

Province of the

**EASTERN CAPE**

EDUCATION

**SENIOR FASE**

**GRAAD 9**

**NOVEMBER 2010**

|  |
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| **NATUURLIKE WETENSKAPPE** |

**PUNTE: 100**

**TYD: 2 uur**

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| Hierdie vraestel bestaan 13 bladsye. |

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| **INSTRUKSIES EN INLIGTING** | |  |
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| 1. | Lees die vrae noukeurig voordat jy dit beantwoord. |  |
|  |  |  |
| 2. | Beantwoord alle vrae. |  |
|  |  |  |
| 3. | Alle vrae moet korrek genommer word, in ooreenstemming met die vraestel. |  |
|  |  |  |
| 4. | Skryf netjies en leesbaar. |  |

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| **VRAAG 1** | |  |
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| Verskillende moontlikhede word as antwoorde vir die onderstaande vrae voorgestel. Kies die korrekte antwoord en skryf die slegs die gepaste LETTER langsaan die vraagnommer. | |  |
|  |  |  |
| 1.1 | Van watter bron kry dierselle hul voedsel? |  |
|  |  |  |
| A. | Bloed |  |
| B. | Suurstof |  |
| C. | Ander selle |  |
| D. | Koolstofdioksied | (1) |
|  |  |  |
| 1.2 | Waarom is suurstof so belangrik vir die bloed en die selle? |  |
|  |  |  |
| A. | Suurstof help die bloed om klonte te vorm. |  |
| B. | Suurstof neem voedsel na die selle. |  |
| C. | Suurstof is noodsaaklik vir selgroei en energie. |  |
| D. | Suurstof is nie belangrik nie; koolstofdioksied is die belangrikste middel in die liggaam. | (1) |
|  |  |  |
| 1.3 | Die draai van die aarde om sy eie as eenkeer binne 24 uur veroorsaak … |  |
|  |  |  |
| A. | dag en nag. |  |
| B. | weerverandering. |  |
| C. | verduistering van die maan. |  |
| D. | sonsverduistering. | (1) |
|  |  |  |
| 1.4 | ŉ Instrument om reënval te meet word die … genoem. |  |
|  |  |  |
| A. | reënmeter |  |
| B. | manometer |  |
| C. | barometer |  |
| D. | termometer | (1) |
|  |  |  |
| 1.5 | Watter van die volgende kenmerke is op sure van toepassing? |  |
|  |  |  |
| A. | Dit smaak bitter. |  |
| B. | Dit maak blou lakmoes rooi. |  |
| C. | Dit voel seperig en los in water op. |  |
| D. | Dit het ŉ pH van 9. | (1) |
|  |  |  |
| 1.6 | Wanneer ŉ stof met suurstof reageer word die volgende gevorm: |  |
|  |  |  |
| A. | Oksied |  |
| B. | Water |  |
| C. | Sulfaat |  |
| D. | Karbonaat | (1) |
|  |  |  |
| 1.7 | Roes is die reaksie van yster met … |  |
|  |  |  |
| A. | suurstof in water. |  |
| B. | ŉ suur. |  |
| C. | waterstof in water. |  |
| D. | metaaloksiede. | (1) |

