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There are different types of plants all around us, and most of us recognize many kinds of plants that flower, grow in our gardens, or that we can eat. There is a vast range in the types of plants that grow in the world. Plants such as algae, moss, and ferns are examples of flowerless plants that thrive in damp and wet conditions. Other kinds of plants such as flowering plants and trees grow in all sorts of conditions and are essential for living. All kinds of plants belong to the kingdom Plantae. They are divided into two groups depending on whether they are seed-bearing plants or plants without seeds. Plants are also classified by their genera, families, and species. This type of plant classification allows for easy identification of plants and makes them easier to study. Plants classifications also depends on their vascular system. Non-vascular plants such as algae are primitive plants or in a lower class of plants and have simple tissue systems to transport water internally. Vascular plants such as shrubs, trees, herbs, and flowering plants have complex vascular tissue to transport fluid and nutrients internally. In this article, you will learn about the many different kinds of plants in the world. You will also see examples of shrubs, flowering plants, ferns, and many other types of common plants. The Main Kinds of Plants All types of plants are classified by two main groups: plants without seeds and plants with seeds. Plants without seeds are algae, mosses, ferns, and liverworts. These unique plant types produce spores that are distributed by the wind. For example, if you look on the underneath of fern leaves, you will notice sporangia which are tiny structures containing spores. Sporangia in fern plant Plants with seeds are all kinds of flowering plants, cycads (palm-like plants with cones), conifers (such as spruce, firs, pines, junipers and cedars), and ginko. Flowering plants produce seeds that are protected within their fruit. These fruits can be soft fruits such as apples, oranges, or berries, or they can be hard like all types of nuts. Plants with cones, mostly evergreen trees, are another kind of vascular plants with seeds. Different Kinds of Plants Without Seeds (Pteridophytes, Bryophytes) Let’s look at the 4 main groups of plants that reproduce without seeds: Algae Kelp is a type of large brown algae and it’s also an edible seedless plant Algae consist of a large diverse group of plants that generally grow in water. All types of algae are divided into green algae, brown algae, and red algae. Being such diverse species of organisms, the different groups of algae are not closely related. There are an estimated 72,500 species of algae in the world. Algae can be tiny microscopic organisms called phytoplankton that is a food source of many marine animals. Or, some types of algae are commonly called seaweed and are found in waters around coastlines. There is also some confusion whether species of algae are truly types of plants. Like many plants, algae use a process of photosynthesis to make food. Interestingly, some types of algae seem to have the ability to “eat” other organisms similar to animals. However, most people view algae as types of plants. (1, 2) Brown algae Brown algae are a common type of algae that generally grow in the sea and are usually good to eat. In fact, some species of brown algae are the largest plants in the world with some growing up to 165 ft. (50 m) tall. One type of edible brown algae is sea kelp that contains high amounts of iodine. Green algae Green algae generally grow in freshwater, although they also grow in saltwater. Individual alga (singular of algae) of some species are tiny microscopic organisms. If they are in abundance, they can turn ponds or seawater green. Similar to brown algae, some green algae grow as seaweed. Red algae Red algae (Rhodophyta) consist of the largest group (phyla) of all algae species and the majority grow in marine environments. As with all kinds of algae, red algae are plants that don’t produce seeds. Red algae are also an important food source and are the type that is used for nori. (3) Liverworts Liverworts include many species of plants such as Lunularia cruciata (in the picture) Liverworts are a type of nonvascular flowerless plant that don’t bear seed and are in the division Marchantiophyta. These small leafy plants may be as tiny as 2 mm or grow to 20 mm wide. Liverwort plants tend to flourish in damp places. Tiny species of liverworts can be difficult to distinguish from mosses. One way to identify liverwort plants is that they are generally smaller and have tiny hair-like structures (rhizoids) they use to absorb water. Scientists say that liverworts developed after algae and that, although a lower plant form, they are more advanced than algae plants. Mosses Moss is a type of small flowerless plant that prefers damp or shady places All moss species belong to the division Bryophyta and there are about 12,000 species of moss. Mosses are often seen growing in damp places similar to liverworts. You can often see pictures of moss growing on rocks, trees, soil, and concrete. The fact that moss doesn’t need soil to grow means that this unique plant can grow almost anywhere. Although mosses were classified with hornworts and liverworts in the Marchantiophyta group, they are now in a classification of their own. There are 8 classes of mosses with the peat-moss Sphagnum being the most commercially important. Sphagnum moss is an unusual plant that is commonly used as mulch, for home decoration, or in the florist trade. Ferns Ferns are a type of plant that thrive in damp shady areas Ferns belong to the group of plants without seeds and are flowerless plants in the class Polypodiopsida. Unlike mosses and algae, ferns are a kind of vascular plant that distributes spores to reproduce. There are an estimated 10,560 species of ferns and some are among the oldest plants on the planet. Ferns are identified by their green leafy foliage consisting of fronds and pinnae. Outdoors, ferns grow in forests and love damp shady areas. Some of the tallest ferns in the world can grow up to 82 ft. (25 m) tall. Ferns are also examples of common indoor bedroom houseplants that thrive well in room temperature. Their bushy green foliage and long, trailing leaves can add beautiful greenery to a room. Some common species of ferns to grow indoors include Boston ferns, staghorn ferns, and the bird’s nest fern. Many types of perennial ferns are also popular plants for gardens as they grow in areas where other plants