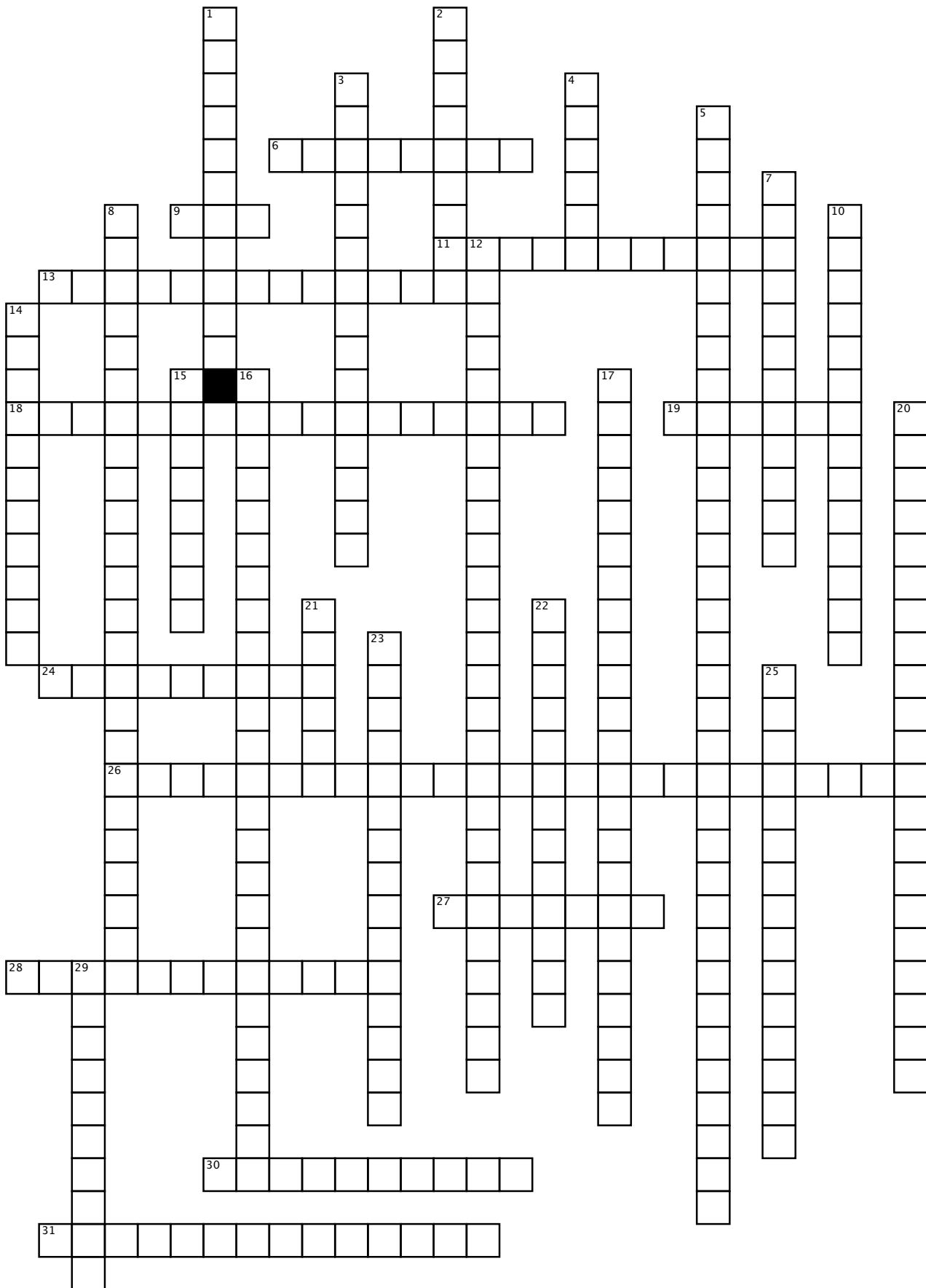
Complete the crossword puzzle.

Across

6. one of the two main branches of the trachea that leads towards the lungs
9. an estimated or measured value representing the rate at which oxygen is used in the body, measured in millilitres per kilogram per minute
11. the processes whereby the body cells obtain oxygen and get rid of carbon dioxide (two words)
13. the volume of air remaining in the lungs after a forced exhalation (two words)
18. the maximum volume of air that can be inhaled during a single breath (three words)
19. a chronic respiratory disease characterized by inflammation and swelling of the bronchi and bronchioles that obstructs airflow
24. an infection of the lungs that causes the alveoli to fill with pus and mucus, preventing gas exchange
26. a muscle that raises the rib cage, decreasing pressure inside the chest cavity (three words)
27. the tube leading from the mouth towards the lungs
28. a bacterial infection that damages the tissues of the lungs and interferes with gas exchange
30. the protein in red blood cells that bonds with oxygen and enables the transport of oxygen around the body
31. a category of drugs that interfere with the production of chemicals that cause inflammation (two words)
4. the maximum rate at which oxygen can be used in an individual, measured in millilitres per kilogram per minute
5. a chronic, progressive disease that involves both obstructive bronchitis and emphysema (four words)
7. a collapsed lung caused by the introduction of air between the pleural membranes
8. the volume of air that can be forcibly inhaled after a normal inhalation (three words)
10. the surgical procedure of replacing a diseased lung with part of or a whole healthy lung from a donor (two words)
12. the series of chemical reactions that occur in the cell that provide energy and consume oxygen (three words)
14. the process in more complex organisms that ensures a flow of oxygen-rich air to the lungs
15. a tiny sac at the end of a bronchiole that forms the respiratory membrane
16. a muscle that pulls the rib cage downward, increasing pressure inside the chest cavity (three words)
17. the volume of air that can be forcibly exhaled after a normal exhalation (three words)
20. a procedure that decreases the amount of constriction of the airways during an asthma attack by using thermal energy to reduce the muscle thickness in the bronchioles (two words)
21. the liquid component of blood in which blood cells are suspended
22. the maximum amount of air that can be inhaled or exhaled (two words)
23. the pressure of each of the individual gases that make up the total pressure of a mixture of gases (two words)
25. a thin layer of connective tissue that covers the outer surface of the lungs and lines the thoracic cavity (two words)
29. a tiny branch of a bronchus that connects to a cluster of alveoli

Down

1. the volume of air inhaled or exhaled during a normal, involuntary breath (two words)
2. a large sheet of muscle located beneath the lungs that is the primary muscle in breathing
3. the addition of a phosphate group to a molecule; in aerobic cellular respiration the phosphate group is added to ADP, creating the ATP molecule in which energy is stored



The Circulatory System

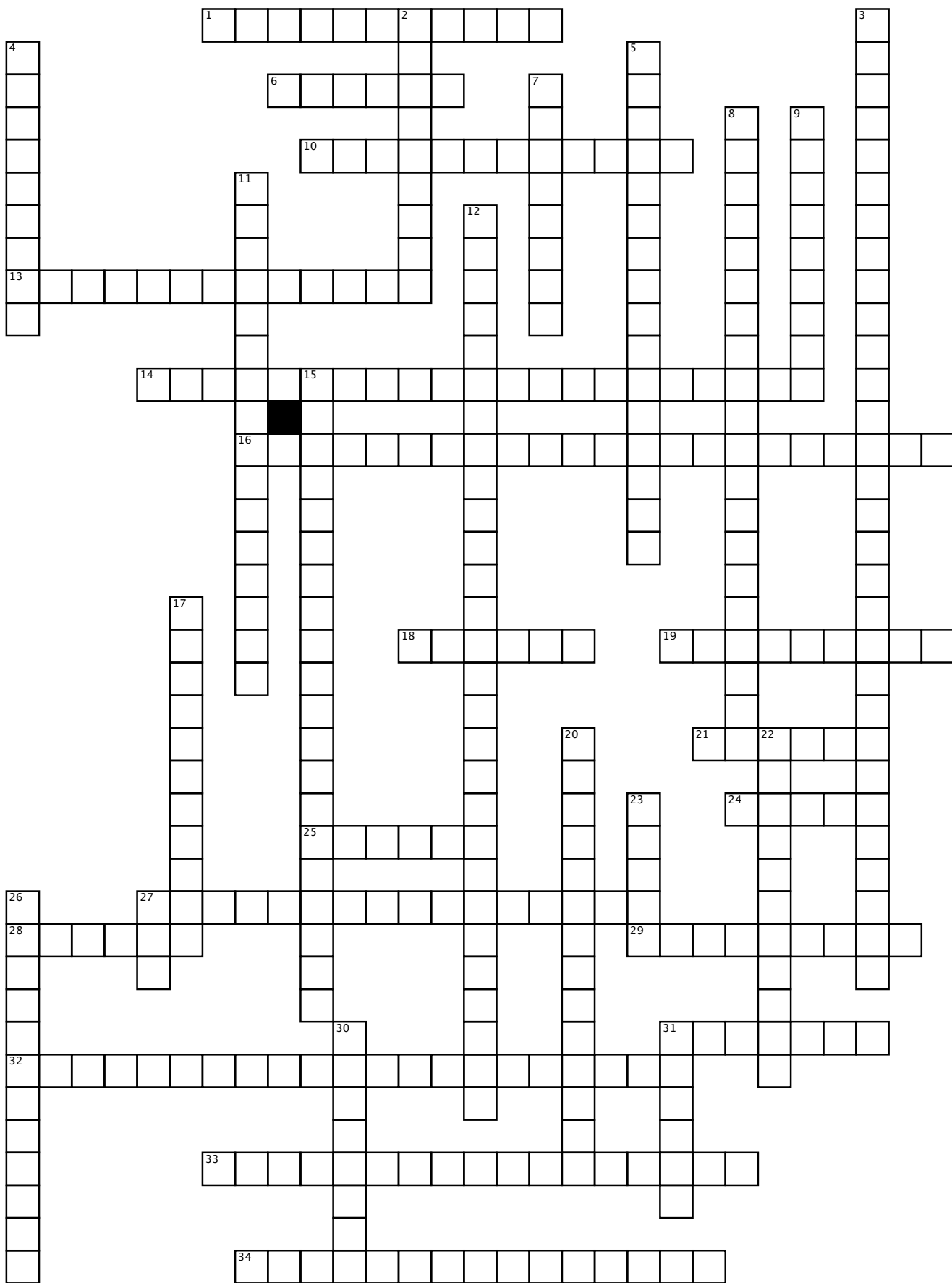
Complete the crossword puzzle.

Across

1. a medical procedure that opens up a blocked artery; it is often used to enlarge narrowed openings in coronary arteries
6. a glandular organ of the lymphatic system; secretes hormones to promote the maturity of lymphocytes
10. an increase in the diameter (dilation) of arterioles that increases the blood flow to tissues
13. a conducting fibre that carries the electrical signals from the AV node to the muscle cells of the ventricles (two words)
14. the buildup of plaque on or inside the walls of the coronary arteries (three words)
16. the insertion of a long thin tube called a catheter into the heart through an artery, usually the femoral or brachial artery (two words)
18. deposits of fat, cholesterol, calcium, and other materials on and in the walls of arteries
19. the smallest artery, with smooth muscle in its walls
21. a condition of a low erythrocyte count or a low hemoglobin level, which leads to low oxygen levels
24. tissue fluid collected in lymph vessels and returned to the blood
25. pain in the chest, left shoulder, arm, or neck caused by insufficient blood supply to the cardiac muscles
27. the part of the circulatory system that delivers blood to the lungs (two words)
28. a chamber of the heart that receives blood from the body
29. an X-ray image showing the outline of blood vessels through the use of an injected dye
31. the period of the cardiac cycle when the ventricles contract; blood is ejected from the ventricles
32. the valve located between each atrium and ventricle to prevent the backflow of blood from the ventricles to the atria (two words)
33. the blood pressure in the arteries when the heart relaxes (two words)
34. hardening of the arteries due to the buildup of plaque on or inside the walls of the arteries; the most common form of arteriosclerosis

Down

2. a white blood cell
3. an imaging technology that produces cross-sectional images from gamma rays emitted by a radioactive tracer injected into body tissues (four words)
4. a mixture of blood and tissue fluid that is the circulating fluid in an open circulatory system
5. a decrease in the diameter of arterioles that decreases the blood flow to tissues
7. a cell fragment in the blood that is necessary for blood clotting
8. the death of cardiac muscle tissue due to oxygen deprivation; also known as a heart attack (two words)
9. an enlargement in the lymph vessels that acts as a filter to remove bacteria and foreign particles (two words)
11. the loss of elasticity and hardening of the arteries that may be caused by a number of factors including hypertension, age, and plaque buildup
12. an imaging technology that produces images by using a magnetic field to change the orientation of hydrogen atoms in tissues (four words)
15. a mass of conducting cells that transmits the signals from the SA node to the muscles of the ventricles (two words)
17. a two-layered fluid-filled membrane that surrounds the heart and prevents friction between the heart and other tissues and organs
20. the valve located between the left ventricle and the aorta and the right ventricle and the pulmonary arteries to prevent the backflow of blood when the ventricles relax (two words)
22. a red blood cell
23. the largest blood vessel in the body, connected directly to the heart; it branches into arteries that carry oxygenated blood to the body tissues
26. the contractions and relaxations of the heart muscles during a complete heartbeat (two words)
27. a yellowish-white fluid formed in infected tissue, consisting of white blood cells and cellular debris
30. the period of the cardiac cycle when the ventricles are relaxed; blood fills the ventricles
31. a wall of tissue that divides a body cavity or structure into smaller parts; for example, the tissue dividing the ventricle of a mammal's heart into two cavities



Animals: Structure and Function

Complete the crossword puzzle.

