

KERNKONSEPTE / KEY CONCEPTS/ KAKANYOKGOLO

FAKULTEIT / FACULTY/LEGORO: Opvoedingswetenskappe / Education Sciences/Disaense tsa Thuto

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KONTAKPERSOON / CONTACT PERSON/ IKGOLAGANYE LE: Neal Petersen

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Kernbegrip in Afrikaans	Definisie/verklaring in Afrikaans	Key concept in English	Definition/explanation in English	Kakanyokgolo mo Setswaneng	Thanolo/Tihaloso mo Setswaneng
1. Anorganiese verbinding	'n Eenvoudige stof wat nie 'n koolstofruggraat bevat nie.	1. Inorganic compound	A simple substance that does not contain a carbon backbone.	1.Tswako-go-sa-boleng	Sere se se bonolo se se senang khabono nang le motheo wa khabone.
2. Atoom	Die kleinste hoeveelheid van 'n element wat die chemiese eienskappe van	2. Atom	The smallest quantity of an element that can retain the chemical properties of that	2. Atomo	Mothamo o monnye go feta wa elemente o o ka tsholang dipharologantsho tsa sekhemikhale tsa elemente eo.

	daardie element kan behou.		element.		
3. Data	Feitelike inligting wat gedurende 'n ondersoek of eksperiment versamel is.	3. Data	Factual information gathered during an investigation or experiment.	3. Tshedimosetso	Tshedimosetso ya matota e e kgobokantsweng ka nako ya patlisiso kgotsa tekeletso.
4. Eksperimentele metode	'n Metode wat gebruik word om resultate te verkry wat die hipotese óf ondersteun óf weerlê.	4. Experimental method	A method used to produce results that either support or refute the hypothesis.	4. Mokgwa wa tekelelo	Mokgwa o o dirisiwang go ungwa dipholo tse gongwe di tshegetsang kgotsa di ganang kakanyo.
5. Eukarioties	Organismes met 'n goed-gedefinieerde kern en organelle.	5. Eucaryotic	Organisms having a well-defined nucleus and organelles.	5. Yukariotiki	Ditshedinyana tse di nang le kerene e e tlhalositsweng sentle le dirwetschedi.
6. Hidrolise	'n Reaksie waarin 'n kovalente band tussen twee subeenhede verbreek word deur die byvoeging van 'n watermolekuul.	6. Hydrolysis	A reaction in which a covalent bond between two subunits is broken through the addition of a water molecule.	6. Haeterolise	Tsibogo e tshwaragano ya khobalente gareng ga diyuniti-tlase tse pedi e senngwang ka go tlhakannwa le molekule wa metsi.
7. Katalisator	'n Chemiese stof wat 'n reaksie kan versnel of vertraag, maar self onveranderd bly.	7. Catalyst	A chemical substance which can accelerate or retard a reaction and remains unchanged.	7 Katalise	Sere sa khemikhale se se akofisang kgotsa se diegisang tsibogo mme se sala se sa fetoge.
8. Materie	Enigiets wat oor massa beskik en ruimte beslaan.	8. Matter	Anything that has a mass and take up space.	8. Sere/metara	Sengwe le sengwe se se nang le mmase mme se nna mo sebakeng.
9. Monomeer	Die kleinste subeenheid waaruit 'n chemiese verbinding kan bestaan.	9. Monomer	The smallest subunit of a chemical compound.	9. monomere	Yuniti-tlase e nnye go feta ya tswako ya khemikhale.

10. Nutriënt	Die chemiese stowwe in voedsel wat as komponente vir die sintetisering van benodigde materiale en/of energiebronne gebruik word.	10. Nutrient	The chemical substances in food that are used as components for synthesizing needed materials and/or energy sources.	10. Kotli	Dire tsa sekhemikhale mo dijong tse di dirisiwang jaaka dikarolo tsa go tlhama maula a a tlhokegang le/kgotsa motswedi wa maatla.
11. Organel	Een van die gespesialiseerde strukture binne-in die sel.	11. Organelle	One of the specialized structures within the cell.	11. Serwe-tshedi	Nngwe ya dipopego tse di kgethegileng mo gare ga sele.
12. Organiese verbinding	'n Verbinding wat saamgestel is uit 'n ruggraat van koolstofatome.	12. Organic compound	A compound that is composed of a backbone, made up of carbon atoms.	12. Tswako ya dibodi	Tswako e e dirilweng ka motheo, o o dirilweng ka diatomo tsa khabono.
13. Polimeer (makromolekuul)	'n Verbinding wat opbou is van herhalende subeenhede van dieselfde algemene tipe.	13. Polymer (macromolecule)	A molecule build up of repeating subunits of the same general type.	13. Polimere (molekule-mogolo)	Molekule o o bopilweng ka go boeletsa diyuniti-tlase tse ka kakaretso di tshwanang.
14. Prokarioties	Organismes met 'n gebrek aan 'n membraangebonde kern en meeste organelle.	14. Procaryotic	Organisms lacking a membrane-bound nucleus and most organelles.	14. Porokariotiki	Ditshedinyana tse di tlhokang kerene e e potokilweng ke lethla le bontsi ba dire-tshedi.
15. Selmembraan of plasma-membraan	Die selektief deurlaatbare membraan wat die selinhoud omhul en waardeur alle materiale wat die sel binnegaan of verlaat, moet beweeg.	15. Cell membrane or plasma membrane	The selectively permeable membrane that encloses the cell contents and through which all materials entering or leaving the cell must pass.	15. Lethla la sele kgotsa lethla la polasema	Lethla le le sutlhelegang ka tlhotlho le le tswalelang diteng tsa sele le gape maula a a tsenang kgotsa a a tswang mo seleng a fetang ka lona.
16. Selwand	Die struktuur buite-om die plasmamembraan van	16. Cell wall	The structure on the outside of the plasma	16. Lebota la	Popego e e mo bokwantleng jwa lethla la