can’t. Ferns are good examples of ground cover plants, especially in shady areas. Kinds of Plants with Seeds (Gymnosperms, Angiosperms) Plants with seeds are one of the largest groups of land plants in the world. Seeds from these plants are either encased in a cone or in fruits that protect the seeds. Angiosperms are seed-bearing plants that flower and gymnosperms are generally cone-producing trees. All species of plants with seeds are vascular plants and are important for our ecosystem. Cycads Cycads are seed plants with pinnate leaves and cone-like reproductive structure (strobilus) Cycads are an exotic group of plants that grow in tropical and subtropical parts of the world. Similar in appearance to palm trees, cycads have woody trunks that sprout large evergreen leaves. Unlike other types of trees, cycads don’t have branches but their leaves grow directly from the trunks. Seeds from cycad plants are enclosed in cone-like structures. This flowerless tree reproduces by beetles that pollinate the seeds. Scientists say that this ancient exotic-looking plant has changed little since Jurassic times. Different species of cycads come in various sizes. The smallest type of cycad may have a trunk that is only a few centimeters tall. In fact, this interesting plant looks like it just has long fern-like leaves growing up from the ground. Because of this feature, it is easy to mistake cycads for ferns. Larger cycads can grow large leaves that look as if they are exploding from the top of the trunk. The larger cycad species can grow to a height of between 32 and 50 ft. (10 – 15 m) tall. If you live in a warm climate, cycads can be very ornamental plants for your garden. Conifers Coniferous forest is a type of forest that includes different kinds of trees like pines, firs, spruces, cedars and junipers Conifers is the common name for woody, shrub-like plants and trees in the division Pinophyta. This group of perennial evergreen trees includes pines, junipers, cedars, and spruces. These important types of trees grow in most climates in the world and are very common in the Northern Hemisphere. They are also the most important group of gymnosperms. Like cycads, conifers are identified by their seed-producing cones. Some species of conifers have cones that disintegrate to disperse seeds, and others rely on birds for seed dispersal. In fact, their name comes from the Latin meaning “one that bears cones.” Although the term Pinophyta is the common scientific name, the division Coniferae can also be used. Conifers are also identified by their unique type of green, bluish-gray, or silvery foliage. Some types of conifers can be large majestic trees with drooping leaves covered in soft pine needles. Other conifer species can be small, shrub-like evergreen plants that grow well in ornamental gardens. Some examples of small conifers for your garden are dwarf spruce trees, low-growing cypress trees, or small pine evergreen bushes. One of the survival features of trees such as fir trees, cedars, junipers, yew trees, and pine trees is that they are very cold hardy. Some species of these conifer trees can survive temperatures of -13°F (-25 °C) and lower. Flowering Plants Flowering plants such as lilies include many cultivars with various colors and shapes Species of flowering plants are some of the most diverse, beautiful, and fascinating of all plants that grow. Plants with seeds that flower can include anything from a tall oak tree to a delicate orchid or beautiful rose. According to some estimates, there are over 300,000 species of flowering plants that are divided into 13,000 genera, 416 families, and 64 orders. The common characteristic of all plants classed as angiosperms is that they bear seeds in flowers which are the plants’ reproductive organs. Flowering plants are also vascular plants because they have a complex system to transport fluid to all parts of the pant. Types of flowering plants can include flowering vines, trees that blossom, ornamental grasses, and orchids. Also, common flowering plants such as asters, begonias, chrysanthemums, roses, tulips, and herbs are all examples of angiosperms. Flowering plants can also be classified as annuals or perennials depending on if they survive winter or not. Also, some types of flowers only bloom in springtime or other start flowering in spring and continue producing blossoms until fall. If you are thinking about landscaping your garden, then it’s important to choose the right kind of plant for sun exposure and soil quality. For example, some plant species thrive well in full sun and prove excellent ground cover. Other creeping plants can survive well in partial to full shade. Flowering annual plants Marigold is very common and popular flowering plant around the world Annuals are plants that die off in the winter and only leave a dormant seed. Some beautiful types of annuals that flower include pansies, marigolds, snapdragons, petunias, winter violas, and poppies. Flowering perennial plants Lilac is a perennial garden plant with beautiful flowers. The flowers of the lilac shrub have several colors such as white, pink and purple Perennials are kinds of plants that produce flowers every year and don’t have to be replanted. Examples of cool plants that flower year after year include roses, lilac shrubs, stunning hibiscus plants, flowering trees, succulents, and dahlias. Also, flowers that grow from bulbs such as daffodils, tulips, and crocuses are often the first kind of flowers to grow every spring. Some flowering plants are tender perennials and grow as annuals in cold climate. Exotic-looking orchids The Phalaenopsis orchids are examples of exotic-looking plants. They are also some of the most popular and easy to care for orchids Some of the most stunning types of plants to grow indoors are orchids. There are many species of orchids that come in all different colors. Some of the easiest orchids to care for are the Phalaenopsis orchids with large colorful petals and unusual markings. Types of ivy and flowering vines Ivies are fast-growing plants that grow just as well outdoors as they do indoors Another type of land plant that has seeds and is classified as an angiosperm plant is ivy. Ivy (genus Hedera) is a trailing type of green leafy plant that climbs walls, trellises, and can look good in a hanging basket. Being a member of the ‘flowering plant’ groups, ivy species also produce blossoms every year. Ornamental grasses Pink Muhli (Muhlenbergia capillaris) is a perennial ornamental grass There are many examples of fine ornamental grasses that can provide height, privacy, and