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| 1.8 | ŉ Atoom is elektries neutraal, wanneer … | | | |  |
|  |  | | | |  |
| A. | dit ŉ gelyke aantal protone en elektrone het. | | | |  |
| B. | protone beweeg. | | | |  |
| C. | elektrone in wentelbane beweeg. | | | |  |
| D. | dit ŉ gelyke aantal neutrone en protone het. | | | | (1) |
|  |  | | | |  |
| 1.9 | Verbranding behels die reaksie van ŉ stof met … | | | |  |
|  |  | | | |  |
| A. | water. | | | |  |
| B | hout. | | | |  |
| C. | suurstof. | | | |  |
| D. | koper. | | | | (1) |
|  |  | | | |  |
| 1.10 | | Die hooffunksie van die rooibloedliggaampies in die bloed is om … | | |  |
|  |  | | | |  |
| A. | klonte in bloed te vorm. | | | |  |
| B. | siektes te beveg. | | | |  |
| C. | suurstof na die liggaam se selle te neem. | | | |  |
| D. | koolstofdioksied na die liggaam se selle te vervoer en wegneem van suurstof vanaf die selle. | | | | (1) |
|  |  | | | | **[10]** |
| **VRAAG 2** | | | | |  |
|  | | | | |  |
| 2.1 | Pas elk van die beskrywings in KOLOM A wat die beste by die term in KOLOM B pas. Skryf die vraagnommer met die letter van die korrekte antwoord langsaan neer. | | | |  |
|  |  | | | |  |
| **KOLOM A** | | | | **KOLOM B** | |
| 2.1 Die vermoë van diere om saam met hul omgewing te smelt. | | | | A. Resistor | |
| 2.2 Die eenheid van energie. | | | | B. Half-geleier | |
| 2.3 ŉ Meganisme wat die vloei van elektrone vertraag. | | | | C. Skakelaar | |
| 2.4 ŉ Stof wat, wanneer dit met ŉ ander stof gekombineer word, in ŉ geleier of insulator verander kan word. | | | | D. Aanpassing | |
| 2.5 Die vloei van elektrone van een gebied na ŉ ander. | | | | E. Joule | |
| 2.6 Die meganisme wat die oop- en toemaak van ŉ elektriese stroom beheer. | | | | F. Kamoefleer | |
| 2.7 ŉ Deeltjie wat los in ŉ wentelbaan rondom die nukleus van die atoom gehou word. | | | | G. Elektriese lading | |
| 2.8 Die potensiaal van elektrone of protone om mekaar aan te trek. | | | | H. Insulator/Nie-geleier | |
| 2.9 Omskep alternatiewe elektriese stroom na direkte elektriese stroom. | | | | I. Watt | |
| 2.10 ŉ Materiaal wat nie elektrisiteit toelaat om deur dit te vloei nie. | | | | J. Elektriese stroom | |
|  | | | | K. Elektron | |
|  | | | | L. AS-kragaanpasser | |
|  | | | | M. Geleier | |
|  |  | | (10 x 1) | | **[10]** |