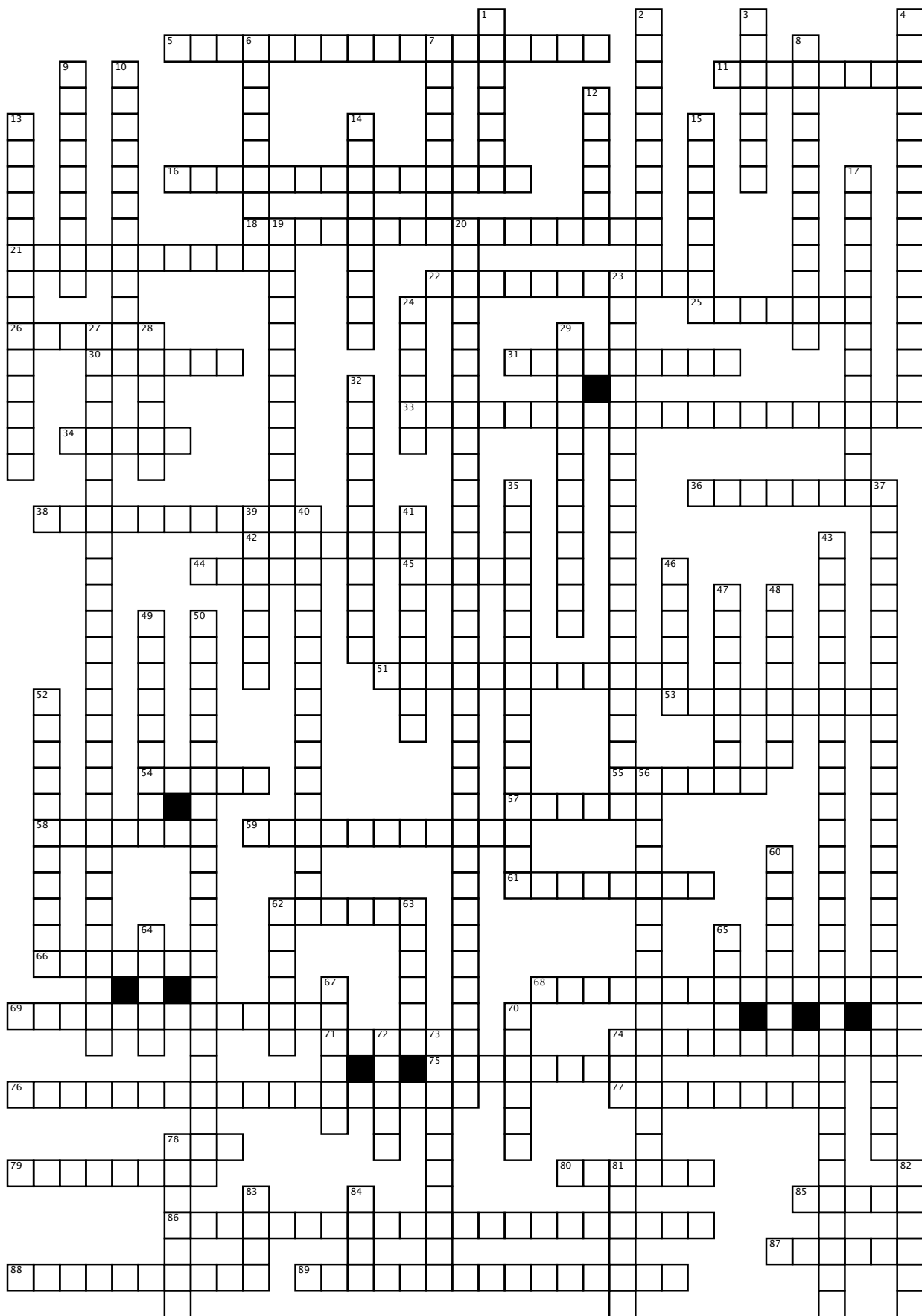
Across

5. the maximum volume of air that can be inhaled during a single breath (three words)
11. one of the two main branches of the trachea that leads towards the lungs
16. the surgical procedure of replacing a diseased lung with part of or a whole healthy lung from a donor (two words)
18. the loss of elasticity and hardening of the arteries that may be caused by a number of factors including hypertension, age, and plaque buildup
21. the volume of air inhaled or exhaled during a normal, involuntary breath (two words)
22. a red blood cell
25. a protein-digesting enzyme produced from trypsinogen
26. a condition of a low erythrocyte count or a low hemoglobin level, which leads to low oxygen levels
30. a chronic respiratory disease characterized by inflammation and swelling of the bronchi and bronchioles that obstructs airflow
31. the metabolic reactions that use energy to produce larger molecules from smaller subunits
33. the death of cardiac muscle tissue due to oxygen deprivation; also known as a heart attack (two words)
34. fluid the results when the cells, platelets, and fibrinogen have been removed from whole blood
36. loose or watery feces
38. a microscopic projection of the cell membrane of certain types of epithelial cells; greatly increases the surface area of the cell
42. an enzyme that breaks down complex carbohydrates
44. the undigested material that is eliminated as waste from the body
45. a lesion or open sore on the epithelium of an organ
51. consistent blood pressure above the range of normal values; also called high blood pressure
53. the smallest artery, with smooth muscle in its walls
54. a protective secretion produced by the epithelial cells that form the mucous membrane
55. the largest organ of the lymphatic system; acts as a filter and a reservoir of erythrocytes and leukocytes
57. the feeling associated with having the urge to vomit
58. the tube leading from the mouth towards the lungs
59. the processes whereby the body cells obtain oxygen and get rid of carbon dioxide (two words)
61. the removal of waste food materials from the body
62. the smallest vein; formed by the merging of capillaries
66. the period of the cardiac cycle when the ventricles contract; blood is ejected from the ventricles
68. hardening of the arteries due to the buildup of plaque on or inside the walls of the arteries; the most common form of arteriosclerosis
69. the rate at which the body converts stored energy into working energy (two words)
71. the liquid component of blood in which blood cells are suspended
74. a collapsed lung caused by the introduction of air between the pleural membranes
75. an organ consisting of a muscular tube that passes food from the pharynx to the stomach
76. the minimum amount of energy required to keep you alive (three words)
77. the circular muscle that contracts to close an opening in the body
78. an estimated or measured value representing the rate at which oxygen is used in the body, measured in millilitres per kilogram per minute
79. a hormone secreted by the duodenum that stimulates pancreatic and bile secretions
84. a wall of tissue that divides a body cavity or structure into smaller parts; for example, the tissue dividing the ventricle of a mammal's heart into two cavities
85. tissue fluid collected in lymph vessels and returned to the blood
86. the valve located between each atrium and ventricle to prevent the backflow of blood from the ventricles to the atria (two words)
87. the lower 20 cm of the large intestine, generally referred to as the lower bowel, where feces are stored
88. a tiny branch of a bronchus that connects to a cluster of alveoli
89. the part of the circulatory system that delivers blood around the body (two words)

Down

1. a hormone that stimulates the release of hydrochloric acid and pepsinogen in the stomach
2. a medical procedure that opens up a blocked artery; it is often used to enlarge narrowed openings in coronary arteries
3. a chemical signal or messenger molecule, circulated throughout the body and used to coordinate cellular functions
4. a decrease in the diameter of arterioles that decreases the blood flow to tissues

6. an X-ray image showing the outline of blood vessels through the use of an injected dye
7. a tiny sac at the end of a bronchiole that forms the respiratory membrane
8. an enzyme of the small intestine that converts inactive trypsinogen into trypsin
9. an enlargement in the lymph vessels that acts as a filter to remove bacteria and foreign particles (two words)
10. a bacterial infection that damages the tissues of the lungs and interferes with gas exchange
12. a small, finger-like projection of the small intestine mucosa
13. a mass of muscle and nerve cells in the right atrium; initiates the heartbeat and maintains the regular rhythm (two words)
14. a chamber of the heart that pumps blood to the body
15. a cell fragment in the blood that is necessary for blood clotting
17. a conducting fibre that carries the electrical signals from the AV node to the muscle cells of the ventricles (two words)
19. the volume of air remaining in the lungs after a forced exhalation (two words)
20. a chronic, progressive disease that involves both obstructive bronchitis and emphysema (four words)
23. the buildup of plaque on or inside the walls of the coronary arteries (three words)
24. any chemical produced by cells that facilitates biochemical reactions in the body, such as those involved in digestion and metabolism; all of these chemicals are proteins
27. an imaging technology that produces images by using a magnetic field to change the orientation of hydrogen atoms in tissues (four words)
28. a chamber of the heart that receives blood from the body
29. the contractions and relaxations of the heart muscles during a complete heartbeat (two words)
32. the process in more complex organisms that ensures a flow of oxygen-rich air to the lungs
35. tendons that support the atrioventricular valves (two words)
37. the series of chemical reactions that occur in the cell that provide energy and consume oxygen (three words)
39. a lymphatic vessel within a villus, through which digested fats enter the circulatory system
40. the blood pressure in the arteries when the heart contracts (two words)
41. a white blood cell
43. an imaging technology that produces cross-sectional images from gamma rays emitted by a radioactive tracer injected into body tissues (four words)
46. pain in the chest, left shoulder, arm, or neck caused by insufficient blood supply to the cardiac muscles
47. the period of the cardiac cycle when the ventricles are relaxed; blood fills the ventricles
48. an element, such as calcium and phosphorus, required by the body in small amounts; plays a role in cell processes and repair
49. a mixture of blood and tissue fluid that is the circulating fluid in an open circulatory system
50. the insertion of a long thin tube called a catheter into the heart through an artery, usually the femoral or brachial artery (two words)
52. the rhythmic, involuntary wavelike contractions of the smooth muscles of the gastrointestinal tract
56. the movement of materials across a cell membrane without any expenditure of the cell's energy (two words)
60. a chemical that must be obtained by an organism from its environment in order to survive; provides the raw material for growth and repair and may be a source of energy
62. the maximum rate at which oxygen can be used in an individual, measured in millilitres per kilogram per minute
63. the expulsion of stomach contents through the esophagus and the mouth; also known as vomiting
64. the longest part of the large intestine
65. a blind pouch at the upper end of the large intestine
67. a protein-digesting enzyme produced in the stomach
70. an enzyme that digests lipids
72. the largest blood vessel in the body, connected directly to the heart; it branches into arteries that carry oxygenated blood to the body tissues
73. the set of chemical reactions that occur in living organisms that are necessary to maintain life
74. a yellowish-white fluid formed in infected tissue, consisting of white blood cells and cellular debris
78. an organic molecule that the body requires in small amounts as an essential nutrient
81. deposits of fat, cholesterol, calcium, and other materials on and in the walls of arteries
82. a glandular organ of the lymphatic system; secretes hormones to promote the maturity of lymphocytes
83. a substance that emulsifies fats for faster breakdown by lipases; produced by the liver
84. the opening at the lower end of the large intestine through which digestive wastes are eliminated from the body



Nutrition and the Digestive System

Find the words in the puzzle.

- a protein-digesting enzyme produced from trypsinogen
- the movement of materials across a cell membrane without any expenditure of the cell's energy (two words)
- a hormone that stimulates the release of hydrochloric acid and pepsinogen in the stomach
- the transportation of materials through a cell membrane using energy from the cell (two words)
- loose or watery feces
- any medical procedure that uses an endoscope to look inside the body
- the rhythmic, involuntary wavelike contractions of the smooth muscles of the gastrointestinal tract
- the longest part of the large intestine
- a lesion or open sore on the epithelium of an organ
- a blind pouch at the upper end of the large intestine
- the lower 20 cm of the large intestine, generally referred to as the lower bowel, where feces are stored
- a protective secretion produced by the epithelial cells that form the mucous membrane
- the expulsion of stomach contents through the esophagus and the mouth; also known as vomiting
- a lipid composed of glycerol and three fatty acids that are bonded together
- a chemical signal or messenger molecule, circulated throughout the body and used to coordinate cellular functions
- a protein-digesting enzyme produced in the stomach
- an element, such as calcium and phosphorus, required by the body in small amounts; plays a role in cell processes and repair
- a lymphatic vessel within a villus, through which digested fats enter the circulatory system
- a chemical that must be obtained by an organism from its environment in order to survive; provides the raw material for growth and repair and may be a source of energy
- a small, finger-like projection of the small intestine mucosa
- an enzyme that breaks down complex carbohydrates
- a difference in the number of molecules or ions of a substance in a given volume between adjoining areas (two words)
- the metabolic reactions that break down larger molecules into smaller subunits
- the feeling associated with having the urge to vomit
- the minimum amount of energy required to keep you alive (three words)
- the undigested material that is eliminated as waste from the body
- an enzyme of the small intestine that converts inactive trypsinogen into trypsin
- the circular muscle that contracts to close an opening in the body
- the passageway or tube that extends from the mouth to the anus and in which the process of digestion takes place (two words)
- a hormone secreted by the duodenum that stimulates pancreatic and bile secretions
- the diffusion of molecules across a cell membrane, via a transport protein (two words)
- an organ consisting of a muscular tube that passes food from the pharynx to the stomach
- the removal of waste materials from the body
- a simple, sac-like digestive cavity that has only one opening through which food is taken in and wastes are expelled (two words)
- any chemical produced by cells that facilitates biochemical reactions in the body, such as those involved in digestion and metabolism; all of these chemicals are proteins
- the set of chemical reactions that occur in living organisms that are necessary to maintain life
- a microscopic projection of the cell membrane of certain types of epithelial cells; greatly increases the surface area of the cell
- the rate at which the body converts stored energy into working energy (two words)
- a substance that emulsifies fats for faster breakdown by lipases; produced by the liver
- an enzyme that digests lipids
- the opening at the lower end of the large intestine through which digestive wastes are eliminated from the body
- the metabolic reactions that use energy to produce larger molecules from smaller subunits
- an organic molecule that the body requires in small amounts as an essential nutrient

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| V | Y | A | I | T | V | C | N | M | F | P | C | I | L | J | K | E | V | D | U | N | B | I | L | E |
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The Respiratory System

Find the words in the puzzle.

- one of the two main branches of the trachea that leads towards the lungs
- an estimated or measured value representing the rate at which oxygen is used in the body, measured in millilitres per kilogram per minute
- the processes whereby the body cells obtain oxygen and get rid of carbon dioxide (two words)
- the volume of air remaining in the lungs after a forced exhalation (two words)
- the maximum volume of air that can be inhaled during a single breath (three words)
- a chronic respiratory disease characterized by inflammation and swelling of the bronchi and bronchioles that obstructs airflow
- an infection of the lungs that causes the alveoli to fill with pus and mucus, preventing gas exchange
- a muscle that raises the rib cage, decreasing pressure inside the chest cavity (three words)
- the tube leading from the mouth towards the lungs
- a bacterial infection that damages the tissues of the lungs and interferes with gas exchange
- the protein in red blood cells that bonds with oxygen and enables the transport of oxygen around the body
- a category of drugs that interfere with the production of chemicals that cause inflammation (two words)
- the volume of air inhaled or exhaled during a normal, involuntary breath (two words)
- a large sheet of muscle located beneath the lungs that is the primary muscle in breathing
- the addition of a phosphate group to a molecule; in aerobic cellular respiration the phosphate group is added to ADP, creating the ATP molecule in which energy is stored
- the maximum rate at which oxygen can be used in an individual, measured in millilitres per kilogram per minute
- a chronic, progressive disease that involves both obstructive bronchitis and emphysema (four words)
- a collapsed lung caused by the introduction of air between the pleural membranes
- the volume of air that can be forcibly inhaled after a normal inhalation (three words)
- the surgical procedure of replacing a diseased lung with part of or a whole healthy lung from a donor (two words)
- the series of chemical reactions that occur in the cell that provide energy and consume oxygen (three words)
- the process in more complex organisms that ensures a flow of oxygen-rich air to the lungs
- a tiny sac at the end of a bronchiole that forms the respiratory membrane
- a muscle that pulls the rib cage downward, increasing pressure inside the chest cavity (three words)
- the volume of air that can be forcibly exhaled after a normal exhalation (three words)
- a procedure that decreases the amount of constriction of the airways during an asthma attack by using thermal energy to reduce the muscle thickness in the bronchioles (two words)
- the liquid component of blood in which blood cells are suspended
- the maximum amount of air that can be inhaled or exhaled (two words)
- the pressure of each of the individual gases that make up the total pressure of a mixture of gases (two words)
- a thin layer of connective tissue that covers the outer surface of the lungs and lines the thoracic cavity (two words)
- a tiny branch of a bronchus that connects to a cluster of alveoli

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| D | X | M | L | E | A | H | J | W | J | S | B | F | J | U | Y | W | F | W | E | J | P | T | B | C | X | R | F |
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| X | S | M | V | J | Z | A | A | E | T | O | A | Y | U | B | J | A | W | E | B | N | A | C | S | Q | T | I | W |
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The Circulatory System

Find the words in the puzzle.