beauty for any garden. These ornamental perennial plants have seeds that allow them to reproduce. One of the beauties of ornamental grasses is that they are very versatile and low maintenance. Some clumping grasses grow to just a few centimeters and others can grow to many meters. Gingko Ginkgo Biloba tree is native to China and has many uses in traditional medicine Gingko is a type of seed-bearing tree plant, and Gingko Biloba is the only species in the division Ginkgophyta. All the other gingko species are extinct and just one kind of gingko plant survives today. Botanists say that gingko is a unique plant because it isn’t related to any other plant that is still alive today. Also called the maidenhead tree, gingko is unique among the groups of seed-bearing plants. Gingko has unique fan-shaped leaves that can measure between 2” and 4” (5 – 10 cm). Another unique feature of this plant is that the fruit doesn’t contain seeds but these are in fruit-like structures called false fruits. Gingko is also one of the oldest types of trees in the world. Most people have heard of Gingko Biloba as a traditional herbal remedy for a number of ailments. Various kinds of natural treatments are made from the large nut-like seeds. Related: The Most Amazing Types of Trees in the World (With Pictures) Dioecious Plants Vs. Monoecious Plants “Dioecious” and “monoecious” are horticultural terms that relate to plant reproduction. Dioecious describes a plant group that includes distinct male and female plants. This means that the male and female flowers are on different plants. Monoecious describes a single plant that have both male and female flowers. Related articles: Types of Plants: Different Kinds of Plants and Their Classification was last modified: June 12th, 2020 by Jessica Nolan, Gardening Expert Plants: the ultimate guide. Information, pictures and facts on plants, why they’re important, the different types of plants and how plants reproduce.Plants: The Ultimate GuideOn this page you’ll find a complete guide to plants and the plant kingdom. You’ll discover what makes a plant a plant, why plants are important, the different types of plant and how plants reproduce.This is the first in a series of articles on the plant kingdom. Over the following weeks we’ll be adding additional pages covering subjects such as plant reproduction, classification, the parts of a plant and practical botany in greater depth.Plants: Page IndexPlants: IntroductionIf you take a look out of your window, you’ll almost certainly be able to see some form of plant life. Whether it's weeds growing in a backyard or trees in a forest, there are very few landscapes on Earth in which plants are not present.Without plants, the world would be a much less-colorful place. But plants provide much more than just decoration; plants are vital for life on Earth.Why Are Plants Important?Plants are important because, unlike most other organisms, nearly all plants are autotrophs, which means that they produce their own food. Autotrophs don’t have to eat other organisms (i.e. other plants or animals) for energy.Most plants are capable of making their own food using a process called photosynthesis, in which energy from sunlight is transformed into chemical energy.All other organisms (including animals) are reliant on the energy produced by autotrophs.Plants are the primary producers in virtually all terrestrial (land-based) food chains. Even carnivorous animals such as tigers are reliant on the energy provided by plants – even if they get it second-hand, by eating animals that do eat plants!Even apex predators rely on the energy produced by plants!Another reason that plants are important is that they produce much of the world’s oxygen. Plants produce oxygen as a by-product of photosynthesis.In addition, plants help to reduce the amount of carbon dioxide in the atmosphere. This too is a result of photosynthesis. It has been calculated that forests in the U.S. offset between 10 and 20% of the nation’s annual emissions. (Source)As well as relying on plants to supply our food and much of our oxygen, we also use plants for fuel, building materials, clothing, medicines, cosmetics, and a host of other things that make our lives easier.What Is Botany?Botany is the branch of biology concerned with plants and plant life (biology itself is the scientific study of life and living things). A scientist who specializes in botany is known as a botanist.What Is A Plant?The giant sequoia is the world's largest living plant.A plant is a living organism in the kingdom Plantae. Plantae is one of the five (or six, depending on which system is being used) kingdoms into which all living things are categorized.Other kingdoms include Animalia (the animal kingdom) and Fungi (fungi aren’t plants).You can find out more about kingdoms and how living things are categorized on this page: Animal ClassificationSome Characteristics Of PlantsPlant cellsIn order to be included in Plantae, an organism must have certain characteristics. Some basic characteristics of plants are listed below:Plants are eukaryotesPlants are eukaryotes, which means that their bodies are made of eukaryotic cells. Eukaryotic cells contain a nucleus and other organelles, each of which is enclosed within its own membrane.Plants aren’t the only eukaryotic organisms. Other eukaryotes include animals and algae. All multicellular organisms are eukaryotes.Organisms whose cells are not eukaryotic are known as prokaryotes. Prokaryotes are single-celled organisms such as Archaea and Bacteria. The components of a prokaryotic cell are not enclosed in membranes.(Most) plants photosynthesizeAs we’ve found, most plants are autotrophs. They produce their own food via photosynthesis, a process in which energy from the sun is converted into chemical energy in the form of carbohydrates.Plant cells contain organelles known as chloroplasts in which photosynthesis takes place.Not all plants photosynthesize; a small number of plant species are parasitic, obtaining energy and nutrients from other plants rather than from sunlight.Plants aren’t the only organisms capable of photosynthesis; organisms such as red algae and cyanobacteria are also photosynthetic.Plants contain chlorophyllChloroplasts contain chlorophyll, a pigment that absorbs the sunlight that allows photosynthesis to take place.Plants appear green because of the chlorophyll contained in their cells. Chlorophyll absorbs blue and red light. Green light is reflected, making the plant look green to our eyes.Plants contain two types of chlorophyll: chlorophyll a and chlorophyll b. It’s the