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| **VRAAG 3 Lewe en Lewende Dinge** | | | | | | | | | | | | |  |
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| Bestudeer die onderstaande diagramme en beantwoord die vrae wat volg: | | | | | | | | | | | | |  |
|  | | | | | | | | | | | | |  |
|  | |  | | | **A.** | | | | | | | |  |
|  | | 1  2 | | | 5  4  3 | | | | | | | |  |
|  | |  | | |  | | | | | | | |  |
|  | |  | | | **B.** | | | | | | | |  |
|  | |  | | |  | | | | | | | |  |
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| 3.1 | Identifiseer die selle A en B. | | | | | | | | | | | | (2) |
|  |  | | |  | | | | | | | | |  |
| 3.2 | Voorsien die byskrifte genommer 1 – 5. | | | | | | | | | | | | (5) |
|  |  | | |  | | | | | | | | |  |
| 3.3 | Verduidelik die funksies van die dele genommer 2 en 5. | | | | | | | | | | | | (2) |
|  |  | | |  | | | | | | | | | **[9]** |
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| **VRAAG 4 Leef en om te Lewe** | | | | | | | | | | | | |  |
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| Bestudeer die onderstaande tabel wat die persentasie van koolhidrate-, proteïene- en vetinhoud van vier verskillende kossoorte en beantwoord die vrae wat volg. | | | | | | | | | | | | |  |
|  | | | | | | | | | | | | |  |
| **% Samestelling** | | | | | | | | | | |
| **Voedsel** | | | | | **Koolhidrate** | | **Proteïne** | | **Vet** | **Ander** |
| Brood | | | | | 47 | | 10 | | 3 | 40 |
| Botter | | | | | 0 | | 1 | | 82 | 17 |
| Vis | | | | | 8 | | 20 | | 10 | 62 |
| Gebraaide rys | | | | | 37 | | 4 | | 19 | 40 |
|  | | | | | | | | | | | | |  |
| 4.1 | Watter kos, as dit in ewe veel hoeveelhede geëet word, sal die meeste energie verskaf? | | | | | | | | | | | | (1) |
|  |  | | | | | | | | | | | |  |
| 4.2 | Watter kos is die beste om die liggaam mee te bou? | | | | | | | | | | | | (1) |
|  |  | | | | | | | | | | | |  |
| 4.3 | Voltooi ŉ staafgrafiek om die persentasie van voedingstowwe van die vier kossoorte voor te stel.  *Gebruik die grafiekblad wat voorsien is. (Aanhegsel 1)*  *Voorsien die grafiek van:*   * *ŉ Sleutel wat die kossoorte verteenwoordig* * *ŉ Gepaste opskrif* | | | | | | | | | | | | (7) |
|  |  | | | | | | | | | | | |  |
| 4.4 | Noem enige TWEE voedingstowwe wat by die kolom genaamd “Ander” ingesluit kan word. | | | | | | | | | | | | (2) |
|  |  | | | | | | | | | | | |  |
| 4.5 | Sal jy hierdie kosse by jou dieet voeg? Verduidelik jou antwoord. | | | | | | | | | | | | (3) |
|  |  | | | | | | | | | | | | **[14]** |
| **VRAAG 5 Energie en Verandering** | | | | | | | | | | | | |  |
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| Onderaan is ŉ lys met gasse. Bestudeer die name van hierdie gasse en verbind die gas met een van die onderstaande funksies. | | | | | | | | | | | | |  |
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| Suurstof (O2), Koolstofdioksied (CO2), Stikstof (N2), Chloor (Cl2), Fluoor (F), Neon (Ne), Helium (He) | | | | | | | | | | | | | |
|  | | | | | | | | | | | | |  |
| 5.1 | Om ŉ vuur te blus | | | | | | | | | | | | (1) |
|  |  | | | | | | | | | | | |  |
| 5.2 | In ŉ warm lugballon | | | | | | | | | | | | (1) |
|  |  | | | | | | | | | | | |  |
| 5.3 | Wanneer ŉ persoon sukkel om asem te haal | | | | | | | | | | | | (1) |
|  |  | | | | | | | | | | | |  |
| 5.4 | In skoonmaakmiddels | | | | | | | | | | | | (1) |
|  |  | | | | | | | | | | | |  |
| 5.5 | In plante om voedsel te maak | | | | | | | | | | | | (1) |
|  |  | | | | | | | | | | | | **[5]** |
| **VRAAG 6 Materie en Materiaal** | | | | | | | | | | | | |  |
|  | | | | | | | | | | | | |  |
| ŉ Graad 9-leerder neem ŉ beker met ys en plaas ŉ termometer daarin om die temperatuur vas te stel en aan te teken. Die beker word verhit en die temperatuur word na elke 2 minute aangeteken. | | | | | | | | | | | | |  |
|  | | | | | | | | | | | | |  |
| Hieronder is hoe die leerder inligting oor die temperatuur in die tabel aangeteken het: | | | | | | | | | | | | |  |
|  | | | | | | | | | | | | |  |
| **Tyd in minute** | | | | **Temperatuur in °C** | |
| 0 | | | | 0 | |
| 2 | | | | 4 | |
| 4 | | | | 15 | |
| 6 | | | | 35 | |
| 8 | | | | 57 | |
| 10 | | | | 76 | |
| 12 | | | | 100 | |

