

Nickrent et al.,-American Journal of Botany 2019- Appendix S2
NEXUS file of the concatenated 5-gene multiple sequence alignment of
nuclear SSU rDNA, LSU rDNA, chloroplast rbcL, matK and accD.

#NEXUS

[written Thu May 24 19:21:21 CDT 2018 by Mesquite version 3.5 (build
888) at nickrent.plant.siu.edu/131.230.176.5]

BEGIN TAXA;

TITLE Taxa;

DIMENSIONS NTAX=146;

TAXLABELS

BrachynemaRamiflorum ErythraliumScandens HeisteriaDensifrons
MabureaTrinervis DiogoaZenkeri EngomegomaGordonii ScorodocarpusBorneensis
StrombosiaPustulata StrombosiopsisTetrandra TetrastylidiumPeruvianum
CoulaEdulis MinquartiaGuianensis OchanostachysAmentacea CurupiraTefeensis
MalaniaOleifera XimeniaAmericana DulaciaCandida OlaxScandens
PtychopetalumPetiolatum AnacolosaPapuana AptandraTubicina
CathedraAcuminata ChaunochitonKappleri HarmandiaMekongensis
HondurodendronUrceolatum OngokeaGore PhanerodiscusCapuronii
OctoknemaSpecies MisodendrumPunctulatum ArjonaTuberosa
QuinchamaliumChilense SchoepfiaSchreberi NuytsiaFloribunda
AtkinsoniaLigustrina GaiadendronPunctatum AlepisFlavida
PeraxillaTetrapetala AmylotheaDuthiana DecaisninaTriflora
ElytrantheAlbida LepeostegeresLancifolius LepidariaForbesii
LoxantheraSpeciosa LysianaFilifolia MacrosolenCochinchinensis
TupeiaAntarctica DesmariaMutabilis NotantheraHeterophylla
LigariaCuneifolia TristerixCorymbosus AetanthusNodosus
CladocoleaGracilis DendropemonCaribaeus OryctanthusOccidentalis
PassoviaPyrifolia PsittacanthusCalyculatus StruthanthusWoodsonii
TripodanthusAcutifolius IleostylusMicranthus MuellerinaEucalyptoides
CecarriaObtusifolia LoranthusEuropaeus AmyemaGlabra DiplatiaFurcata
BaratranthusAxanthus BenthaminaAlyxifolia DactyliophoraNovaeGuineae
ScurrulaParasitica TaxillusChinensis DendrophthoeCurvata
HelicanthesElastica HelixantheraCylindrica EmelianthePanganensis
ErianthemumDregei SogeriantheSessiliflora TolypanthusInvolucratus
SeptulinaGlaucia GlobimetulaDinklagei MoquiniellaRubra
OliverellaRubroviridis ActinanthellaMenyharthii AgelanthusSansibarensis
BakerellaSpecies BerhautiaSenegalensis EnglerinaRamulosa OedinaPendans
OncellaAmbigua OncocalyxSulfureus PhragmantheraCrassicaulis
PlicosepalusSagittiflorus SocratinaBemarivensis SpragueanellaRhamnifolia
TapinanthusConstrictiflorus VanwykiaRemota AgonandraMacrocarpa
AnthobolusLeptomerioides CansjeraLeptostachya ChampereiaManillana
LepionurusSylvestris MelienthaSuavis OpiliaAmentacea
PentarhopalopiliumMarquesii RhopalopiliumPallens UrobotryaSiamensis
BuckleyaDistichophylla OsyridicarpusSchimperianus ThesiumRamosum
AcanthosyrisAsipapote CervantesiaTomentosa JodinaRhombifolia
OkoubakaAubrevillei PilgerinaMadagascariensis PyrulariaPubera
ScleropyrumPentandrum StaufferiaCapuronii ComandraUmbellata
GeocaulonLividum ColpoonCompressum ExocarposSparteus LepidocerasChilense
EubrachionAmbiguum AntidaphneViscoidea MyoschilosOblongum
NestroniaUmbellula OmphacomeriaAcerba OsyrisAlba RhoiacarposCapensis
SantalumPaniculatum MidaSalicifolia NanodeaMuscosa
AmphorogyneCelastroides ChoretrumPauciflorum DaenikeraCorallina

DendromyzaLedermannii DendrotropheVarians DufrenoyaSphaerocarpa
LeptomeriaAphylla PhacellariaRigidula SpirogardneraRubescens
ArceuthobiumOxycedri DendrophthoraSquamigera GinalloaArnottiana
KorthalsellaLatissima NotothixosSubaureus PhoradendronLeucarpum
ViscumAlbum

;

END;

BEGIN CHARACTERS;

TITLE Character_Matrix;

DIMENSIONS NCHAR=10428;

FORMAT DATATYPE = DNA GAP = - MISSING = ?;

MATRIX

BrachynemaRamiflorum

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TAA-

TTCAGACTGTGAAACTGCGAATGGCTCATTAAATCAGTTATAGTTTGTGGATGGTACCTACTACTCGGATAA
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GCCCGTTGCTCTGATGATTCATGATAACTCGACGGATCGCACGG-

CCCTCGTGCCGGGCGACGCATCATTCAAATTTCTGCCCTATCAACTTTTCGATGGTAGGATAGTGGCCTACTATG

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ErythrophalumScandens

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[illegible]

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HeisteriaDensifrons

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MabureaTrinervis

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This image shows a full page of blank handwriting practice paper. It features approximately 30 horizontal blue lines spaced evenly across the page. There are no margins, text, or other markings present.