presence of both types of chlorophyll that distinguishes plants from other photosynthesizing organisms, such as cyanobacteria and red algae.Some parasitic plants have lost the need to photosynthesize. Plants such as these don’t contain chlorophyll and are therefore not green.Plants store starchStarch is a polysaccharide (a long chain of carbohydrate molecules) which the plant uses as a source of energy and matter. Plants store starch in organelles in their cells called plastidsThe cell walls of plants contain celluloseCellulose is a polysaccharide. It forms strengthening fibers in the cell wall of a plant cell.All land plants are multicellularAll land plants (and aquatic plants that are not algae) are multicellular. Some green algae (see below) are unicellular in at least part of their life cycle.Is Algae A Plant?Green algae growing on the surface of a lake at Gavins Point National Fish Hatchery, South DakotaHistorically, the kingdom Plantae contained only the land plants, a group of organisms known as Embryophyta. Algae, which are photosynthesizing organisms found mainly in water, were not included in Plantae.It is now thought that the ancestors of plants arose from a group of algae known as green algae. This means that the land plants share a common ancestor with green algae.As a result of this new understanding, the definition of plants is today usually expanded to include green algae. This expanded group may also be known as the ‘green plants’, or Viridiplantae.Other types of algae (such as red algae) are not usually included in Plantae.How Many Species Of Plant Are There?Estimates of the total number of living plant species range from 320,000 to 382,000 living species. (Source)While this number may be large, it is significantly smaller than the number of living animal species (of which there are an estimated 1,525,728).Although it contains fewer species than Animalia, Plantae is by no means a small group: there are over twice the number of living plant species than there are of fungi (there are an estimated 140,000 living species of fungi).PhotosynthesisYou can find out more about photosynthesis on this page: Photosynthesis FactsPhotosynthesis is the process by which a plant transforms energy from sunlight into chemical energy. Photosynthesis takes place in the chloroplasts present in the plant’s cells.Chlorophyll within the chloroplasts absorbs the sunlight that provides the energy required by photosynthesis.This energy fuels a chemical reaction in which carbon dioxide from the air is combined with water in order to produce glucose (a simple carbohydrate). As a by-product of this chemical reaction oxygen is produced.The plant obtains energy from the glucose via a process known as respiration. The plant uses this energy for various functions, not least for making the cellulose that strengthens the plant’s cell walls.Any glucose that isn’t required immediately is converted into starch and stored in the plant’s chloroplasts for use when the plant isn’t able to photosynthesize (i.e. during the winter).Types Of PlantA list of the major plant groups, with pictures and information, can be found on this page: Types Of PlantJust like animals, plants are divided into groups depending on their family tree. First the entire kingdom Plantae is divided into large groups, and these groups are then divided into ever-smaller groups of ever-more closely-related species.We found above that green algae, which are mainly aquatic, are now considered to be part of the plant kingdom. This is because they share the same ancestors as the other main group of plants, the land plants, or Embryophyta.Land Plants (Embryophyta)The land plants, or embryophytes, are what was traditionally thought of as ‘plants’, before the green algae were included. Most embryophytes live on land, although some, such as lilies, duckweeds and bulrushes, are partly or entirely aquatic.There are two main types of land plants: vascular plants and bryophytes. There are over 300,000 species of vascular plants and around 20,000 species of bryophytes.Bryophytes (Non-Vascular Land Plants)Mosses, hornworts and liverwortsSphagnum mossNon-vascular land plants form a group known as bryophytes. The group includes the mosses, hornworts and liverworts. The plants in this group are thought to have descended from the earliest land plants. They do not produce flowers or seeds, and reproduce using spores.SporesSpores are single reproductive cells that, under the right conditions, will germinate and grow to become a new individual. Bryophyte spores grow into new plants by making exact copies of their cells – a process known as mitosis.Plants aren’t the only organisms to reproduce using spores; fungi, algae, and some unicellular organisms also produce spores. Bryophytes are usually small, and found in moist, shady habitats. They have single-celled root structures and are not dependent on their roots to collect nutrients (for this reason they can live on rocks).Bryophytes are very sensitive to air pollution, and tend not to be found in highly polluted areas.Vascular PlantsVascular plants belong to the group Tracheophyta, and are known as tracheophytes. Plants in this group contain vascular tissue, which carries water and nutrients around the plant.Vascular tissue itself contains two different types of tissue:Xylem transports water and minerals from the plant’s roots around the plant;Phloem transports sugar produced by the plant’s leaves around the plant.Situated between the xylem and phloem is a band of cells called the cambium.Vascular plants are divided into two main groups: those that produce seeds, and those that don’t.Vascular Plants That Don’t Produce SeedsFerns are vascular plants that reproduce with spores rather than seeds.Vascular plants that don’t produce seeds are known as pteridophytes. Pteridophytes lack flowers and use spores to reproduce.This group of vascular plants includes ferns and horsetails. The term pteridophytes is often expanded to include the clubmosses (lycophytes), although these plants are less-closely related and are often placed in their own group.With over 10,000 species, the ferns are the largest group of non-seed producing vascular plants.Seed PlantsSeed plants are also known as spermatophytes. As the name suggests, seed plants grow from seeds rather than from spores.There are two main groups of seed plant: gymnosperms, many of which grow their seeds in cones; and angiosperms, which are flowering plants whose seeds are protected and dispersed within fruit.SeedsUnlike spores, seeds are multicellular structures (i.e. they consist of more