	sekere selle.		membrane of certain cells.	sele	polasema la disele tse di riling.
17. Sintese	'n Reaksie waarin twee of meer monomere kovalent verbind deur die verwydering van 'n watermolekuul.	17. Condensation	A reaction in which two or more monomers are combined covalently through the removal of a water molecule.	17. Phokafalo	Tsibogo e dimonomere tse pedi kgotsa go feta di kopangwang ka mokgwa wa khobalente ka go tlosa molekule wa metsi.
18. Sitoplasma	Die plasmamembraan en selinhoud, met uitsluiting van die kern.	18. Cytoplasm	The plasma membrane and cell contents with the exception of the nucleus.	18. Saetopolasema	Letha la polasema le diteng tsa sele kwa ntle ga kerene.
19. Sitosol	Die vloeibare bestanddeel van die sitoplasma waarin die organelle dryf.	19. Cytosol	The fluid component of the cytoplasm in which the organelles are suspended.	19. Saetosolo	Karolo ya seedi sa saetopolasema e dire-tshedi di lekeletseng mo go yona.
20. Wetenskaplike metode	Die metode wat wetenskaplikes gebruik om inligting in te samel; dit sluit 'n reeks geordende stappe in (waarneming; hipotese; eksperiment; gevolgtrekking).	20. Scientific method	The method, which includes a series of ordered steps (observation; hypothesis; experiment; conclusion), that scientists use to gather information.	20. Mokgwa wa saense	Mokgwa o o akaretsang tlhatlhamano ya dikgato ka go latelana (ditemogo; maitlhome; tekelelo; tshwetso) tse borasaense ba o dirisang go kgobokanya tshedimosetso.
21. Aërobiese respirasie	'n Tipe van respirasie waarin suurstof benodig word.	1. Aerobic respiration	A type of respiration where oxygen is needed.	21. Khemo ya aerobiki	Mofuta wa khemo o okosijene e tthokegang.
22. Anaërobiese respirasie	'n Tipe van respirasie waarin suurstof nie benodig word nie.	2. Anaerobic respiration	A type of respiration where oxygen is not needed.	22. Khemo e e seng ya aerobiki	Mofuta wa khemo e okosijene e sa tthokegang.
23. Chromosome	'n Relatief lang, stringagtige struktuur wat in die kern van dier- en	3. Chromosomes	A relatively long, threadlike structure found in the nucleus of animal and plant	23. Dikoromosoumo	Popego ya seka-tlhale e telelenyana e e fitlhelwang mo kerengeng ya diphologolo le disele tsa dimela. E na le maula a setshedinyana.

	plantselle aangetref word. Dit bevat die genetiese materiaal van die organisme.		cells. It contains the genetic material of the organism.		
24. Energie	Die vermoë van 'n sisteem om arbeid te verrig.	4. Energy	The capacity of a system to do work.	24. Maatla	Kgono ya thulaganyo ya go dira tiro.
25. Fermentasie	'n Vorm van anaërobiese respirasie van organiese stowwe (bv. koolhidrate) waartydens klein hoeveelhede chemiese energie (ATF) vrygestel word.	5. Fermentation	A form of anaerobic respiration of organic substances (e.g. carbohydrates) whereby small amounts of chemical energy (ATP) are released.	25. Pelô	Mofuta wa khemo e e seng ya aerobiki ya dire tse di bolang (sk dikhabohaetereiti) mo maatla a mannye a khemikhale (ATP) a gololwang.
26. Fosforilasie	'n Ensiemproses waarin 'n organiese stof met 'n fosfaatgroep verbind.	6. Phosphorylation	An enzymatic process in which an organic substance combines with a phosphate group.	26. Foseforileišene	Tirego ya ensime mo sereng se se bolang se se kopanngwang le setlhopha sa difosefate
27. Fotosintese	'n Fotochemiese proses waarin groen plante organiese verbindings vervaardig deur gebruik te maak van lig, chlorofil, koolsuurgas en water.	7. Photosynthesis	A photochemical process in which green plants manufacture organic compounds using light, chlorophyll, carbon dioxide and water.	27. Fotosintese	Thulaganyo ya marang-khemikhale e dimela tse tala di tthamang dire tse di bolang e dirisa lesedi, tlorofili, khabontaokosaete le metsi.
28. Gametogenese	Die proses van gameetvorming.	8. Gametogenesis	The process of gamete formation.	28. Gemetojenese	Thulaganyo ya popo ya gamete.
29. Geen	'n Chromosoomsegment, be-staande uit DNA, wat as 'n eenheid van oorerflikheids-inligting dien.	9. Gene	A segment of a chromosome, consisting of DNA, that serves as a unit of hereditary information.	29. Jine	Karolwana ya korosome e e nang le DNA, e e dirang jaaka yuniti ya tshedimotsetso ya bojaboswa.