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| 6.1 | Teken ŉ lyndiagram om die inligting op die tabel voor te stel.  *Gebruik die aangehegte grafiekblad. (Aanhegsel 2)* | | (5) |
|  |  | |  |
| 6.2 | Teken op jou grafiek aan waar die volgende plaasgevind het:  freezing, melting, boiling. | | (3) |
|  |  | |  |
| 6.3 | Veronderstel jou klasmaats het besluit dat hulle ŉ bottel koeldrank vinnig wil laat afkoel. Hulle plaas dit in ŉ vrieskas en vergeet daarvan. Na ses ure ontdek hulle dat die bottel in stukkies gebreek het.  Verduidelik, met redes, wat gebeur het. | | (2) |
|  |  | |  |
| 6.4 | 5 g koeldrank beslaan ŉ volume van 4cm3. Bereken die digtheid.  (Gebruik die formule: Digtheid = massa ÷ volume) | | (2) |
|  |  | | **[12]** |
|  |  | |  |
| **VRAAG 7 Materie en Materiaal** | | |  |
|  | | |  |
| Voltooi die onderstaande reaksies en vergelykings en balanseer waar nodig. Die algemene reaksie van ŉ suur met ŉ karbonaat is:  **Suur + Karbonaat → Sout + Gas** | | |  |
|  |  | |  |
|  | Vul die ontbrekende antwoorde (a – e) in. | |  |
|  |  | |  |
| 7.1 | Soutsuur + Kalsiumkarbonaat → Kalsiumchloried +....(a).... + ...(b)... | | (2) |
|  |  | |  |
| 7.2 | ...(c)...+ CaCO3 → CaCl2 + ...(d)...+ ...(e)... | | (3) |
|  |  | |  |
| 7.3 | Die algemene reaksie van ŉ suur met ŉ metaaloksied is:  Suur + metaaloksied → sout + water  As Swawelsuur by Koper(II)oksied gevoeg word, sal die reaksie as volg wees:  Vul die ontbrekende antwoorde (f – h) in hieronder.  Swawelsuur + Koper(II)oksied → Kopersulfaat + ...(f)... | | (1) |
|  |  | |  |
| 7.4 | H2SO4 + ...(g)... → ...(h)... + H2O | | (2) |
|  |  | |  |
| 7.5 | Die volgende is die reaksie tussen ŉ verdunde suur en ŉ hidroksied.  Vul die ontbrekende antwoorde(i – j) in:  Natriumhidroksied + soutsuur → ...(i)...+ ...(j)... | | (2) |
|  |  | | **[10]** |

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| **VRAAG 8 Energie en Verandering** | |  |
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| Bestudeer die onderstaande diagram en beantwoord die vrae wat volg: | |  |

**9 V**

**6 V 3 V**

**2 A**

|  |  |  |
| --- | --- | --- |
| 8.1 | Bereken die weerstand van Resistor 1 en Resistor 2 in die diagram hierbo.  Gebruik die formule:  OF | (3) |
|  |  |  |
| 8.2 | Daar is sekere faktore wat die weerstand van ŉ metaal-geleier beïnvloed. Noem TWEE van hierdie faktore. | (2) |
|  |  | **[5]** |

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| **VRAAG 9 Materie en materiaal** | | |  |
|  | | |  |
| Bestudeer die onderstaande eksperiment en beantwoord die vrae wat volg. | | |  |
|  | | |  |
| http://htmlimg3.scribdassets.com/5o2272nq50bodvk/images/3-3a2262d1c7/000.jpg  Glukose oplossing + gis  kalkwater  gasborrels  37 °C  termometer | | |  |
|  |  | |  |
| 9.1 | | Hierdie eksperiment is vir 2 dae so gelaat. Watter stof sal nou vrygestel word? | (1) |
|  | |  |  |
| 9.2 | | Hoe sal jy hierdie gas toets? | (2) |
|  | |  |  |
| 9.3 | | Noem die belangrikheid van hierdie gas in die lewe van ŉ plant. | (2) |
|  | |  | **[5]** |