than one cell). A seed not only protects the plant embryo, but also feeds it.A plant seed consists of three parts: the seed coat is a protective covering; the endosperm is the tissue which provides nutrients; and the plant embryo is the part that develops into the new plant.Under the right conditions, the seed will germinate (begin to grow). Until a seed germinates it is said to be dormant. Seeds don’t always germinate immediately they are dispersed; they can be dormant for periods of weeks or even many years.A growing seed is known as a seedling. It lives off the nutrients contained within its seed until its leaves are sufficiently developed to allow it to photosynthesize.GymnospermsConifers, cycads, ginkgo, and gnetaeThe seeds of a conifer are protected by cones.Gymnosperms are seed plants whose seeds are not contained within a fruit. The word gymnosperm means ‘naked seed’, and refers to the exposed nature of the seeds produced by members of the group.The seeds of many gymnosperms are produced in cones.The most diverse and best-known gymnosperms are the conifers. Familiar trees such as pines, firs, cedars, spruces and redwoods are all conifers.The other three groups of gymnosperms are the cycads, gnetae (plants in the division Gnetophyta), and the ginkgo (Ginkgo biloba is the only surviving ginkgo species).AngiospermsFlowering plantsMany flowering plants rely on animals - such as this honey bee - to pollinate their flowers.Angiosperms are planting whose reproductive parts are contained in flowers. The seeds of flowering plants are protected and dispersed within a fruit.Flowering plants first appeared in the Cretaceous Period. They diversified rapidly, coevolving with bees and other pollinating insects.With over a quarter of a million known species, the flowering plants are easily the most diverse of all plant groups. Well-known angiosperms include roses, daisies, grasses, heathers, cacti, palms, and trees such as poplars, birches, beeches and elms.Monocots and DicotsThere are two main types of angiosperms: monocots and dicots.Monocots are also known as monocotyledons. As seeds, they only contain one seed leaf. (Seed leaves, or cotyledons, are the first leaves to grow from a seed.)Examples of monocots include grasses, lilies, tulips and palms. Around 23% of all angiosperms are monocots.Dicots, also known as dicotyledons, have two seed leaves. Examples of dicotyledons include: beeches, oaks, maples, roses, dandelions, daisies, cabbages, apples, cherries and magnolias (and most other trees and shrubs that aren’t conifers).Plant ReproductionPlants reproduce either asexually or sexually.In asexual reproduction, the plant produces offspring that is genetically identical to itself.Asexual reproduction is faster and requires less energy than sexual reproduction because the plant involved is not required to find another plant with which to reproduce.In sexual reproduction, a male sperm cell fuses with a female egg cell, producing an embryo that contains characteristics of both parents.Sexual reproduction results in a varied population that is more resilient to threats such as disease or environmental change.The way in which plants reproduce – both sexually or asexually – differs depending on the type of plant.Asexual ReproductionAsexual reproduction involves the plant making an exact copy, or clone, of itself. It is a very common means of reproduction in plants.Plants have evolved various organs to allow themselves to reproduce asexually. Most plants produce either modified stems or modified roots from which new individuals can grow.An example of a modified stem is a rhizome, which grows underground and produces buds from which new plants grow. Ferns and many types of grasses produce rhizomes.A tuber, such as a potato, is another example of a modified stem from which offspring can grow.Sexual ReproductionA rufous hummingbird feeding on nectar.Sexual reproduction in plants is slightly more complicated than that in animals, as it involves the creation of two generations per life cycle in a system known as the alternation of generations.On this page we cover the basics of plant reproduction. Future articles will cover the subject in much greater depth.Sexual Reproduction In Seedless PlantsBryophytes and seedless vascular plants such as ferns reproduce sexually by dispersing spores.The spores grow into new plants which contain both male and female parts. Sperm (male reproductive material) from the male part of one plant fuses with the egg in the female part of another plant. This results in an embryo that contains genetic material from both parents.These types of plant are often confined to damp environments, as the sperm have to swim through water in order to reach the egg of another plant.Sexual Reproduction In Seed-Producing PlantsGymnosperms and flowering plants grow from seeds. In gymnosperms such as conifers, the seeds are housed in cones, and are released when the cone ripens. The seeds of flowering plants are protected and dispersed within a fruit.Seeds are produced as a result of pollination.Pollen is a powdery substance that contains and protects a plant’s male reproductive material. In gymnosperms it is produced in male cones.In flowering plants pollen is produced by the anther, part of the male reproductive structure of a flower.In gymnosperms, pollen is usually carried by the wind, with pollination occurring when the pollen reaches an ovule in a female cone.In flowering plants, pollination occurs when pollen adheres to the stigma, which is part of the female structure in a flower. Here it will germinate and transport sperm to the egg.PollinatorsMany flowering plants rely on animals such as insects or birds to transport pollen between the flowers of different plants of the same species, thereby enabling reproduction to take place. Animals that fulfil this role are known as pollinators.Flowers attract pollinators by producing nectar, a sugary, energy-providing substance, and excess pollen, which itself is an important source of food for many animals.While the pollinator is collecting a flower’s nectar, its body also picks up grains of pollen as it brushes against the flower’s anthers.When the pollinator visits another flower, the pollen it carries is deposited on the new flower’s stigma. Not only has the pollinator had a free meal, but it has also helped the plants to reproduce!Cross-Pollination & Self-PollinationCross-pollination occurs when pollen is transported to a different plant. Self-pollination, in which pollen is transported to flowers of the same plant (or the female parts of the same flower), can