- a medical procedure that opens up a blocked artery; it is often used to enlarge narrowed openings in coronary arteries
- a glandular organ of the lymphatic system; secretes hormones to promote the maturity of lymphocytes
- an increase in the diameter (dilation) of arterioles that increases the blood flow to tissues
- a conducting fibre that carries the electrical signals from the AV node to the muscle cells of the ventricles (two words)
- the buildup of plaque on or inside the walls of the coronary arteries (three words)
- the insertion of a long thin tube called a catheter into the heart through an artery, usually the femoral or brachial artery (two words)
- deposits of fat, cholesterol, calcium, and other materials on and in the walls of arteries
- the smallest artery, with smooth muscle in its walls
- a condition of a low erythropocyte count or a low hemoglobin level, which leads to low oxygen levels
- tissue fluid collected in lymph vessels and returned to the blood
- pain in the chest, left shoulder, arm, or neck caused by insufficient blood supply to the cardiac muscles
- the part of the circulatory system that delivers blood to the lungs (two words)
- a chamber of the heart that receives blood from the body
- an X-ray image showing the outline of blood vessels through the use of an injected dye
- the period of the cardiac cycle when the ventricles contract; blood is ejected from the ventricles
- the valve located between each atrium and ventricle to prevent the backflow of blood from the ventricles to the atria (two words)
- the blood pressure in the arteries when the heart relaxes (two words)
- hardening of the arteries due to the buildup of plaque on or inside the walls of the arteries; the most common form of arteriosclerosis
- a white blood cell
- an imaging technology that produces cross-sectional images from gamma rays emitted by a radioactive tracer injected into body tissues (four words)
- a mixture of blood and tissue fluid that is the circulating fluid in an open circulatory system
- a decrease in the diameter of arterioles that decreases the blood flow to tissues
- a cell fragment in the blood that is necessary for blood clotting
- the death of cardiac muscle tissue due to oxygen deprivation; also known as a heart attack (two words)
- an enlargement in the lymph vessels that acts as a filter to remove bacteria and foreign particles (two words)
- the loss of elasticity and hardening of the arteries that may be caused by a number of factors including hypertension, age, and plaque buildup
- an imaging technology that produces images by using a magnetic field to change the orientation of hydrogen atoms in tissues (four words)
- a mass of conducting cells that transmits the signals from the SA node to the muscles of the ventricles (two words)
- a two-layered fluid-filled membrane that surrounds the heart and prevents friction between the heart and other tissues and organs
- the valve located between the left ventricle and the aorta and the right ventricle and the pulmonary arteries to prevent the backflow of blood when the ventricles relax (two words)
- a red blood cell
- the largest blood vessel in the body, connected directly to the heart; it branches into arteries that carry oxygenated blood to the body tissues
- the contractions and relaxations of the heart muscles during a complete heartbeat (two words)
- a yellowish-white fluid formed in infected tissue, consisting of white blood cells and cellular debris
- the period of the cardiac cycle when the ventricles are relaxed; blood fills the ventricles
- a wall of tissue that divides a body cavity or structure into smaller parts; for example, the tissue dividing the ventricle of a mammal's heart into two cavities

L J L T U U N R S Q M Z S V L B N K W E B U T X Q F V S N
 N L Q M Z K A E T Y L O S P Z X V Y F G I D I Z J F K L R
 A B M Q E T H Y M U S W V J I C H G A C U Z F N Q K Y C C
 C G S V L D I A S T O L E F D E M P Y O N T I F J M A E V
 S Y G Q X P C N P C Y F M X M F P D P R O D C F P A K L T
 G V O I B J M R U P U E Z O Y S W Q U O I G Z H Q H X O U
 N C B T G W N O X D K T L F Z F N Q R N T T H E I J T T R
 I I L C H C C Y Q Q I Y J Z Y X M J K A A M V P C M R S S
 G E V U A Q E M Z H M C K W F K K N I R L G N A T M B Y I
 A V B H P R C Q V P V O V J J H K W N Y I N S R R A W S S
 M L Z G O B D I H N R K S O M Z S N J A D O S T P R V B O
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 C R W M T W S E M C E L W O P L E Z I E A C Y I C I V A L
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 O L O N E W T A T T U H Z H W I D C P I D S O L I S B V R
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 N C I L T K E V D U N E K D K H J V E D I T D L S W B C V
 G K G U O T E J M T J Y T S A L P O I G N A I T O E C I A
 A D L Y M P H N O D E W L V F P Q M G Y W M P O R X O R W
 M A H M O K B G W U H C R L F H L S E B K I D Y N F G T I
 K Z Y H G Z T A T R I O V E N T R I C U L A R N O D E N P
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 Y S Z T P M U T P E S P Q N T I P Z V O N L A V B T E O B
 J N S W H D S H F C Q P G E W Y M Q T S K Z Y C P I G I Z
 R U F G Y F G M E I Q I A F X X V H J H X Q F S C F D R U
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 Y X D P N J H B R U R P N R K G P H H M Y A N E M I A Z Y
 Z Y F I B T M O L C V Y C I A N E R Y T H R O C Y T E K S

Animals: Structure and Function

Find the words in the puzzle.

- the maximum volume of air that can be inhaled during a single breath (three words)
- one of the two main branches of the trachea that leads towards the lungs
- the surgical procedure of replacing a diseased lung with part of or a whole healthy lung from a donor (two words)
- the loss of elasticity and hardening of the arteries that may be caused by a number of factors including hypertension, age, and plaque buildup
- the volume of air inhaled or exhaled during a normal, involuntary breath (two words)
- a red blood cell
- a protein-digesting enzyme produced from trypsinogen
- a condition of a low erythrocyte count or a low hemoglobin level, which leads to low oxygen levels
- a chronic respiratory disease characterized by inflammation and swelling of the bronchi and bronchioles that obstructs airflow
- the metabolic reactions that use energy to produce larger molecules from smaller subunits
- the death of cardiac muscle tissue due to oxygen deprivation; also known as a heart attack (two words)
- fluid the results when the cells, platelets, and fibrinogen have been removed from whole blood
- loose or watery feces
- a microscopic projection of the cell membrane of certain types of epithelial cells; greatly increases the surface area of the cell
- an enzyme that breaks down complex carbohydrates
- the undigested material that is eliminated as waste from the body
- a lesion or open sore on the epithelium of an organ
- consistent blood pressure above the range of normal values; also called high blood pressure
- the smallest artery, with smooth muscle in its walls
- a protective secretion produced by the epithelial cells that form the mucous membrane
- the largest organ of the lymphatic system; acts as a filter and a reservoir of erythrocytes and leukocytes
- the feeling associated with having the urge to vomit
- the tube leading from the mouth towards the lungs
- the processes whereby the body cells obtain oxygen and get rid of carbon dioxide (two words)
- the removal of waste food materials from the body
- the smallest vein; formed by the merging of capillaries
- the period of the cardiac cycle when the ventricles contract; blood is ejected from the ventricles
- hardening of the arteries due to the buildup of plaque on or inside the walls of the arteries; the most common form of arteriosclerosis
- the rate at which the body converts stored energy into working energy (two words)
- the liquid component of blood in which blood cells are suspended
- a collapsed lung caused by the introduction of air between the pleural membranes
- an organ consisting of a muscular tube that passes food from the pharynx to the stomach
- the minimum amount of energy required to keep you alive (three words)
- the circular muscle that contracts to close an opening in the body
- an estimated or measured value representing the rate at which oxygen is used in the body, measured in millilitres per kilogram per minute
- a hormone secreted by the duodenum that stimulates pancreatic and bile secretions
- a wall of tissue that divides a body cavity or structure into smaller parts; for example, the tissue dividing the ventricle of a mammal's heart into two cavities
- tissue fluid collected in lymph vessels and returned to the blood
- the valve located between each atrium and ventricle to prevent the backflow of blood from the ventricles to the atria (two words)
- the lower 20 cm of the large intestine, generally referred to as the lower bowel, where feces are stored
- a tiny branch of a bronchus that connects to a cluster of alveoli
- the part of the circulatory system that delivers blood around the body (two words)
- a hormone that stimulates the release of hydrochloric acid and pepsinogen in the stomach
- a medical procedure that opens up a blocked artery; it is often used to enlarge narrowed openings in coronary arteries
- a chemical signal or messenger molecule, circulated throughout the body and used to coordinate cellular functions
- a decrease in the diameter of arterioles that decreases the blood flow to tissues
- an X-ray image showing the outline of blood vessels through the use of an injected dye
- a tiny sac at the end of a bronchiole that forms the respiratory membrane
- an enzyme of the small intestine that converts inactive trypsinogen into trypsin
- an enlargement in the lymph vessels that acts as a filter to remove bacteria and foreign particles (two words)
- a bacterial infection that damages the tissues of the lungs and interferes with gas exchange
- a small, finger-like projection of the small intestine mucosa
- a mass of muscle and nerve cells in the right atrium; initiates the heartbeat and maintains the regular rhythm (two words)
- a chamber of the heart that pumps blood to the body
- a cell fragment in the blood that is necessary for blood clotting
- a conducting fibre that carries the electrical signals from the AV node to the muscle cells of the ventricles (two words)
- the volume of air remaining in the lungs after a forced exhalation (two words)
- a chronic, progressive disease that involves both obstructive bronchitis and emphysema (four words)
- the buildup of plaque on or inside the walls of the coronary arteries (three words)
- any chemical produced by cells that facilitates biochemical reactions in the body, such as those involved in digestion and metabolism; all of these chemicals are proteins
- an imaging technology that produces images by using a magnetic field to change the orientation of hydrogen atoms in tissues (four words)
- a chamber of the heart that receives blood from the body
- the contractions and relaxations of the heart muscles during a complete heartbeat (two words)
- the process in more complex organisms that ensures a flow of oxygen-rich air to the lungs
- tendons that support the atrioventricular valves (two words)
- the series of chemical reactions that occur in the cell that provide energy and consume oxygen (three words)
- a lymphatic vessel within a villus, through which digested fats enter the circulatory system
- the blood pressure in the arteries when the heart contracts (two words)
- a white blood cell
- an imaging technology that produces cross-sectional images from gamma rays emitted by a radioactive tracer injected into body tissues (four words)
- pain in the chest, left shoulder, arm, or neck caused by insufficient blood supply to the cardiac muscles
- the period of the cardiac cycle when the ventricles are relaxed; blood fills the ventricles
- an element, such as calcium and phosphorus, required by the body in small amounts; plays a role in cell processes and repair
- a mixture of blood and tissue fluid that is the circulating fluid in an open circulatory system
- the insertion of a long thin tube called a catheter into the heart through an artery, usually the femoral or brachial artery (two words)
- the rhythmic, involuntary wavelike contractions of the smooth muscles of the gastrointestinal tract
- the movement of materials across a cell membrane without any expenditure of the cell's energy (two words)
- a chemical that must be obtained by an organism from its environment in order to survive; provides the raw material for growth and repair and may be a source of energy
- the maximum rate at which oxygen can be used in an individual, measured in millilitres per kilogram per minute
- the expulsion of stomach contents through the esophagus and the mouth; also known as vomiting
- the longest part of the large intestine
- a blind pouch at the upper end of the large intestine
- a protein-digesting enzyme produced in the stomach
- an enzyme that digests lipids
- the largest blood vessel in the body, connected directly to the heart; it branches into arteries that carry oxygenated blood to the body tissues
- the set of chemical reactions that occur in living organisms that are necessary to maintain life
- a yellowish-white fluid formed in infected tissue, consisting of white blood cells and cellular debris
- an organic molecule that the body requires in small amounts as an essential nutrient
- deposits of fat, cholesterol, calcium, and other materials on and in the walls of arteries
- a glandular organ of the lymphatic system; secretes hormones to promote the maturity of lymphocytes
- a substance that emulsifies fats for faster breakdown by lipases; produced by the liver
- the opening at the lower end of the large intestine through which digestive wastes are eliminated from the body

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| L | C | E | M | A | I | P | P | E | I | M | U | T | P | E | S | S | V | A | Y | E | U | N | H | C | C | S | I | S | E | M | E | U | E | U |
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The Importance of Plants

Complete the crossword puzzle.

