

Blood is a specialized [bodily fluid](#) that delivers necessary substances to the body's [cells](#) – such as nutrients and [oxygen](#) – and transports [waste](#) products away from those same cells.

In [vertebrates](#), it is composed of [blood cells](#) suspended in a [liquid](#) called [blood plasma](#). Plasma, which constitutes 55% of blood fluid, is mostly water (90% by volume), and contains dissolved proteins, [glucose](#), mineral ions, [hormones](#), [carbon dioxide](#) (plasma being the main medium for excretory product transportation), [platelets](#) and blood cells themselves. The blood cells present in blood are mainly [red blood cells](#) (also called RBCs or erythrocytes) and [white blood cells](#), including leukocytes and [platelets](#). The most abundant cells in vertebrate blood are [red blood cells](#). These contain [hemoglobin](#), an [iron](#)-containing protein, which facilitates transportation of [oxygen](#) by reversibly binding to this [respiratory](#) gas and greatly increasing its solubility in blood. In contrast, carbon dioxide is almost entirely transported extracellularly dissolved in plasma as [bicarbonate](#) ion.

Vertebrate blood is bright red when its hemoglobin is oxygenated. Some animals, such as [crustaceans](#) and [mollusks](#), use [hemocyanin](#) to carry oxygen, instead of hemoglobin. [Insects](#) and some molluscs use a fluid called [hemolymph](#) instead of blood, the difference being that hemolymph is not contained in a closed [circulatory system](#). In most insects, this "blood" does not contain oxygen-carrying molecules such as hemoglobin because their bodies are small enough for their [tracheal system](#) to suffice for supplying oxygen.

[Jawed vertebrates](#) have an [adaptive immune system](#), based largely on [white blood cells](#). White blood cells help to resist infections and parasites. [Platelets](#) are important in the [clotting](#) of blood. [Arthropods](#), using hemolymph, have [hemocytes](#) as part of their [immune system](#).

Blood is circulated around the body through [blood vessels](#) by the pumping action of the [heart](#). In animals with [lungs](#), [arterial](#) blood carries oxygen from inhaled air to the tissues of the body, and

venous blood carries carbon dioxide, a waste product of metabolism produced by cells, from the tissues to the lungs to be exhaled.

In terms of anatomy and histology, blood is considered a specialized form of connective tissue, given its origin in the bones and the presence of potential molecular fibers in the form of fibrinogen.

blād iz æ speshālīzd bodilē flōid t̄ot dāliviz neslserē s̄abstinsiz t̄ō t̄īl bodezs sōlz s̄lch̄ ȳz nyōchreīn̄as̄ ȳnd oxājīn̄ ȳnd chronzpr̄as̄ w̄æst prod̄l̄k̄as̄ λw̄æ from t̄ōz s̄æm sōlz . in vurt ābrīas̄ , it iz kompōzd̄ ov blād sōlz s̄āspendīd̄ in æ līqīd k̄ārd̄ blād plōzma . plōzma , wīch̄ konstich̄as̄ 55% ov blād flōid , iz mōstlē w̄art̄λ (90% bī volyōm) , ȳnd k̄ānt̄ænz̄ dizolv̄d̄ prōtēnz̄ , glōkōz̄ , min̄ār̄ōl̄ īnz̄ , h̄armōnz̄ , k̄Δbin̄ dīoxīd̄ (plōzma bēḡ t̄īl m̄æn̄ medēim̄ f̄r̄ exkrit̄ar̄ē prod̄l̄kt̄ chronspr̄t̄ æshīn̄) , plōtlīas̄ ȳnd blād sōlz t̄īem̄s̄ȳvz̄ . t̄īl blād sōlz pr̄āzēnt̄ in blād Δ m̄ænlē red blād sōlz (ārlsō k̄ārd̄ Δbēsēz̄ ā ut̄r̄ōsīas̄) ȳnd wīt̄ blād sōlz , īnk̄lōdēḡ l̄urkōsīas̄ ȳnd plōtlīas̄ . t̄īl mōst̄ ābandīnt̄ sōlz in vurt ābrīt̄ blād Δ red blād sōlz . t̄īez̄ k̄ānt̄ æn̄ hēmāglōbīn̄ , ȳn̄ īīn̄ k̄ānt̄ ænēḡ prōtēn̄ , wīch̄ f̄āsilāt̄ ǣas̄ chronspr̄t̄ æshīn̄ ov oxājīn̄ bī rīvursāblē bīndēḡ t̄ō t̄īs̄ respirāt̄ōrē gōs̄ ȳnd gr̄ætlē īnk̄rēsēḡ īas̄ solyōbilitē in blād . in konchr̄Δst̄ , k̄Δbin̄ dīoxīd̄ iz āmōst̄ int̄īl̄lē chronzpr̄tīd̄ exchr̄āsolyōlē dizolv̄d̄ in plōzma ȳz bīk̄Δbānit̄ īīn̄ .

vurt ābrīt̄ blād iz brīt̄ red wēn̄ īas̄ hēmāglōbīn̄ iz oxājīn̄ætīd̄ . s̄ām̄ ȳn̄ām̄ōlz̄ , s̄lch̄ ȳz̄ kr̄ast̄ æshīnz̄ ȳnd mol̄l̄sk̄s̄ , yōz̄ hēmōsīn̄īn̄ t̄ō̄ k̄ōrē oxājīn̄ , īnsdēd̄ ov hēmāglōbīn̄ . īnsēk̄as̄ ȳnd s̄ām̄ mol̄l̄sx̄ yōz̄ ǣ flōid

kærlid hemōlif insded ov blæd , tīl difrins beþ tīot hemōlif iz not kǣntœnd in œ klōzd surkyōlætœre sistim . in mōst insektas , tīs "blæd" dæz not kǣntœn oxljin kœreþ molækyōlz sæcī œz hemæglōbin bekœz tīel bodez Δ smæl ænæf fœ tīel cīrœkeōl sistim tœ sǣfīs fœ sǣplīeþ oxljin . jœrd vurt æbriōs hœv œn ædoptiv imyœn sistim , bæst lΔjle on wīt blæd sœlz . wīt blæd sœlz hœlp tœ rezist infekshinz œnd pœræsīas . plotlīas Δ impœrtint in tīl klotēþ ov blæd . ΔTrōpœas , yœzeþ hemōlif , hœv hemōsīas œz pΔt ov tīel imyœn sistim . blæd iz surkyōlætīd ærœond tīl bode Trœ blæd vesōlz bī tīl pæmpreþ œkshin ov tīl hΔt . in œnæmōlz wīt læþzs , Δtereōl blæd kœrez oxljin from inhœild eæ tœ tīl tīshœz ov tīl bode , œnd venis blæd kœrez kΔbin dīoxīd , œ wœst prodækt ov metœbælizim præjœst bī sœlz , from tīl tīshœz tœ tīl læþzs tœ be exhœild . in turmz ov ænotæme œnd histolæje , blæd iz kǣnsīdæd œ speshælizd fœrm ov kǣnektiv tīshœ , givin īas oræjin in tīl bœnz œnd tīl prezīns ov pætenchōl mælekyōlæ fībiz in tīl fœrm ov fībræjin .