also occur.Plants: The Ultimate Guide – ConclusionWe hope that by reading this article your knowledge and appreciation of plants has grown. Plants are fascinating organisms which perform a vital role in virtually all terrestrial ecosystems.You can find out more about the amazing world of plants on the following pages: Science Plants plant, (kingdom Plantae), any multicellular eukaryotic life-form characterized by (1) photosynthetic nutrition (a characteristic possessed by all plants except some parasitic plants and underground orchids), in which chemical energy is produced from water, minerals, and carbon dioxide with the aid of pigments and the radiant energy of the Sun, (2) essentially unlimited growth at localized regions, (3) cells that contain cellulose in their walls and are therefore to some extent rigid, (4) the absence of organs of locomotion, resulting in a more or less stationary existence, (5) the absence of nervous systems, and (6) life histories that show an alteration of haploid and diploid generations, with the dominance of one over the other being taxonomically significant.Plants range in size from diminutive duckweeds only a few millimetres in length to the giant sequoias of California that reach 90 metres (300 feet) or more in height. There are an estimated 390,900 different species of plants known to science, and new species are continually being described, particularly from previously unexplored tropical areas of the world. Plants evolved from aquatic ancestors and have subsequently migrated over the entire surface of Earth, inhabiting tropical, Arctic, desert, and Alpine regions. Some plants have returned to an aquatic habitat in either fresh or salt water.PhotosynthesisDiagram of photosynthesis showing how water, light, and carbon dioxide are absorbed by a plant to produce oxygen, sugars, and more carbon dioxide.Plants play a vital role in the maintenance of life on Earth. All energy used by living organisms depends on the complex process of photosynthesis, which is mostly carried out by green plants. Radiant energy from the Sun is transformed into organic chemical energy in the form of sugars through the fundamental series of chemical reactions constituting photosynthesis. In nature all food chains begin with photosynthetic autotrophs (primary producers), including green plants and algae. Primary producers, represented by trees, shrubs, and herbs, are a prolific source of energy in the form of carbohydrates (sugars) stored in the leaves. These carbohydrates, produced in photosynthesis, are broken down in a process called respiration; the smaller units of the sugar molecule and its products fuel numerous metabolic processes. Various parts of the plant (e.g., leaves) are the energy sources that support animal life in different community habitats. A by-product of photosynthesis, oxygen, is essential to animals.The daily existence of human beings is also directly influenced by plants. Plants furnish food and flavourings; raw materials for industry, such as wood, resins, oils, and rubber; fibres for the manufacture of fabrics and cordage; medicines; insecticides; and fuels. More than half of Earth’s population relies on the grasses rice, corn (maize), and wheat as their primary source of food. Apart from their commercial and aesthetic value, plants conserve other natural resources by protecting soils from erosion, by controlling water levels and quality, and by producing a favourable atmosphere.The following article summarizes the morphological, physiological, and ecological features of plants. The principal focus is on structure and function, physiology, life histories, and ecology, and on how the various plant groups have evolved, dispersed, and become adapted to life on land. The features that define each major plant group and the role they play in the wider ecosystem also are discussed. Pop Quiz: 13 Things to Know About Photosynthesis Plants are multicellular organisms in the kingdom Plantae that use photosynthesis to make their own food. There are over 300,000 species of plants; common examples of plants include grasses, trees, and shrubs. Plants have an important role in the world’s ecosystems. They produce most of the world’s oxygen, and are important in the food chain, as many organisms eat plants or eat organisms which eat plants. The study of plants is called botany. Plants are autotrophs; they produce their own food. They do so via photosynthesis, which is the process of making nutrients such as sugars from light energy and carbon dioxide. Photosynthesis occurs in cell organelles called chloroplasts, which contain chlorophyll and carotenoids, molecules that absorb light energy and change it into a usable form. Heterotrophs, on the other hand, are organisms that cannot make their own food and must eat other organisms to survive. Many heterotrophs eat plants. Other heterotrophs eat animals that have eaten plants. Plants are primary producers in many ecosystems, giving them a vital role in the survival of many other organisms. In addition, oxygen is a byproduct of photosynthesis, and many organisms depend on oxygen to survive. We couldn’t live without plants. Plants are multicellular organisms with eukaryotic cells. A eukaryotic cell is a relatively large cell with a true nucleus and other organelles that perform specific functions. Plants, protists, fungi, and animals all have eukaryotic cells. Plant cells are distinguished by their cell walls containing cellulose, chloroplasts that perform photosynthesis, and a large central vacuole that holds water and keeps the plant turgid. Prokaryotic cells, on the other hand, are small with no true nucleus or organelles except ribosomes, which produce proteins. Bacteria and archaea have prokaryotic cells. Many plants have vascular tissue, such as xylem and phloem, that carries water and nutrients throughout the plant. This is particularly important for plants that grow upwards; water needs to travel from the roots up the stem to the leaves. Vascular tissue is found in more “complex” plants. Plants are believed to have evolved from algae-like ancestors. Today, most modern-day algae are classified as bacteria, not plants. However, green algae, which also have cellulose in their cell walls and have chloroplasts that perform photosynthesis, are sometimes grouped with plants. Plants reproduce both sexually and asexually and have what is known as alternation of generations. A haploid stage alternates with a diploid stage. Haploid is when cells contain one set of chromosomes, while diploid is when cells contain two sets. (For reference, humans