Across

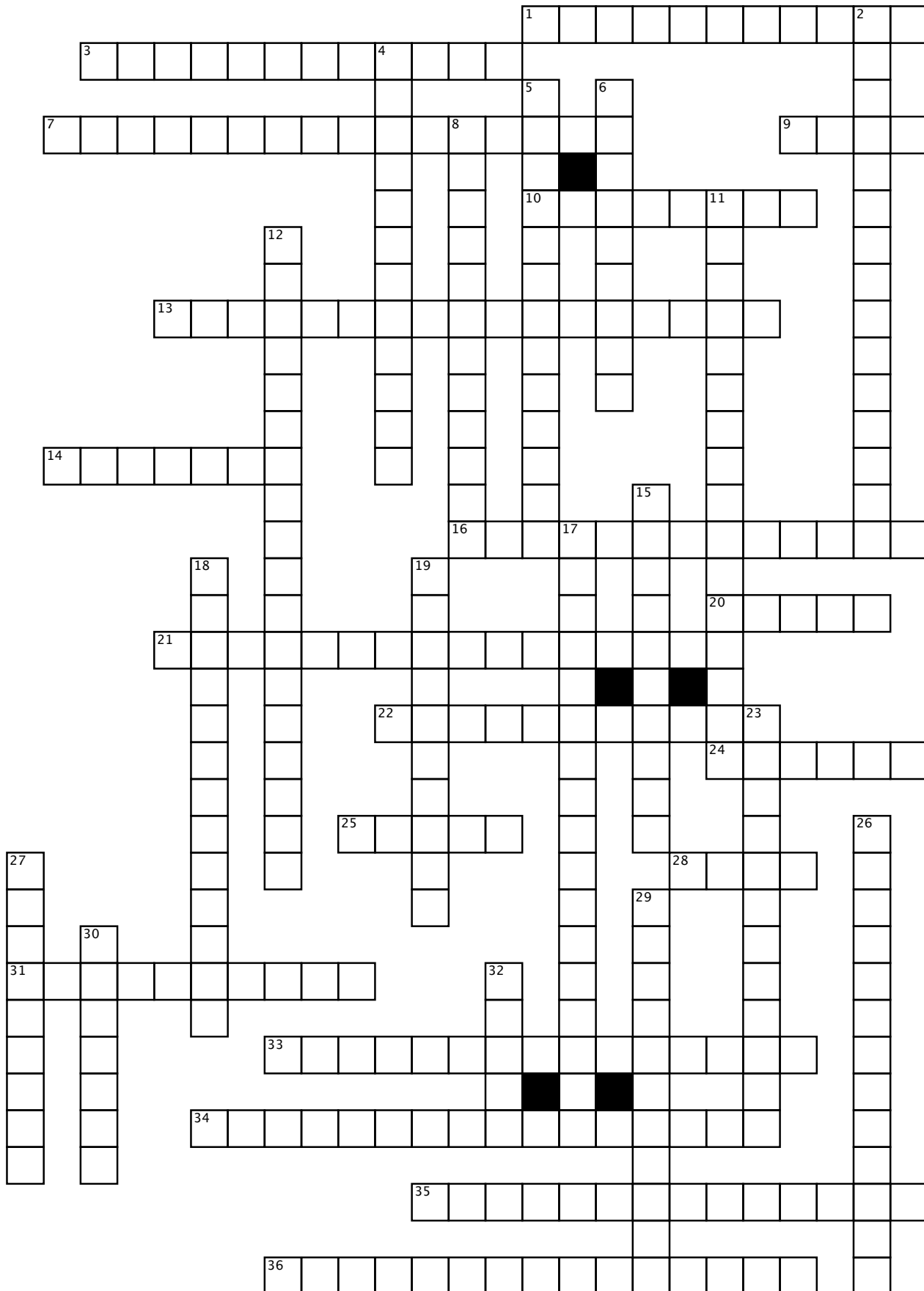
1. an organelle found in large numbers in many plant cells; the site of photosynthesis within a plant cell
3. a molecule that contains only atoms of carbon, hydrogen, and oxygen in a ratio of 1:2:1
7. perforated end wall of a vessel element (two words)
9. plant cell with a low concentration of sugars; sugars may be converted to starch for storage or used rapidly for energy or as building blocks of other carbohydrates
10. microscopic extension of the epidermal cells of the root (two words)
13. root system made up of many small, branching roots (three words)
14. the stalk that attaches the leaf blade to the plant stem
16. small, nucleated phloem cell that is always associated with a sieve tube element (two words)
20. opening in leaves through which gases pass in and out of the leaves; also called stomate
21. central portion of a root that contains the xylem and phloem (two words)
22. smaller root that branches from a larger root (two words)
24. pressure caused by the fluid contents of the central vacuole, which pushes against the wall of a plant cell
25. describes plants with stems that contain wood
28. the protective, outermost layer of the stems and roots of woody plants; consists of phloem, cork cambium, and cork
31. a region of parenchyma cells under the epidermis of a root (two words)
33. the tendency of a liquid to rise or fall because of attractive forces between the liquid molecules (two words)
34. a phloem cell with pores in its side cell walls and a sieve plate at the end walls; lacks organelles and depends on associated companion cells (three words)

35. wax-like strip that runs through the cell wall of an endodermal cell (two words)

36. meristematic cell layer in vascular tissue (two words)

Down

2. layer of loosely packed photosynthetic cells with large air spaces between them under the lower surface of a leaf on a terrestrial plant; part of the mesophyll (two words)
4. the osmotic force pushing xylem sap upward in root vascular tissue (two words)
5. root system composed of a large, thick root; can have smaller lateral roots (two words)
6. the photosynthetic middle layer of cells in the leaf of a terrestrial plant
8. alters the mind
11. root that develops from somewhere other than the root apical meristem that emerges from the seed (two words)
12. tissue consisting of dividing undifferentiated cells found in areas of the plant where growth can take place (two words)
15. innermost layer of cells in the cortex of a root
17. layer of elongated photosynthetic cells arranged in columns under the upper surface of a leaf on a terrestrial plant; part of the mesophyll (two words)
18. long-distance transport of substances through the phloem, particularly glucose
19. describes plants with stems that do not have wood
23. a lateral root specialized to store carbohydrates (two words)
26. evaporation of water through the stomata of plant leaves
27. one of two kidney-shaped cells that control the opening and closing of a stoma (two words)
29. meristematic cell layer in a woody plant that produces cork (two words)
30. mass of cells that form a protective covering for the meristem at the root tip (two words)
32. the flat part of a leaf



Succession, Reproduction, and Sustainability

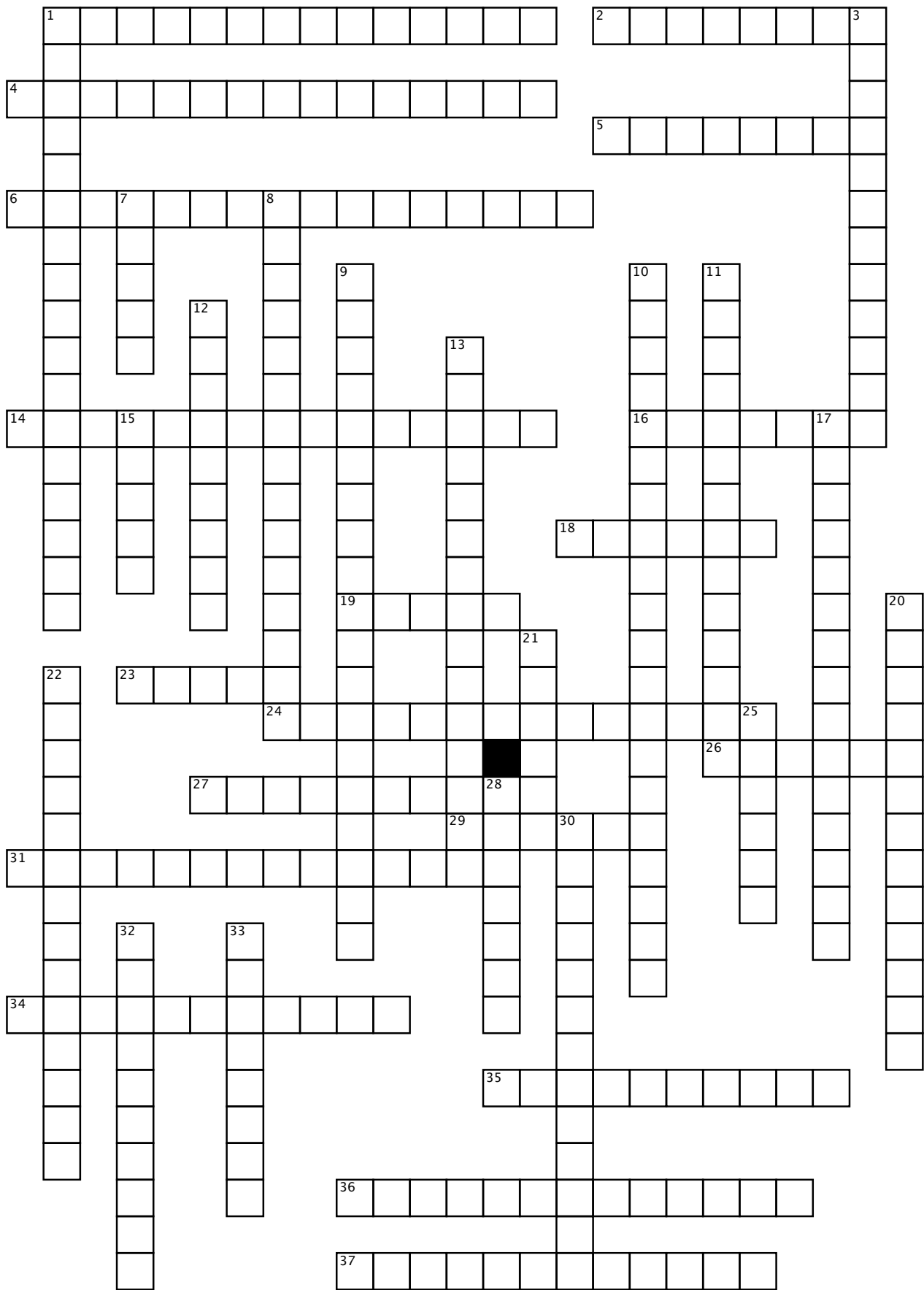
Complete the crossword puzzle.

Across

1. first species to colonize an area during succession (two words)
2. fruit wall, which develops from the ovary wall of a fertilized angiosperm carpel
4. the process of cell specialization
5. thin stalk that supports the anther
6. transfer of pollen grains from one plant to another
14. transfer of pollen from one flower to another on the same plant
16. a directional change in growth or movement in response to a stimulus
18. the process of cell enlargement
19. the detached young branch from a plant
23. stalk that leads to the ovary
24. plant nutrients needed in large quantities
26. sticky surface on top of the style
27. developmental events in a plant tissue or organ from maturity to death
29. female reproductive floral part, comprising a stigma, style, ovary, and ovule
31. plant tissue composed of actively dividing cells; responsible for primary growth and located at the tip of the root(s) and shoot(s) of a plant (two words)
34. the transfer of pollen grains to an ovule
35. the gradual change over time in the species that form a community
36. a directional change in growth pattern in response to touch
37. a directional change in growth pattern in response to gravity

Down

1. succession in an area that has no plants, animals, or soil (two words)
3. a change in direction of a growing plant in response to light
7. the plant onto which a scion is grafted
8. plant tissue consisting of actively dividing cells that produce secondary growth (two words)
9. succession in an ecosystem that has been disturbed by a natural event or human activity (two words)
10. chemical produced by plant cells that regulates growth and differentiation (three words)
11. plant nutrients needed in small quantities
12. nutritive tissue in an angiosperm seed
13. the condition in which most shoot growth arises from the apical bud and not lateral buds (two words)
15. mature ovary of an angiosperm, which contains the seed(s)
17. growth that occurs from lateral meristems and results in an increase in girth (two words)
20. plant growth originating from the apical meristems throughout the life of the plant; results in increases in length and any growth in the diameter of stems and roots that occurs in the first year (two words)
21. floral organ that produces pollen
22. a plant's response to changing day length
25. male reproductive floral part, comprising an anther and a filament
28. plant tissue consisting of actively dividing cells that produce secondary growth
30. molecule that detects light; different molecules detect different wavelengths of light
32. a hollow tube that grows out of a pollen grain and carries the pollen nucleus to the female sex cell (two words)
33. attaching a young branch from one plant to the stem and root of another plant



Plants: Anatomy, Growth, and Function

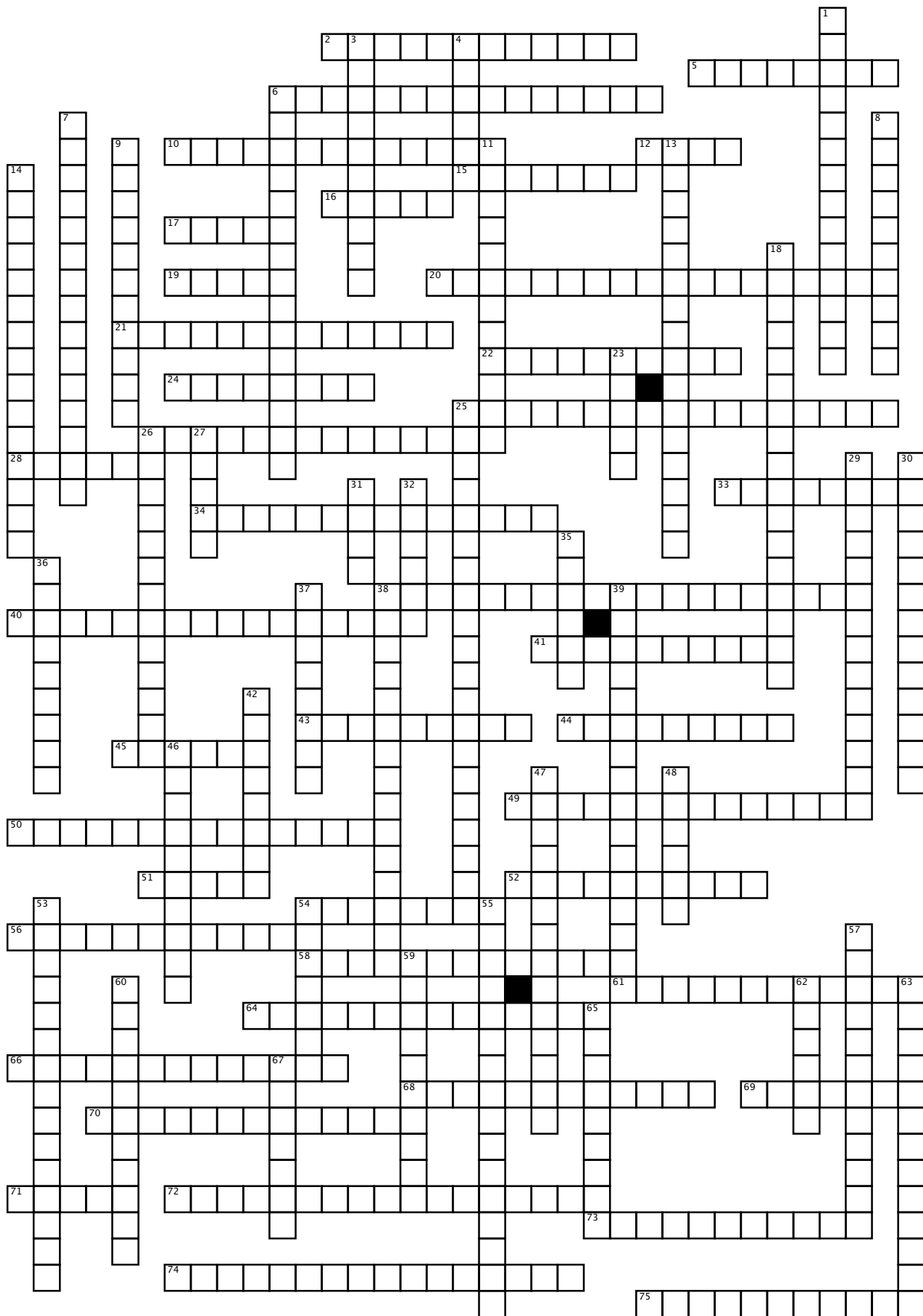
Complete the crossword puzzle.