30. Glikolise	Die eerste fase van sellulêre respirasie, waarin 'n glukose-molekuul in pirodruiwesuur gesplits word. ATP word terselfdertyd vervaardig.	10. Glycolysis	The first stage of cellular respiration, in which a glucose molecule is split into pyruvate, accompanied by the production of ATP.	30. Tlelaekolose	Kgato ya ntsha ya khemo ya sele, fa molekule wa tlelekouse o kgaoganang go nna pirobeiti, e patilwe ke go ntsha ATP.
31. Katalisator	'n Chemiese stof wat 'n chemiese reaksie kan versnel of vertraag, maar self onveranderd bly.	11. Catalyst	A chemical substance which can accelerate or retard a chemical reaction, and remains unchanged.	31. Katalise	Sere sa khemikhale se se akofisang kgotsa se diegisa tsibogo mme se nna se sa fetoge.
32. Meiose	'n Tipe kern- en selverdeling waarin die chromosoomgetal van diploïed na haploïed verminder word.	12. Meiosis	A type of nuclear and cell division in which the chromosome number is reduced from diploid to haploid.	32. Meiose	Mofuta wa kgaoganyo ya kerene le sele e aplo ya koromosome e fokoletswang go tswa go dipoloete go ya go hapoloete.
33. Mitose	'n Tipe kernverdeling met chromosoomvorming, wat daartoe lei dat elke dogterkern dieselfde aantal chromosome as die moederkern bevat.	13. Mitosis	A type of nuclear division with chromosome formation, which results in each daughter nucleus containing the same number of chromosomes as the parent nucleus.	33. Mitose	Mofuta wa kgaoganyo ya kerene o go tlangwang koromosome, mo letlhogela la kerene le nang le palo e e tshwanang ya dikoromosome jaaka motsadi wa kerene.
34. Nukleïensuur	'n Organiese molekule wat uit nukleotiedsubeenhede saamgestel is.	14. Nucleic acid	An organic molecule composed of nucleotide sub-units.	34. Asiti ya kerene	Molekule wa sebodi o o dirilweng ke diyuniti-tlase tsa nyutletite.
35. Nukleotied	'n Individuele subeenheid (monomeer) waait nukleïensuur saamgestel word.	15. Nucleotide	An individual sub-unit (monomer) of which nucleic acids are composed.	25. Nyutlitite	Yuniti-tlase e e nosi (monomere) e diasiti tsa kerene di tshamilweng ka yona.
36. Organiese verbindings	'n Verbinding wat uit 'n ruggraat van koolstofatome saamgestel is.	16. Organic substance	A compound that is composed of a backbone made up of carbon atoms.	36. Sere sa sebodi	Tswako e e dirilweng ka diatomo tsa khabono e le motheo.

37. Oksidasie	Enige proses wat die byvoeging van suurstof behels.	17. Oxidation	Any process involving the addition of oxygen.	37. Okosetasi	Thulaganyo ya go akaretsa go tlaleletswa ga okosijene.
38. Proteïen-sintese	'n Proses waarin proteïenmolekules deur die binding van aminosure gevorm word.	18. Protein synthesis	A process in which protein molecules are formed through the linkage of amino acids.	38. Tlhamo-poroteine	Thulaganyo e dimolekule tsa poroteine di tlangwang ka kopanyo ya diaminoasiti ka teng.
39. Respirasie (sellulêre respirasie)	'n Proses in lewende organismes waardeur die sel chemiese energie (ATP) deur 'n reeks chemiese reaksies genereer.	19. Respiration (cellular respiration)	A process in living organisms by which the cell generates chemical energy (ATP) through a series of chemical reactions.	39. Khemo (khemo ya sele)	Thulaganyo mo ditshedding tse sele e fetlhang maatla a khemikhale (ATP) ka tthatlhamano ya ditsibogo tsa sekhemikhale.
40. Sitokinese	Die veranderinge wat gedurende kernverdeling in die algemene sitoplasma plaasvind.	20. Cytokinesis	The changes occurring in the general cytoplasm during nuclear division.	40. Sitokinese	Phapang e e diregang mo saetopolaseme ka kakaretso motlhang wa karogo ya kerene.