are diploid but their gametes—sperm and eggs—are haploid). In plants, two haploid gametes join to form a diploid zygote. This diploid zygote divides through mitosis to become a multicellular organism. It is called the sporophyte, and at maturity, it asexually produces haploid spores. The haploid spores then germinate into multicellular organisms called gametophytes. Gametophytes produce haploid gametes, which fuse to make a diploid organism, and the alternation between diploid and haploid starts all over again. This image depicts the alternation of generations. Charophytes are complex green algae such as stoneworts. They have cells with chloroplasts, cell walls containing cellulose, and store starch, as plants do. They reproduce sexually and some have sperm with flagella (tails that allow them to move), just like some plants do. Some fossil stoneworts are very similar to modern day ones. Bryophytes are nonvascular land plants. They do not have vascular tissue, which is tissue that transports water and nutrients. They are found both on land and in water. Common examples of bryophytes are mosses, liverworts, and hornworts. Bryophytes are generally very similar to algae in their lack of a vascular system. They do have parts similar to roots, stems, and leaves, but these are not the true roots, stems, and leaves found in vascular plants. Liverworts were probably the first land plants to evolve. Hornworts have features of both algae and plants, and mosses, the most well-known bryophytes, are the members of this group that are most similar to vascular plants. Seedless vascular plants produce embryos that are not protected by seeds. Instead, they reproduce via spores. Members of this group include ferns, horsetails, quillworts, clubmosses, and spikemosses. These plants used to be called pteridophytes, but this turned out to be an inaccurate group because ferns and horsetails are more closely related to seed plants than to quillworts, clubmosses, and spikemosses. Seedless vascular plants flourished during the Devonian period and in Carboniferous forests. Gymnosperms include conifers and related plants like ginkgoes and cycads. Gymnosperms have “naked seeds”; their seeds are not contained within an ovary as in flowering plants. Instead, their seeds grow on the surface of leaves, or in the case of conifers, modified structures like cones. The most common example of a gymnosperm is probably the pine tree and its pinecones. Ginkgoes are also well known for being essentially unchanged from ancient ginkgo plants found in fossils from 270 million years ago. Angiosperms are flowering plants. They are the most widespread plants today, and over 295,000 different species are known. Their reproductive organs are flowers, which have male parts like stamen and pollen, and female parts like the pistil. When flowers are pollinated, fruits develop containing seeds. Angiosperms have more complex vascular tissue than gymnosperms do. Eukaryotic cell – A relatively large cell with a true nucleus and organelles. Chloroplast – An organelle found in plant cells that contains chlorophyll; it is where photosynthesis takes place. Organelle – A specialized structure within a cell that carries out a certain function in that cell. Alternation of generations – The alternation of diploid and haploid stages in a plant’s life cycle. 1. Which is NOT a characteristic of plants? A. Asexual reproduction B. Sexual reproduction C. Heterotrophy D. Autotrophy C is correct. Plants are autotrophs that make their own food. They also reproduce both sexually and asexually during the alternation of haploid and diploid generations in their life cycle. 2. The gametophyte is ______ and produces ______ during reproduction. A. haploid; spores B. haploid; gametes C. diploid; spores D. diploid; gametes B is correct. Gametophytes are haploid; they are multicellular organisms that grow from haploid spores. They produce haploid gametes that fuse to make a diploid organism called the sporophyte, which in turn produces haploid spores that more gametophytes will grow from. This alternation between haploid and diploid is the alternation of generations. 3. Which plant is a gymnosperm? A. Pine tree B. Apple tree C. Moss D. Fern A is correct. Pine trees are conifers, and all conifers, along with others like ginkgoes and cycads, are gymnosperms. Gymnosperms have “naked seeds” that are not contained in an ovary and instead form on the surfaces of leaves or in cones. Plantio utilizará mudas produzidas no Horto Municopal Foto: Alex Régis/Secom O natalense terá, neste sábado (21), das 7h às 11h, a oportunidade de plantar árvores nativas. Dentro das diversas ações do projeto "Planta Natal", criado pela Prefeitura, será realizado um mutirão de plantio no Conjunto Cidade Satélite, com a rearborização de 430 mudas que irão reforçar as áreas verdes existentes com árvores nativas de pequeno, médio e grande porte, frutíferas e de sombra. "Esta ação de plantio no Conjunto Cidade Satélite, articulada com a participação ativa das nossas secretarias e da comunidade, vai melhorar ainda mais o clima da nossa cidade, vai aumentar a umidade do ar, amenizando o calor com a sombra das árvores, vai deixar a cidade mais bonita, portanto, melhorar a qualidade de vida de toda a população. Estamos trabalhando para ter uma cidade agradável, bonita e boa de se viver", afirma o prefeito Álvaro Dias. O plantio das 430 mudas no corredor ecológico no conjunto Cidade Satélite foi escolhido, neste primeiro momento, por ser um bairro planejado e já possuir áreas de proteção ambiental, dando condições para ser o projeto piloto. Inicialmente, foi realizado o mapeamento de todas as ruas, das áreas verdes e das condições de plantio do solo, com a prioridade de fazer a recomposição das áreas de preservação permanente. Desde segunda-feira passada, começaram as ações de limpeza, capinação e foram realizadas as marcações dos pontos dos plantios para facilitar a visualização geral. "Em Natal, parece haver uma mescla de sentimentos sobre as árvores. Por um lado, a população em geral tende a valorizar as árvores, mas por outro, reclamam da queda de folhas e do trabalho que dá para limpar. Além disso, tem acontecido em alguns locais o furto de árvores. O objetivo do prefeito Álvaro Dias é tornar Natal um modelo nacional de arborização urbana e isso tem uma relação direta com a valorização que a população da cidade dá às suas árvores. De forma consciente ou não, as pessoas ficam mais felizes e mais saudáveis em cidades arborizadas", afirma a secretária executiva do município de Natal, Danielle Mafra, acrescentando que