Across

2. a directional change in growth pattern in response to gravity
5. attaching a young branch from one plant to the stem and root of another plant
6. growth that occurs from lateral meristems and results in an increase in girth (two words)
10. molecule that detects light; different molecules detect different wavelengths of light
12. the protective, outermost layer of the stems and roots of woody plants; consists of phloem, cork cambium, and cork
15. mass of cells that form a protective covering for the meristem at the root tip (two words)
16. mature ovary of an angiosperm, which contains the seed(s)
17. describes plants with stems that contain wood
19. the flat part of a leaf
20. tissue consisting of dividing undifferentiated cells found in areas of the plant where growth can take place (two words)
21. long-distance transport of substances through the phloem, particularly glucose
22. the gradual change over time in the species that form a community
24. elongated, tapered xylem cell with thick cell walls containing small pits; they overlap one another at the ends to form continuous tubes from root to shoot
25. succession in an area that has no plants, animals, or soil (two words)
26. arrangement of vascular tissue that contains xylem and phloem (two words)
28. plant cell with a high concentration of sugars and other solutes, such as a leaf cell
33. microscopic extension of the epidermal cells of the root (two words)
34. wax-like strip that runs through the cell wall of an endodermal cell (two words)
38. succession in an ecosystem that has been disturbed by a natural event or human activity (two words)
40. central portion of a root that contains the xylem and phloem (two words)
41. developmental events in a plant tissue or organ from maturity to death
43. nutritive tissue in an angiosperm seed
44. a structure in the seeds of flowering plants (angiosperms) that stores and supplies nutrients to the embryo
45. male reproductive floral part, comprising an anther and a filament
49. first species to colonize an area during succession (two words)
50. the process of cell specialization
51. the detached young branch from a plant
52. a hollow tube that grows out of a pollen grain and carries the pollen nucleus to the female sex cell (two words)
54. fruit wall, which develops from the ovary wall of a fertilized angiosperm carpel
56. a molecule that contains only atoms of carbon, hydrogen, and oxygen in a ratio of 1:2:1
58. evaporation of water through the stomata of plant leaves
61. a lateral root specialized to store carbohydrates (two words)
64. a plant's response to changing day length
66. root system composed of a large, thick root; can have smaller lateral roots (two words)
68. a change in direction of a growing plant in response to light
69. plant tissue consisting of actively dividing cells that produce secondary growth
70. small, nucleated phloem cell that is always associated with a sieve tube element (two words)
71. opening in leaves through which gases pass in and out of the leaves; also called stomate
72. layer of elongated photosynthetic cells arranged in columns under the upper surface of a leaf on a terrestrial plant; part of the mesophyll (two words)
73. smaller root that branches from a larger root (two words)
74. transfer of pollen grains from one plant to another
75. meristematic cell layer in a woody plant that produces cork (two words)

Down

1. plant tissue composed of actively dividing cells; responsible for primary growth and located at the tip of the root(s) and shoot(s) of a plant (two words)
3. a region of parenchyma cells under the epidermis of a root (two words)
4. pressure caused by the fluid contents of the central vacuole, which pushes against the wall of a plant cell
6. layer of loosely packed photosynthetic cells with large air spaces between them under the lower surface of a leaf on a terrestrial plant; part of the mesophyll (two words)
7. meristematic cell layer in vascular tissue (two words)
8. describes plants with stems that do not have wood
9. the transfer of pollen grains to an ovule
11. the osmotic force pushing xylem sap upward in root vascular tissue (two words)
13. root that develops from somewhere other than the root apical meristem that emerges from the seed (two words)
14. plant tissue consisting of actively dividing cells that produce secondary growth (two words)
18. root system made up of many small, branching roots (three words)
23. stalk that leads to the ovary
25. chemical produced by plant cells that regulates growth and differentiation (three words)
26. a short, blunt-ended xylem cell with thick walls containing small pits; they are stacked end-to-end to form vessel tubes that run from root to shoot (two words)
27. the plant onto which a scion is grafted
29. plant nutrients needed in large quantities
30. plant growth originating from the apical meristems throughout the life of the plant; results in increases in length and any growth in the diameter of stems and roots that occurs in the first year (two words)
31. plant cell with a low concentration of sugars; sugars may be converted to starch for storage or used rapidly for energy or as building blocks of other carbohydrates
32. floral organ that produces pollen
35. female reproductive floral part, comprising a stigma, style, ovary, and ovule
36. one of two kidney-shaped cells that control the opening and closing of a stoma (two words)
37. thin stalk that supports the anther
38. transfer of pollen from one flower to another on the same plant
39. a phloem cell with pores in its side cell walls and a sieve plate at the end walls; lacks organelles and depends on associated companion cells (three words)
42. arrangement of veins within a leaf
46. tissue composed of loosely packed parenchyma cells with large pores; found in aquatic plants
47. plant nutrients needed in small quantities
48. the process of cell enlargement
53. the tendency of a liquid to rise or fall because of attractive forces between the liquid molecules (two words)
54. the stalk that attaches the leaf blade to the plant stem
55. perforated end wall of a vessel element (two words)
57. a pigment that undergoes a physical or chemical change in the presence of light
59. perforated end-wall of a sieve tube element (two words)
60. an organelle found in large numbers in many plant cells; the site of photosynthesis within a plant cell
62. sticky surface on top of the style
63. a directional change in growth pattern in response to touch
65. the photosynthetic middle layer of cells in the leaf of a terrestrial plant
67. a directional change in growth or movement in response to a stimulus



The Importance of Plants

Find the words in the puzzle.

- an organelle found in large numbers in many plant cells; the site of photosynthesis within a plant cell
- a molecule that contains only atoms of carbon, hydrogen, and oxygen in a ratio of 1:2:1
- perforated end wall of a vessel element (two words)
- plant cell with a low concentration of sugars; sugars may be converted to starch for storage or used rapidly for energy or as building blocks of other carbohydrates
- microscopic extension of the epidermal cells of the root (two words)
- root system made up of many small, branching roots (three words)
- the stalk that attaches the leaf blade to the plant stem
- small, nucleated phloem cell that is always associated with a sieve tube element (two words)
- opening in leaves through which gases pass in and out of the leaves; also called stomate
- central portion of a root that contains the xylem and phloem (two words)
- smaller root that branches from a larger root (two words)
- pressure caused by the fluid contents of the central vacuole, which pushes against the wall of a plant cell
- describes plants with stems that contain wood
- the protective, outermost layer of the stems and roots of woody plants; consists of phloem, cork cambium, and cork
- a region of parenchyma cells under the epidermis of a root (two words)
- the tendency of a liquid to rise or fall because of attractive forces between the liquid molecules (two words)
- a phloem cell with pores in its side cell walls and a sieve plate at the end walls; lacks organelles and depends on associated companion cells (three words)
- wax-like strip that runs through the cell wall of an endodermal cell (two words)
- meristematic cell layer in vascular tissue (two words)
- layer of loosely packed photosynthetic cells with large air spaces between them under the lower surface of a leaf on a terrestrial plant; part of the mesophyll (two words)
- the osmotic force pushing xylem sap upward in root vascular tissue (two words)
- root system composed of a large, thick root; can have smaller lateral roots (two words)
- the photosynthetic middle layer of cells in the leaf of a terrestrial plant
- alters the mind
- root that develops from somewhere other than the root apical meristem that emerges from the seed (two words)
- tissue consisting of dividing undifferentiated cells found in areas of the plant where growth can take place (two words)
- innermost layer of cells in the cortex of a root
- layer of elongated photosynthetic cells arranged in columns under the upper surface of a leaf on a terrestrial plant; part of the mesophyll (two words)
- long-distance transport of substances through the phloem, particularly glucose
- describes plants with stems that do not have wood
- a lateral root specialized to store carbohydrates (two words)
- evaporation of water through the stomata of plant leaves
- one of two kidney-shaped cells that control the opening and closing of a stoma (two words)
- meristematic cell layer in a woody plant that produces cork (two words)
- mass of cells that form a protective covering for the meristem at the root tip (two words)
- the flat part of a leaf

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| T | D | V | I | L | P | L | C | D | B | H | A | Z | H | K | C | A | K | R | G | X | L | Y | X | I |
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| S | B | S | R | J | D | G | B | U | Z | J | M | E | T | S | Y | S | T | O | O | R | P | A | T | C |
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Succession, Reproduction, and Sustainability

Find the words in the puzzle.

- first species to colonize an area during succession (two words)
- fruit wall, which develops from the ovary wall of a fertilized angiosperm carpel
- the process of cell specialization
- thin stalk that supports the anther
- transfer of pollen grains from one plant to another
- transfer of pollen from one flower to another on the same plant
- a directional change in growth or movement in response to a stimulus
- the process of cell enlargement
- the detached young branch from a plant
- stalk that leads to the ovary
- plant nutrients needed in large quantities
- sticky surface on top of the style
- developmental events in a plant tissue or organ from maturity to death
- female reproductive floral part, comprising a stigma, style, ovary, and ovule
- plant tissue composed of actively dividing cells; responsible for primary growth and located at the tip of the root(s) and shoot(s) of a plant (two words)
- the transfer of pollen grains to an ovule
- the gradual change over time in the species that form a community
- a directional change in growth pattern in response to touch
- a directional change in growth pattern in response to gravity
- succession in an area that has no plants, animals, or soil (two words)
- a change in direction of a growing plant in response to light
- the plant onto which a scion is grafted
- plant tissue consisting of actively dividing cells that produce secondary growth (two words)
- succession in an ecosystem that has been disturbed by a natural event or human activity (two words)
- chemical produced by plant cells that regulates growth and differentiation (three words)
- plant nutrients needed in small quantities
- nutritive tissue in an angiosperm seed
- the condition in which most shoot growth arises from the apical bud and not lateral buds (two words)
- mature ovary of an angiosperm, which contains the seed(s)
- growth that occurs from lateral meristems and results in an increase in girth (two words)
- plant growth originating from the apical meristems throughout the life of the plant; results in increases in length and any growth in the diameter of stems and roots that occurs in the first year (two words)
- floral organ that produces pollen
- a plant's response to changing day length
- male reproductive floral part, comprising an anther and a filament
- plant tissue consisting of actively dividing cells that produce secondary growth
- molecule that detects light; different molecules detect different wavelengths of light
- a hollow tube that grows out of a pollen grain and carries the pollen nucleus to the female sex cell (two words)
- attaching a young branch from one plant to the stem and root of another plant

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| O | J | T | M | P | X | M | E | P | H | O | T | O | P | E | R | I | O | D | I | S | M | P | T | H |
| Z | L | Q | E | O | I | A | B | P | K | O | C | W | L | J | W | P | C | I | M | T | K | Z | Y | D |
| E | A | S | B | X | W | C | F | Y | S | T | N | E | I | R | T | U | N | O | R | C | I | M | L | B |
| V | C | D | K | G | H | R | A | K | Q | E | B | U | T | N | E | L | L | O | P | N | E | K | E | K |
| H | A | V | E | D | I | O | D | L | S | W | G | R | A | V | I | T | R | O | P | I | S | M | T | J |
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| H | R | W | G | I | W | L | J | W | Q | O | J | Q | H | Z | V | W | A | N | N | R | P | R | M | U |
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| S | B | H | H | N | P | H | O | T | O | T | R | O | P | I | S | M | W | C | O | R | K | T | K | C |
| Y | I | O | T | K | I | M | P | R | I | M | A | R | Y | G | R | O | W | T | H | R | G | A | Z | B |
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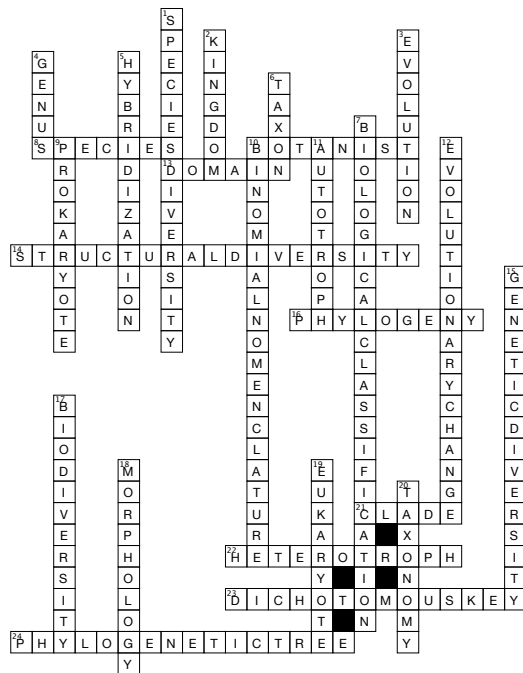
Plants: Anatomy, Growth, and Function

Find the words in the puzzle.