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| **VRAAG 10 Die Wêreld en Verder** | | | |  |
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| Lees die onderstaande leesstuk en beantwoord die vrae wat volg. | | | |  |
|  | | | |  |
| **Mynbou** is die uitgrawe van waardevolle minerale of ander geologiese materiaal uit die aarde, gewoonlik uit ŉ ertsliggaam of ŉ soom. Die aard van mynprosesse skep ŉ potensieel negatiewe uitwerking op die omgewing beide gedurende die mynbedrywighede en vir jare nadat die myn gesluit is. Hierdie uitwerkings het daartoe gelei dat die meeste nasies in die wêreld regulasies wat hierdie negatiewe uitwerking kon hok slaan aangeneem het. Veiligheid was lank ŉ kopseer, alhoewel moderne praktyke veiligheid in myne betekenisvol verbeter het. Omgewingskwessies kan insluit: erosie, sinkgat-formasie, verlies aan biodiversiteit, die besoedeling van grond, grondwater en oppervlakwater deur chemikalieë, wat deur mynprosesse veroorsaak word. In sommige gevalle word bome afgekap om plek te maak vir die stoor van puin en grond naby die myne. Besoedeling afkomstig van die lekkasie van chemikalieë kan die gesondheid van die plaaslike bevolking beïnvloed as dit nie noukeurig beheer word nie.  Daar is baie soorte ystererts-neerslae. Dit is magnetiet, massiewe hematiete en pisolistiese ysterklip neerslae. Hematiet ystererts neerslae word huidiglik op alle vastelande ontgin.  Ystererts bevat suurstof en yster-atome wat saamgeflans in een molekule. Om dit na metaalagtige yster om te skakel, moet dit gesmelt word, of deur ŉ direkte verminderingproses om suurstof te verwyder. Suurstof-yster bande is sterk, en om die suurstof van die yster te skei, moet ŉ sterker elementale band aangebied word om aan die suurstof gebind te word. Koolstof word gebruik omdat die sterkte van ŉ koolstof-suurstof band teen hoë temperature groter is as die band van die yster-suurstof band. | | | |  |
|  |  | | |  |
| 10.1 | | Noem TWEE soorte ystererts waarvan yster metaal verkry word. | | (2) |
|  | |  | |  |
| 10.2 | | Beskryf die ekonomiese belangrikheid van mynbou. | | (5) |
|  | |  | |  |
| 10.3 | | Beskryf die negatiewe gevolge van mynbou op die omgewing. | | (5) |
|  | |  | | **[12]** |

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| **VRAAG 11 Energie en Verandering** | | | |  |
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| Lees die kort uittreksel uit die *The Eastern Province Herald* en beantwoord die vrae wat volg. (Herald; Maandag 08 Februarie 2010) | | | |  |
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| *Maandag 08 Februarie 2010*  WETENSKAPLIKES VREES DIE BEDREIGING VAN DIE YSBEER SE BESTAAN  **Washington** (VSA) – *Die ys in Antarktika en die Noordpool is besig om teen ŉ geweldige snelheid te smelt as gevolg van hoë temperature veroorsaak deur die uitskeiding van koolstofdioksied en ander kweekhuisgasse in die atmosfeer. Wetenskaplikes het hul besorgdheid oor die moontlike uitwissing van een van die wêreld se mees bekende en asemrowende skeppinge, die ysbeer uitgespreek* ... | | | |  |
|  |  | | |  |
| 11.1 | | Wat word hierdie verskynsel in die uittreksel genoem? | | (1) |
|  | |  | |  |
| 11.2 | | Watter ander verpletterende gevolge kan hierdie verskynsel, behalwe vir die uitwissing van spesies, op ons omgewing hê? | | (4) |
|  | |  | |  |
| 11.3 | | Stel maniere voor om die planeet van hierdie probleem te red. | | (3) |
|  | |  | | **[8]** |
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|  |  | | **TOTAAL:** | **100** |

**AANHEGSEL 1**

**NAAM: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Gr: \_\_\_\_**

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**AANHEGSEL 2**

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