não é preciso só a conscientização da população para a preservação das árvores urbanas, como também do seu cuidado com o plantio e com a limpeza da cidade. "Se cada pessoa ajudar, deixaremos um legado para as nossas futuras gerações", diz. Para participar da ação, de forma voluntária, basta se cadastrar através do whatsapp (84) 99986.3206. O plantio será distribuído em oito áreas da região, entre a primeira e a terceira etapas do conjunto, numa extensão de aproximadamente três quilômetros de área verde. Os locais mapeados foram divididos em "lado A" (antes da Omar O'grady – sentido Planalto) e "lado B" (após Omar O'grady – sentido BR). Serão fornecidas 80 mudas pelo Horto do Parque da Cidade do Natal e 300 mudas pelo Horto Municipal. Os garajaus de madeira,confeccionados pela Companhia de Serviços Urbanos de Natal (Urbana) com o material coletado em toda a cidade, farão a proteção das mudas. Em cada ponto do plantio haverá necessariamente uma equipe de jardineiro de apoio (verdinhos) e um técnico do "Planta Natal" responsável pela marcação dos pontos de plantio, além dos grupos parceiros, população, escoteiros e demais voluntários. Haverá dois carros pipas e dois carros de apoio da Semsur disponíveis durante a ação e divididos em cada lado do plantio. A ação conta com o apoio das equipes das secretarias municipais de Serviços Urbanos (Semsur), de Meio Ambiente e Urbanismo (Semurb), de Comunicação Social (Secom), Urbana, Planta Natal, Parque da Cidade, Conselho Comunitário da Cidade satélite (Concitel), Horto Parque das Serras, Associação dos Ciclistas do RN (Acirn), Supermercado SuperBox e o grupo de escoteiros. Planta Natal O Projeto "Planta Natal" visa plantar 20 mil espécies vegetais nativas durante toda a gestão do prefeito Álvaro Dias. Além do Dia D de plantio no Conjunto Cidade Satélite, durante todo o ano, às terças e quintas-feiras, estão sendo plantadas em praças, feiras, canteiros e terrenos, mudas de mulungu, pau brasil, ipê roxo/amarelo, pau ferro e outras espécies nativas, já testadas e adaptadas ao regime de inverno da capital potiguar. Para o mês de setembro, está programada a realização do "1º Seminário Planta Natal de Arborização Urbana", no auditório do Parque da Cidade, para ser discutido em rede, de forma articulada e unida, o plantio de árvores urbanas e a conscientização do meio ambiente. PONTOS DE CONCENTRAÇÃO DO PLANTIO DO DIA-D Data: 21/08/2021 (Sábado) Ponto 1 – Praça A.A Localização: Ponto 2 – Passeio próximo a R. do Falcão Localização: Ponto 3 – CONCITEL Localização: Ponto 4 – Oratório R. dos Canários Localização: Ponto 5 – Próximo ao Horto Parque das Serras Localização: Ponto 6 – 2ª Quadra De Esportes Do Satélite Localização: Ponto 7 - Bicicross Localização: Ponto 8 – 1ª Quadra De Esportes Do Satélite Localização: Fonte: natal.rn.gov.br Identifique plantas instantaneamente com um clique Tire uma foto para identificação instantânea de plantas, obtendo rapidamente informações sobre prevenção de doenças, tratamento, toxicidade, cuidados, usos e simbolismo, etc. Baixe o App Gratuitamente Continue Lendo O estado potiguar é um estado rico em natureza, onde se encontra grande a biodiversidade de espécies de animais, além das plantas e flores do Rio Grande do Norte. Dessa flora, boa parte está em sua vasta costa praiana, influenciadas pelos ventos e maresia, incluindo as plantas provenientes dos estuários. Se você ficou curioso para conhecer um pouco mais as plantas e flores do Rio Grande do Norte, vem comigo e vamos explorar as maravilhas da natureza local! A vegetação ocupa uma grande porção do RN. A vegetação tropical aparece no leste do estado, caracterizando a separação entre o lado úmido e o lado do sertão. Na região costeira são mais comuns plantas herbáceas, rasteiras e mais adaptáveis, que podem germinar por bastante tempo, com um ciclo de vida anual. Manguezal. Fonte/Reprodução: original. Os manguezais também estão presentes nessa região, já que se desenvolvem melhor em locais pantanosos. No interior do estado temos o cerrado como vegetação predominante. Também temos a caatinga, muito comum nas regiões mais quentes do país, por se formar de plantas mais resistentes ao sol, sem tanta necessidade de água, como o pereiro, o angico e Cumaru. Existe uma grande diversidade entre as plantas e flores do Rio Grande do Norte, por isso não é possível determinar com exatidão a época que acontece o florescimento. Mas, como a maioria da vegetação, essas plantas são de fácil adaptação a regiões desérticas e climas quentes. Como o Rio Grande do Norte é um estado brasileiro ensolarado quase o ano todo, as plantas e flores adaptadas florescem e frutificam o ano inteiro. Exstem, conforme o Ministério do Meio Ambiente, em torno de 900 espécies de plantas do cerrado e da caatinga. Por essas plantas serem acostumadas ao clima seco e a pouca água, não exigem muitos cuidados e se dão bem na região. Porém, muitas espécies ainda não foram descobertas e nem catalogadas, então é difícil definir os principais cuidados. As principais diferenças entre as plantas e flores do Rio Grande do Norte e outras regiões do país, são a maior resistência ao sol e o calor, vegetação rasteira e a baixa necessidade de regas. Já as plantas do sul do país, que exigem muito mais cuidado e são muito mais sensíveis aos fatores climáticos, são mais resistentes ao frio e podem suportar maiores períodos de chuvas. Existem diversas espécies diferentes de plantas e flores no estado, haja vista os variados tipos de vegetação presente entre as regiões mais áridas, úmidas e litorâneas, podemos destacar os 3 tipos de mangues: Vermelho, Preto e Branco. Flor do mandacaru. Fonte/Reprodução: original. O Sabiá (Mimosa caesalpiniaefolia), árvore tipica do nordeste brasileiro, e o Xique-xique (Pilocereus gounellei), uma espécie de cacto, planta comum da caatinga muito resistente ao ambiente mais seco, também são encontradas facilmente na região. Na Caatinga e região do semi-árido também se destaca o mandacaru, um cacto que pode atingir até 5 m de altura. Em Natal, temos uma flor que é símbolo da cidade: a chanana. Um flor que floresce e cresce rapidamente ao menor sinal de chuva, aguenta vários meses de seca para no inverno florescer e deixar as ruas e becos da cidade mais lindos. O cajueiro permeia todo o sertão, mas também enche o litoral suas árvores majestosas, não é à toa que em Pirangi existe o maior cajueiro do mundo. As plantas e flores do Rio Grande do Norte fazem parte de uma vasta biodiversidade, que possui uma beleza exótica e precisam ser apreciadas com muita dedicação.

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