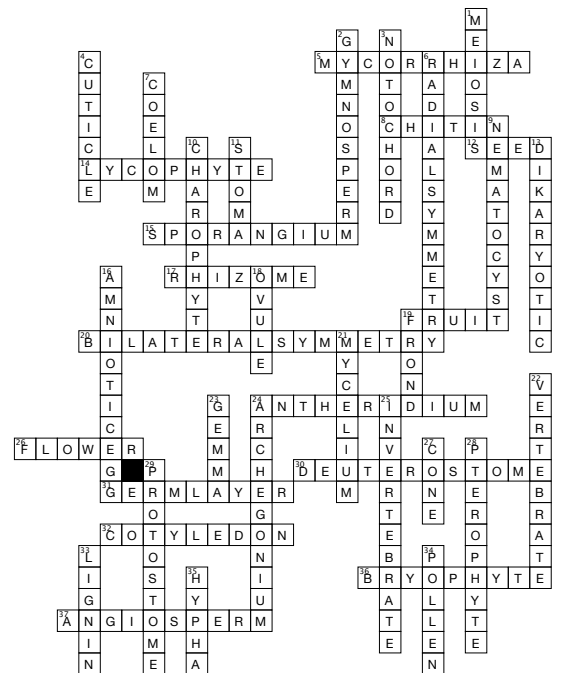
- a directional change in growth pattern in response to gravity
- attaching a young branch from one plant to the stem and root of another plant
- growth that occurs from lateral meristems and results in an increase in girth (two words)
- molecule that detects light; different molecules detect different wavelengths of light
- the protective, outermost layer of the stems and roots of woody plants; consists of phloem, cork cambium, and cork
- mass of cells that form a protective covering for the meristem at the root tip (two words)
- mature ovary of an angiosperm, which contains the seed(s)
- describes plants with stems that contain wood
- the flat part of a leaf
- tissue consisting of dividing undifferentiated cells found in areas of the plant where growth can take place (two words)
- long-distance transport of substances through the phloem, particularly glucose
- the gradual change over time in the species that form a community
- elongated, tapered xylem cell with thick cell walls containing small pits; they overlap one another at the ends to form continuous tubes from root to shoot
- succession in an area that has no plants, animals, or soil (two words)
- arrangement of vascular tissue that contains xylem and phloem (two words)
- plant cell with a high concentration of sugars and other solutes, such as a leaf cell
- microscopic extension of the epidermal cells of the root (two words)
- wax-like strip that runs through the cell wall of an endodermal cell (two words)
- succession in an ecosystem that has been disturbed by a natural event or human activity (two words)
- central portion of a root that contains the xylem and phloem (two words)
- developmental events in a plant tissue or organ from maturity to death
- nutritive tissue in an angiosperm seed
- a structure in the seeds of flowering plants (angiosperms) that stores and supplies nutrients to the embryo
- male reproductive floral part, comprising an anther and a filament
- first species to colonize an area during succession (two words)
- the process of cell specialization
- the detached young branch from a plant
- a hollow tube that grows out of a pollen grain and carries the pollen nucleus to the female sex cell (two words)
- fruit wall, which develops from the ovary wall of a fertilized angiosperm carpel
- a molecule that contains only atoms of carbon, hydrogen, and oxygen in a ratio of 1:2:1
- evaporation of water through the stomata of plant leaves
- a lateral root specialized to store carbohydrates (two words)
- a plant's response to changing day length
- root system composed of a large, thick root; can have smaller lateral roots (two words)
- a change in direction of a growing plant in response to light
- plant tissue consisting of actively dividing cells that produce secondary growth
- small, nucleated phloem cell that is always associated with a sieve tube element (two words)
- opening in leaves through which gases pass in and out of the leaves; also called stomate
- layer of elongated photosynthetic cells arranged in columns under the upper surface of a leaf on a terrestrial plant; part of the mesophyll (two words)
- smaller root that branches from a larger root (two words)
- transfer of pollen grains from one plant to another
- meristematic cell layer in a woody plant that produces cork (two words)
- plant tissue composed of actively dividing cells; responsible for primary growth and located at the tip of the root(s) and shoot(s) of a plant (two words)
- a region of parenchyma cells under the epidermis of a root (two words)
- pressure caused by the fluid contents of the central vacuole, which pushes against the wall of a plant cell
- layer of loosely packed photosynthetic cells with large air spaces between them under the lower surface of a leaf on a terrestrial plant; part of the mesophyll (two words)
- meristematic cell layer in vascular tissue (two words)
- describes plants with stems that do not have wood
- the transfer of pollen grains to an ovule
- the osmotic force pushing xylem sap upward in root vascular tissue (two words)
- root that develops from somewhere other than the root apical meristem that emerges from the seed (two words)
- plant tissue consisting of actively dividing cells that produce secondary growth (two words)
- root system made up of many small, branching roots (three words)
- stalk that leads to the ovary
- chemical produced by plant cells that regulates growth and differentiation (three words)
- a short, blunt-ended xylem cell with thick walls containing small pits; they are stacked end-to-end to form vessel tubes that run from root to shoot (two words)
- the plant onto which a scion is grafted
- plant nutrients needed in large quantities
- plant growth originating from the apical meristems throughout the life of the plant; results in increases in length and any growth in the diameter of stems and roots that occurs in the first year (two words)
- plant cell with a low concentration of sugars; sugars may be converted to starch for storage or used rapidly for energy or as building blocks of other carbohydrates
- floral organ that produces pollen
- female reproductive floral part, comprising a stigma, style, ovary, and ovule
- one of two kidney-shaped cells that control the opening and closing of a stoma (two words)
- thin stalk that supports the anther
- transfer of pollen from one flower to another on the same plant
- phloem cell with pores in its side cell walls and a sieve plate at the end walls; lacks organelles and depends on associated companion cells (three words)
- arrangement of veins within a leaf
- tissue composed of loosely packed parenchyma cells with large pores; found in aquatic plants
- plant nutrients needed in small quantities
- the process of cell enlargement
- the tendency of a liquid to rise or fall because of attractive forces between the liquid molecules (two words)
- the stalk that attaches the leaf blade to the plant stem
- perforated end wall of a vessel element (two words)
- a pigment that undergoes a physical or chemical change in the presence of light
- perforated end-wall of a sieve tube element (two words)
- an organelle found in large numbers in many plant cells; the site of photosynthesis within a plant cell
- sticky surface on top of the style
- a directional change in growth pattern in response to touch
- the photosynthetic middle layer of cells in the leaf of a terrestrial plant
- a directional change in growth or movement in response to a stimulus

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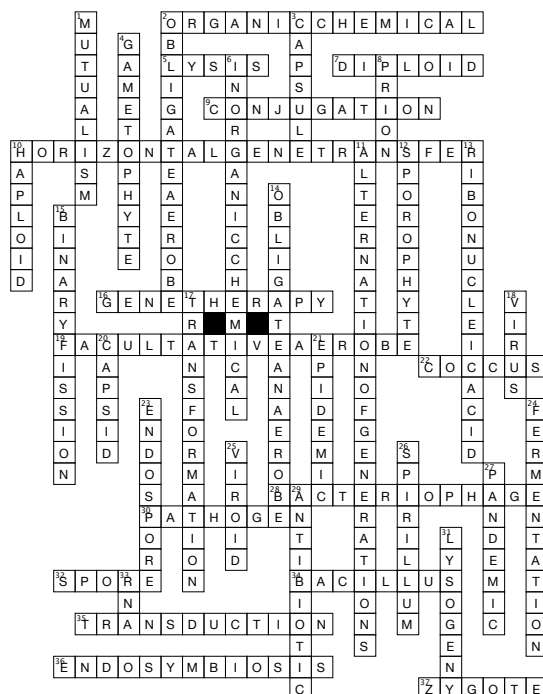
Understanding Biodiversity



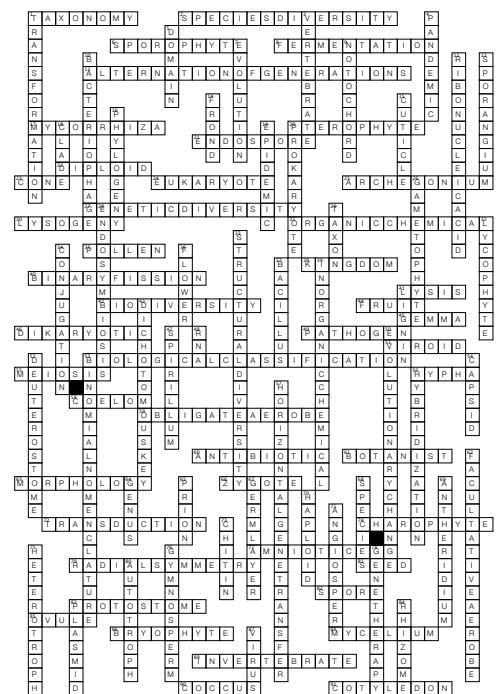
The Fungi, Plants, and Animals



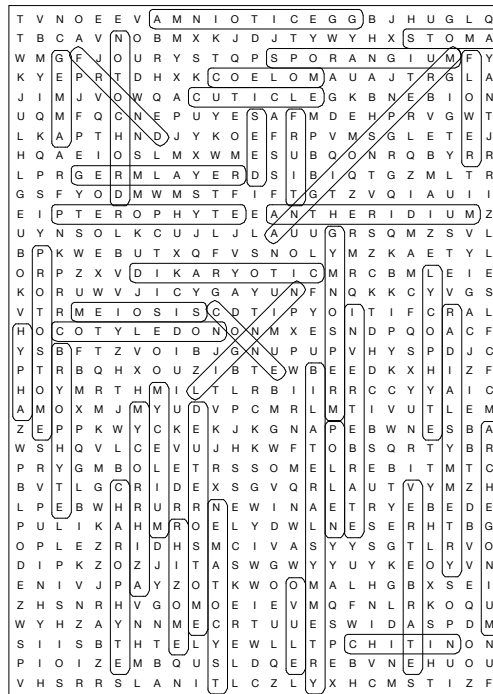
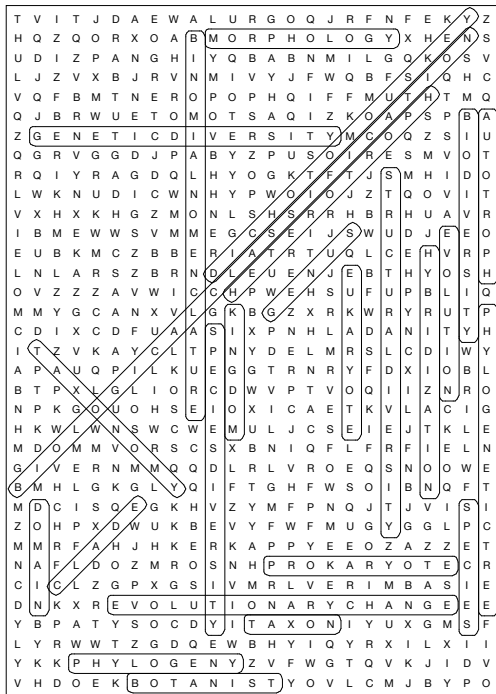
The Prokaryotes, Viruses, and Protists



Diversity of Living Things

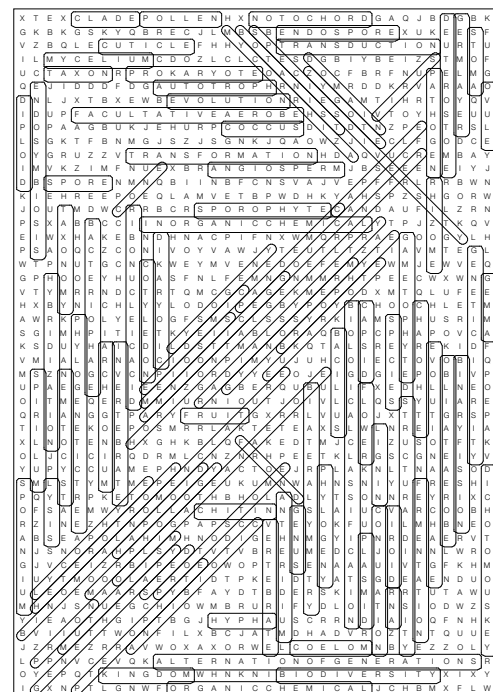
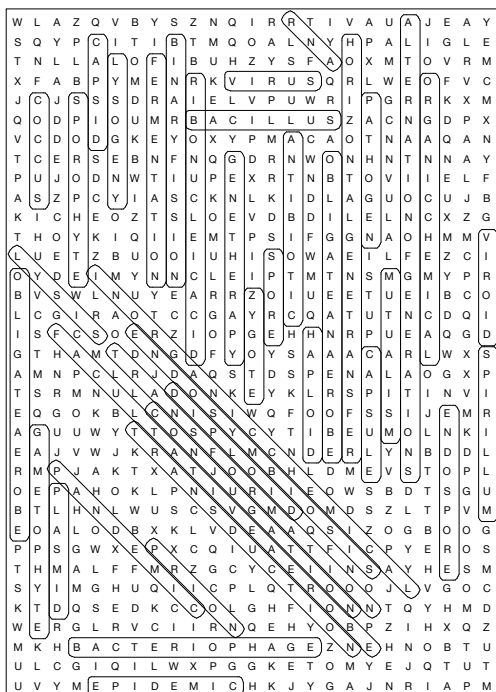


The Fungi, Plants, and Animals

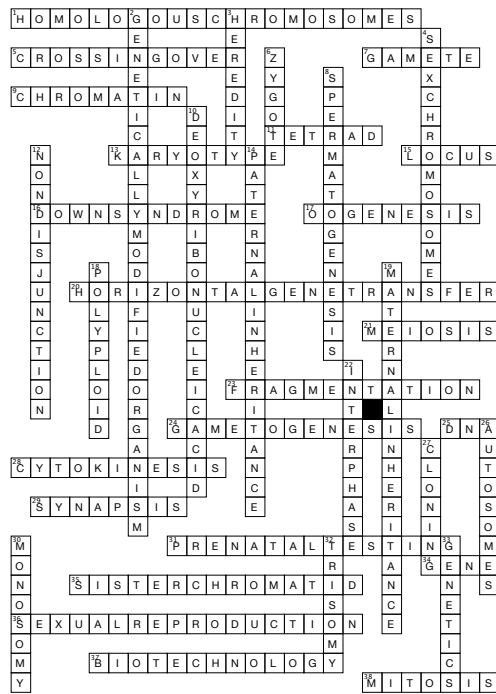


The Prokaryotes, Viruses, and Protists

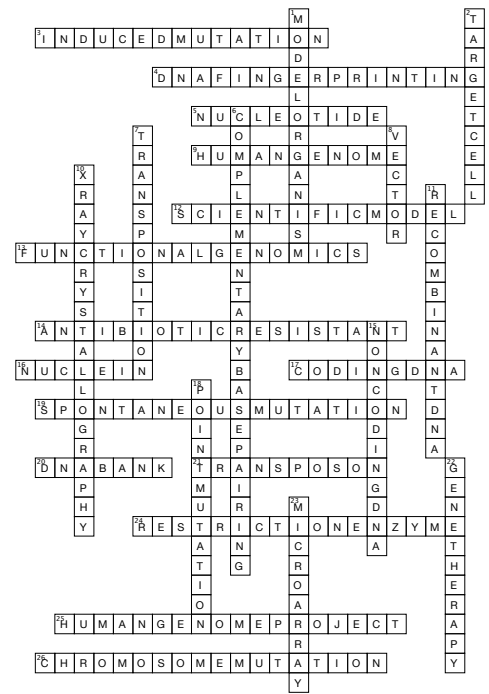
Diversity of Living Things



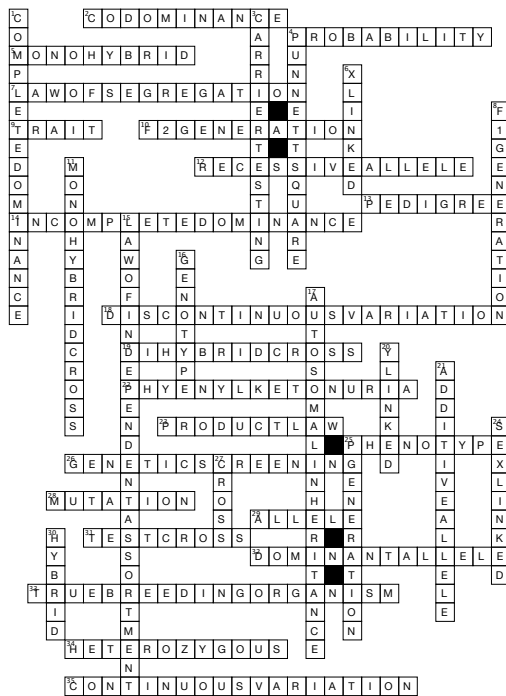
Heredity and Reproduction



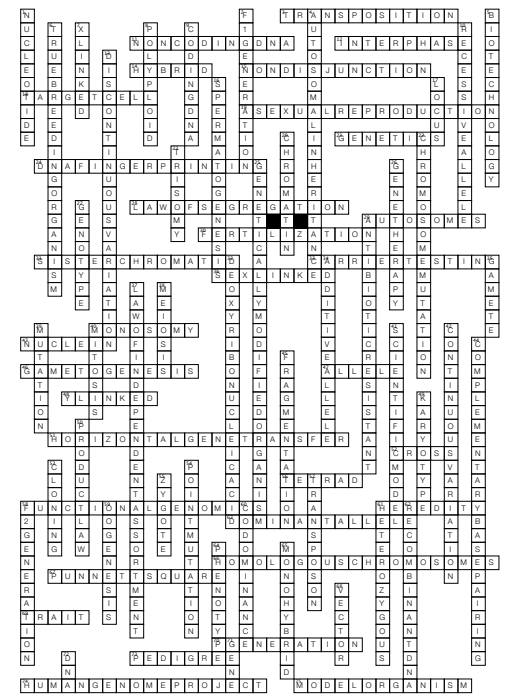
Genetics Beyond Mendel



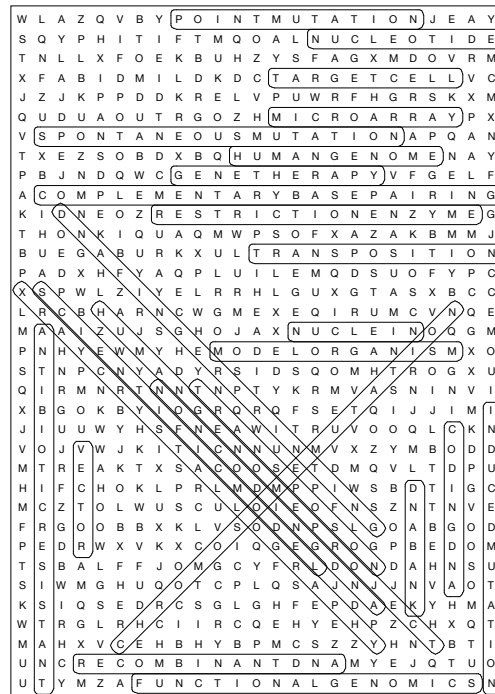
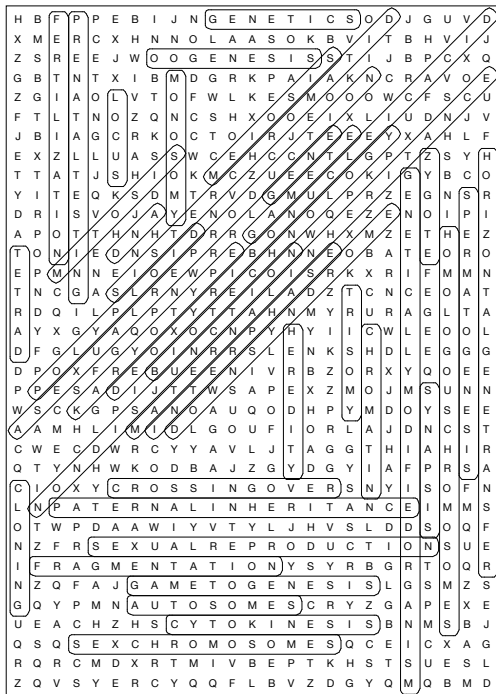
Mendelian Genetics— Patterns of Inheritance



Genetic Processes

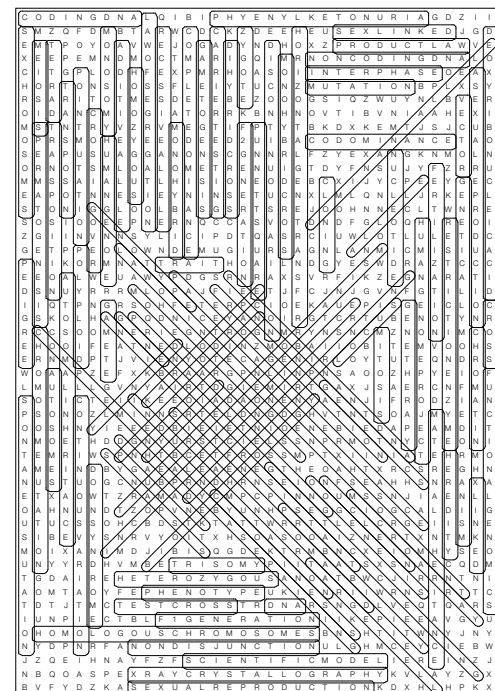
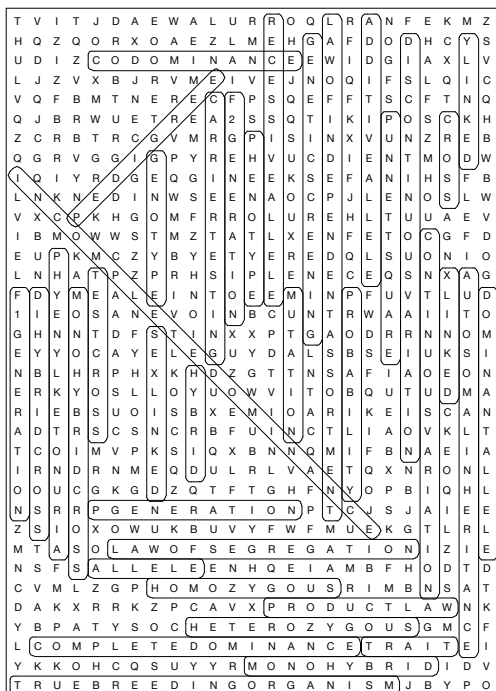


Genetics Beyond Mendel

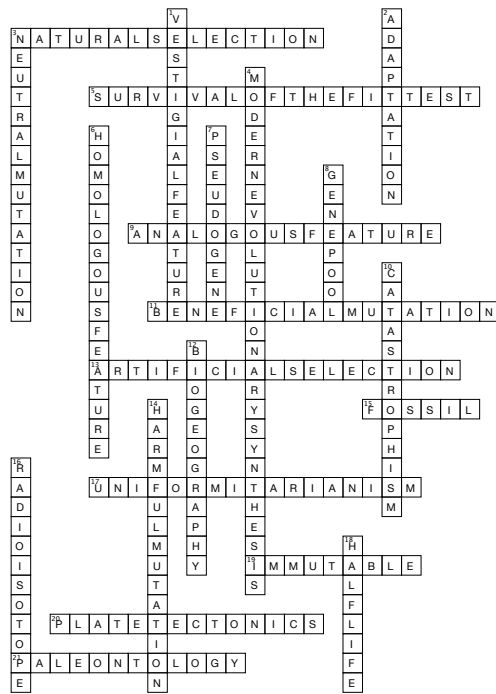


Mendelian Genetics— Patterns of Inheritance

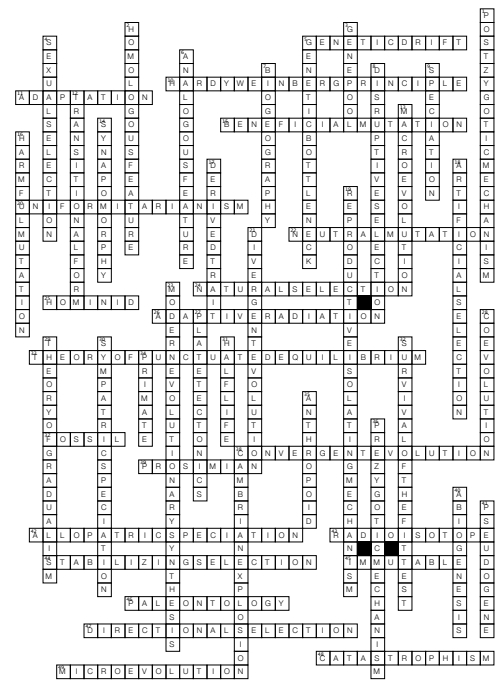
Genetic Processes



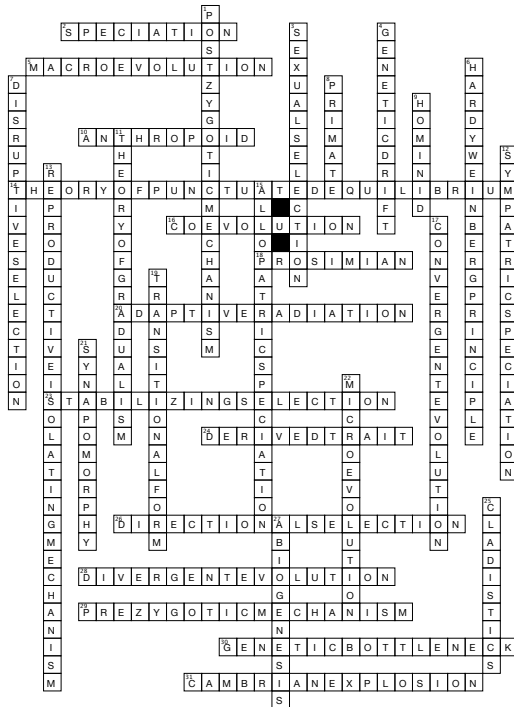
The Theory of Evolution



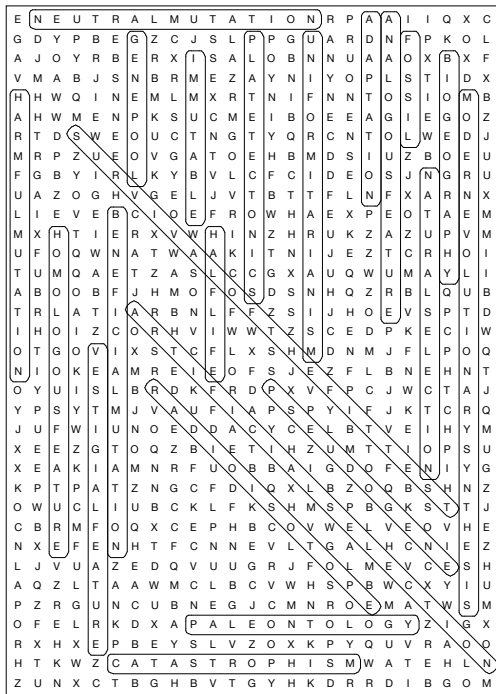
Genetic Processes



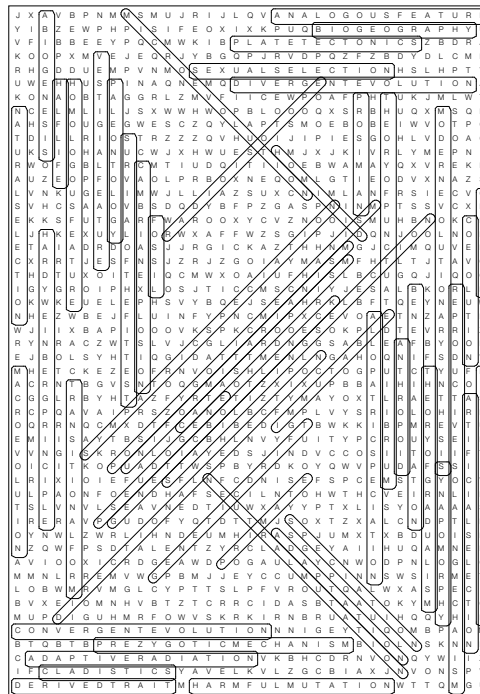
The Origin of Species



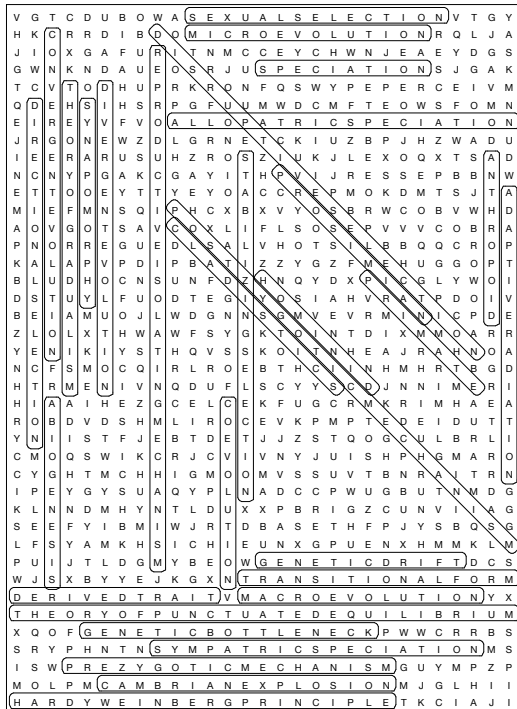
The Theory of Evolution



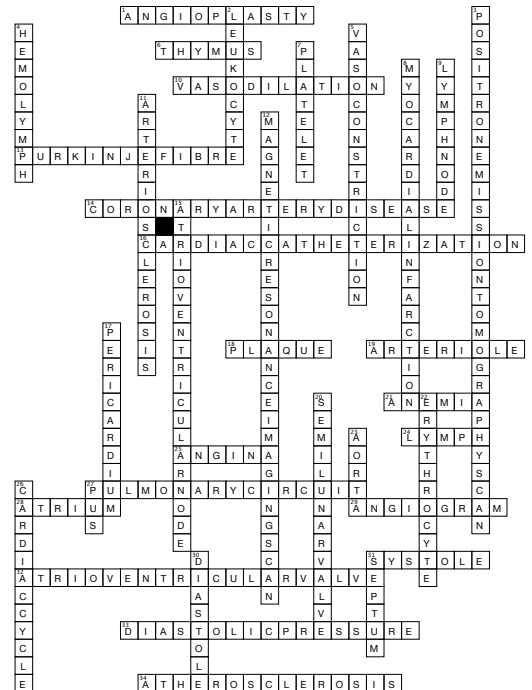
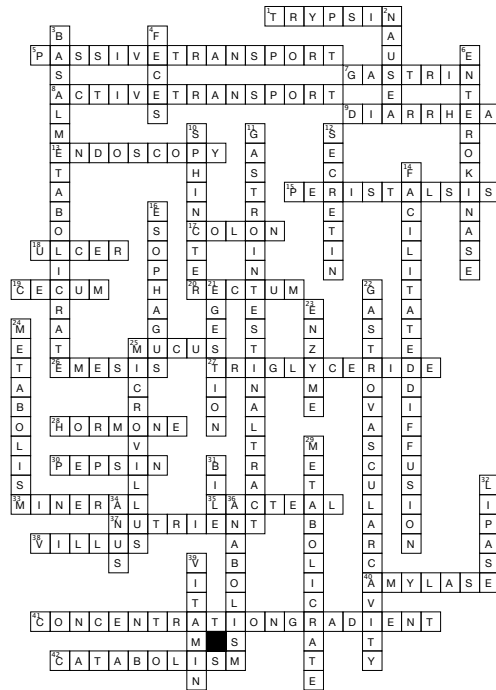
Genetic Processes



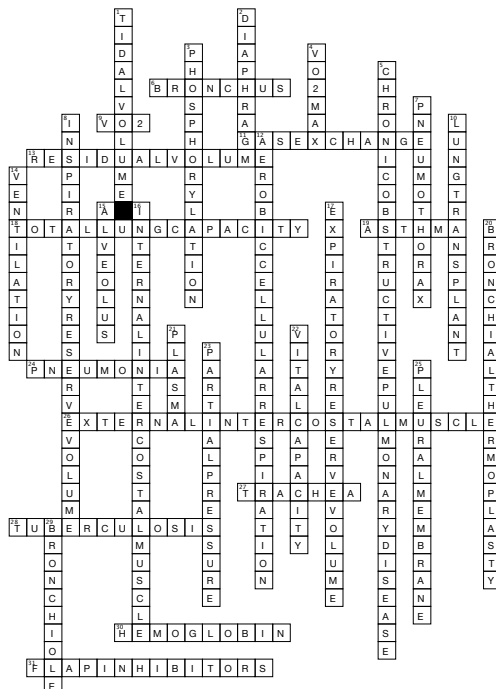
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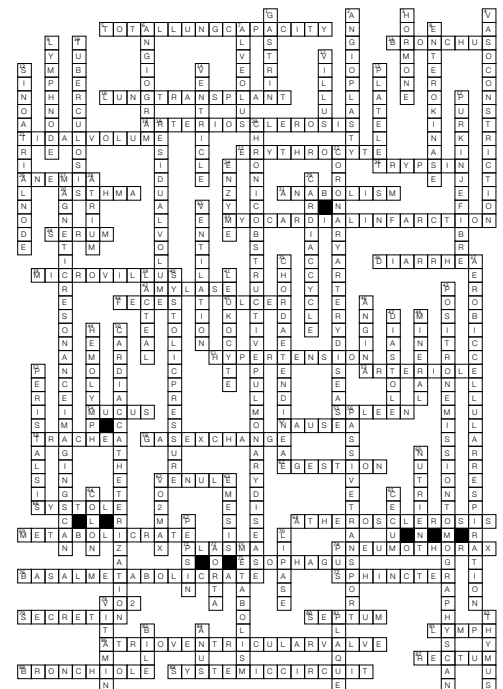
The Circulatory System



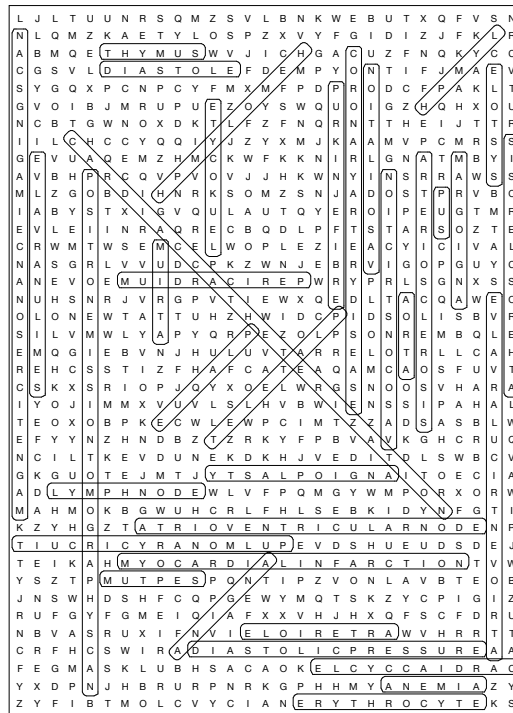
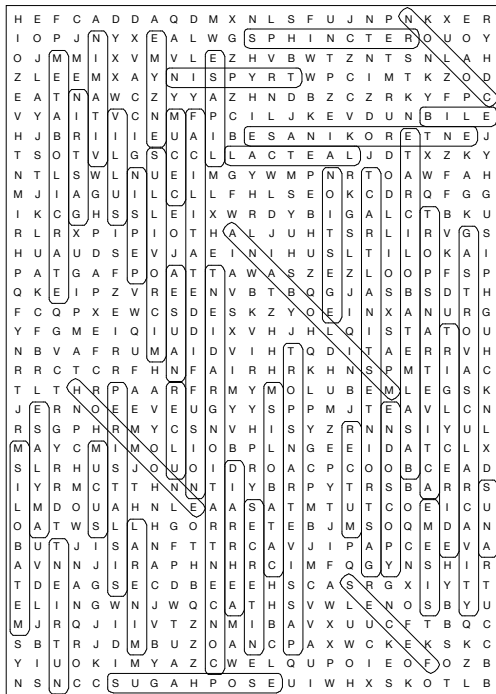
The Respiratory System



Animals: Structure and Function

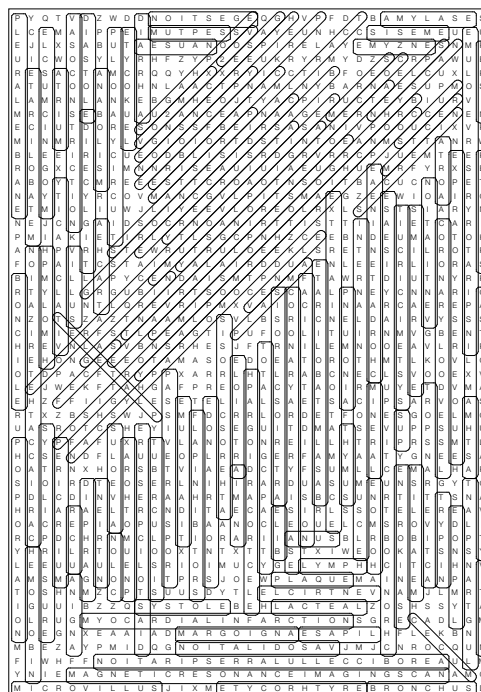
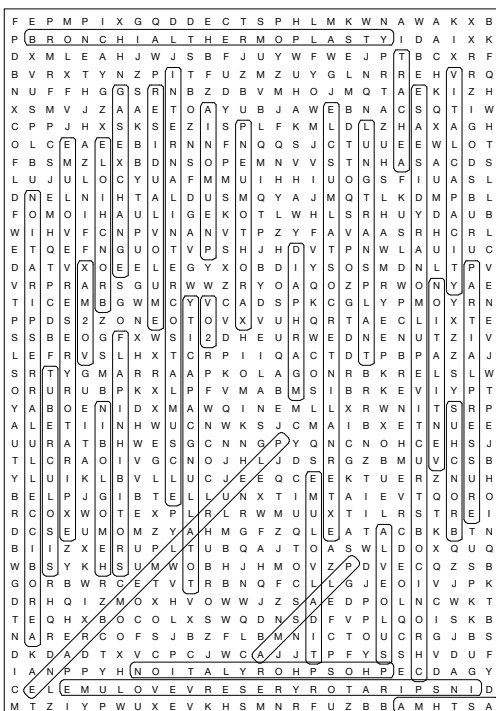


The Circulatory System

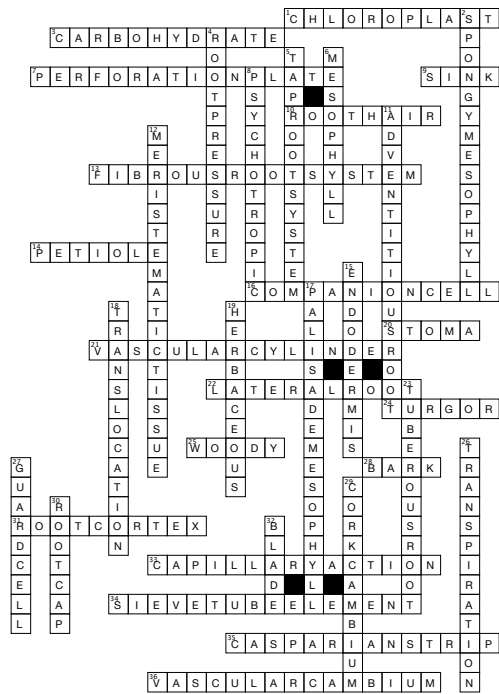


The Respiratory System

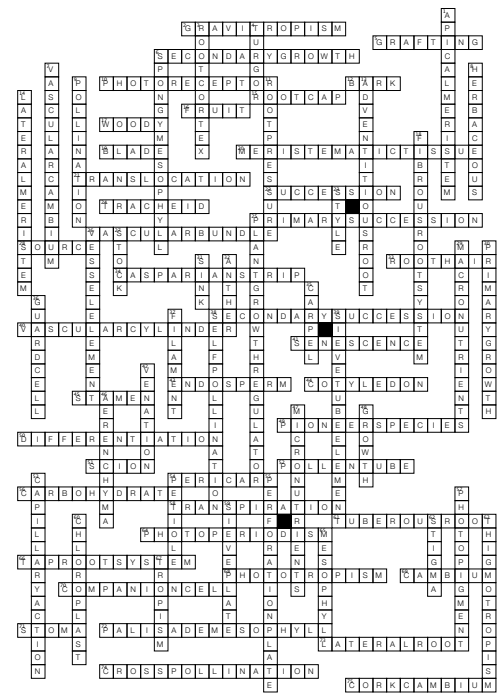
Animals: Structure and Function



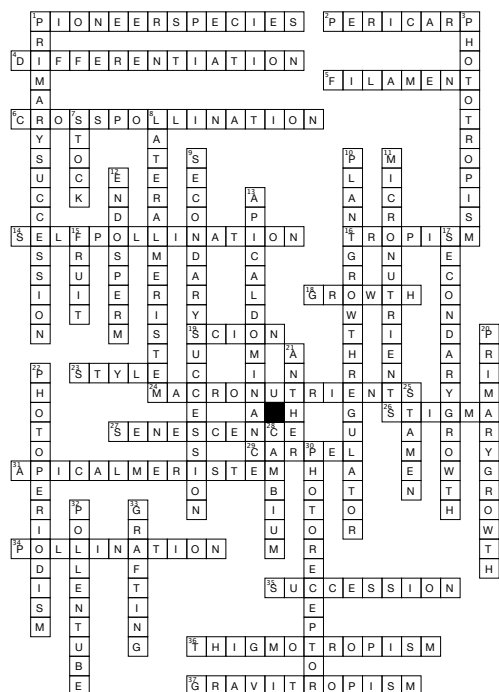
The Importance of Plants



Plants: Anatomy, Growth, and Function

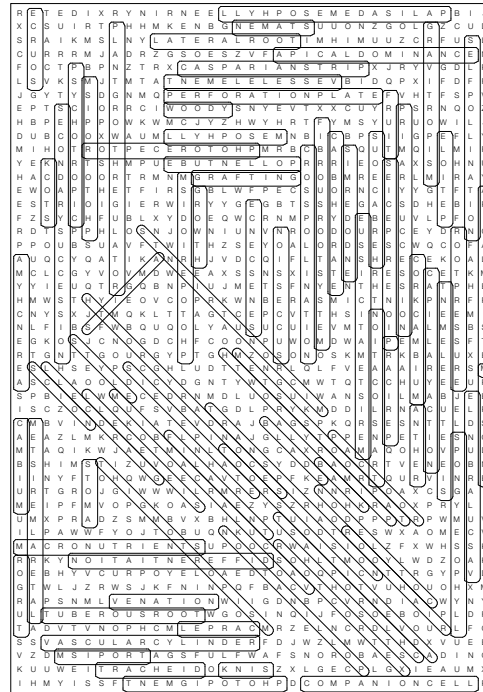
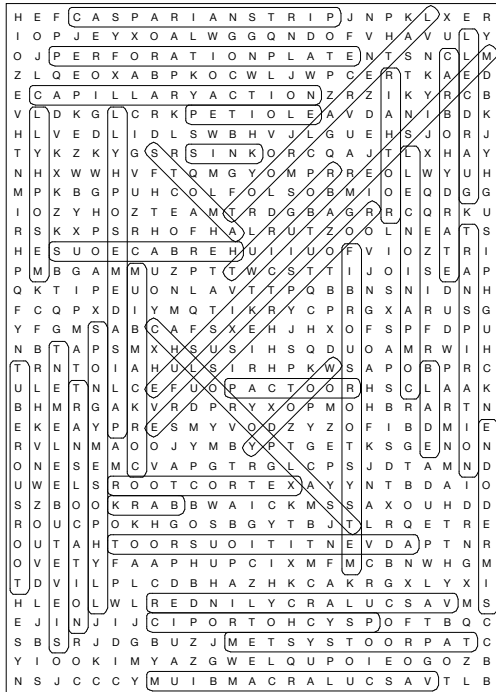


Succession, Reproduction, and Sustainability

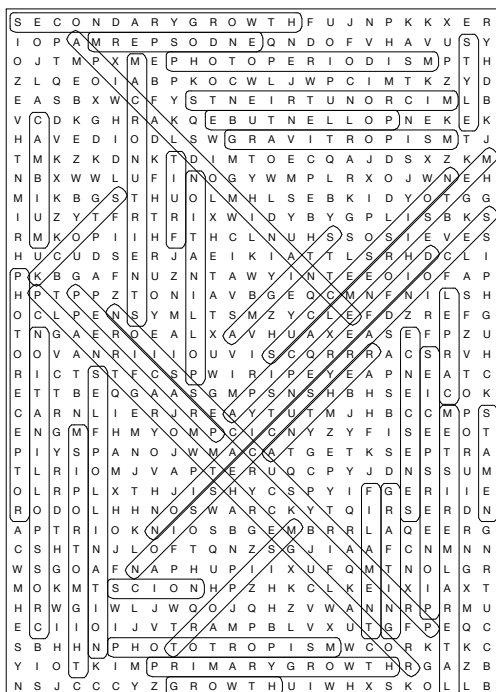


The Importance of Plants

Plants: Anatomy, Growth, and Function



Succession, Reproduction, and Sustainability



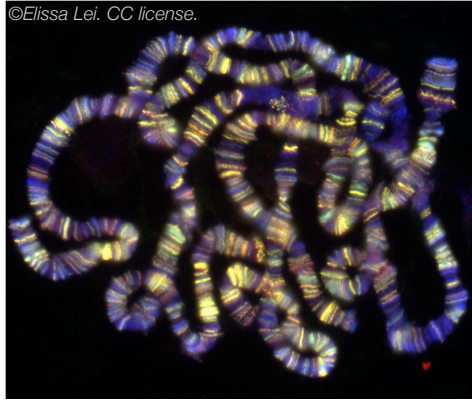
Word Puzzles

from *Nelson Biology 11*



Diversity of Living Things

Contains puzzles for *Understanding Biodiversity, The Prokaryotes, Viruses, and Protists, The Fungi, Plants, and Animals*, and the whole unit.



Genetic Processes

Heredity and Reproduction *Laws of Motion, Mendelian Genetic—Patterns of Inheritance, Genetics Beyond Mendel*, and the whole unit.



Evolution

Contains puzzles for *The Theory of Evolution, The Origin of Species*, and the whole unit.



Animals: Structure and Function

Contains puzzles for *Nutrition and the Digestive System, The Respiratory System, The Circulatory System*, and the whole unit.



Plants: Anatomy, Growth, & Function

Contains puzzles for *The Importance of Plants, Succession, Reproduction, and Sustainability*, and the whole unit.



Nelson Education

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Science is the great antidote to the poison of enthusiasm and superstition.

Adam Smith