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[illegible]

[illegible]

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StrombosiaPustulata

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StrombosiosisTetrandra

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Tetrastylidium Peruvianum

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CoulaEdulis

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[illegible]

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PtychopetalumPetiolatum -----

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[illegible]

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AptandraTubicina

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ChaunochitonKappleri -----
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[illegible]

[illegible]

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[illegible]

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OngokeaGore

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OctoknemaSpecies

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This image shows a full page of blank handwriting practice paper. It features evenly spaced, horizontal grey lines across the entire surface, providing a guide for letter height and placement. There are no margins, text, or other markings present.

[illegible]

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ArjonaTuberosa

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SchoepfiaSchreberi

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NuytsiaFloribunda

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TCTACTAATGAT-----TTTAAC-----CAAATACC-----CTTTTT---
GGTCACAAAAAAT-----TTGTATTTTCAAATCATATCG-----
GGTAGATTAGCAATTGTTGTGGAATTTATACTTTCCCTATGC-----TTAGTATCTTCC---CTC-----
--GAAAAG-----AAGAAA---GTAGCCGAATCTAAA-----
AATTTACGATCAATTCATTCCATATTTCTTTTTTAGAAGATAAATTTCTCCATTTAAATTATGTGTCAAATA
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-----AATCAA---
AGATTGTCCTTATTCTTATATAATTCTCATGTCTGTGAATACGAATCCATTTACGTTTTTTTTACGTAACCAAT
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GTATCTC---GTA-----AAT---GTCTTTACT-----AAGGAT---TTT---CAAGCTATTTCA-----
TGGCTGTTCAAAGATCCTTTCATGCATTATGTTAGGTATCAAGGGAATTCATTCTGGCTTCAAAA-----
CGGACGTCTCTCTG---
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--ATAAATAAT-----GTTATT-----AAGACG---TTTGATACC-----
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GTAAG---TTGGTCTGGGCCGATTTATCCGAT-----
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--AAGAGTTTGAT-----
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GTTTTTCTTTGATCTTATCAAGATATTCT-----TGTACTTCG-----CGCAGT-----TTATAT---
AGA---GAA---GAGCGGATTTGGTATTTGGATATT-----ATTTGTATCAATGATCTAGTC-----
AATCAT-----
TGAATGGAAAAATGGTGGTTC-----ATGTCT-----AAGGGG---GAGTTT---
GAACATGGGTGTGGACTA---AGT---AAATCAATG---GGCAATCTT---GGTCCTATT---
GAAAATACCAGTGGAAGTGAA-----GACGGTTTTTTAAATTATACG---GAT---AAAAACATT-----
--CATAATTGGGGT-----GATAGTAAGAGTTCT-----AGTTACAGTAATCTTGATCATTTA---
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-----GGGGATGGTTATTACATACATTTTGAT-----
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----TCCATGTATGATACTAAA-----
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-----TACATTTTAAGTGATAGCGGCAACTACAGTGACAGT-----TATATT---
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TCGTACCACGCAATCTTTTAAAAGACGTTCTGAGTGAATTTTTTCAACTCCACGCTTTCGTTCCCT-----
TTG-----AATCAA---AATTCA-----CTC---AAGTAG

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-----AAGCCATGCATGTGTA?GTATGAACTAA-
TTCAGACTGTGAAACTGCGAATGGCTCATTAATCAGTTATAGTTTGTGTTGATGGTATCTGCTACTCGGATAA
CCGTAGTAATTCTAGAGCTAATACGTGCAACAAACCCCGACT--T-
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CGATGGTC-----

[illegible]

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CATAATGACAGTTCT-----AGTTACAGTAATCTTGATCATTTA---TTTGGTGTGAGAGACATT---
CTTAAATTAATCGCTGATGACACT---TTG---TTAGTTAAGGATAGAAAT-----
GGAGATGGTTATTACATAAAATTTTTCT-----
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----TACATGTATGATACTACA-----
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-----TACATTTTAAGTGATAGTGGCAACTACAGTGACAGT-----TATATT---
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TGGTTGATCCTGCCAGTAGTCATATGCTTGTCTCAAAGATTAAGCCATGCATGTGTAAGTATGAACTAA-
TTCAGACTGTGAAACTGCGAATGGCTCATTAAATCAGTTATAGTTTGTGTTGATGGTATCTGCTACTCGGATAA
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[illegible]

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-----AATCAA---

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[illegible]

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[illegible]

This image shows a full page of white paper with horizontal dashed lines, typical of primary school writing paper. The lines are evenly spaced and run across the entire width of the page. There are no margins, text, or other markings present.

[illegible]

[illegible]

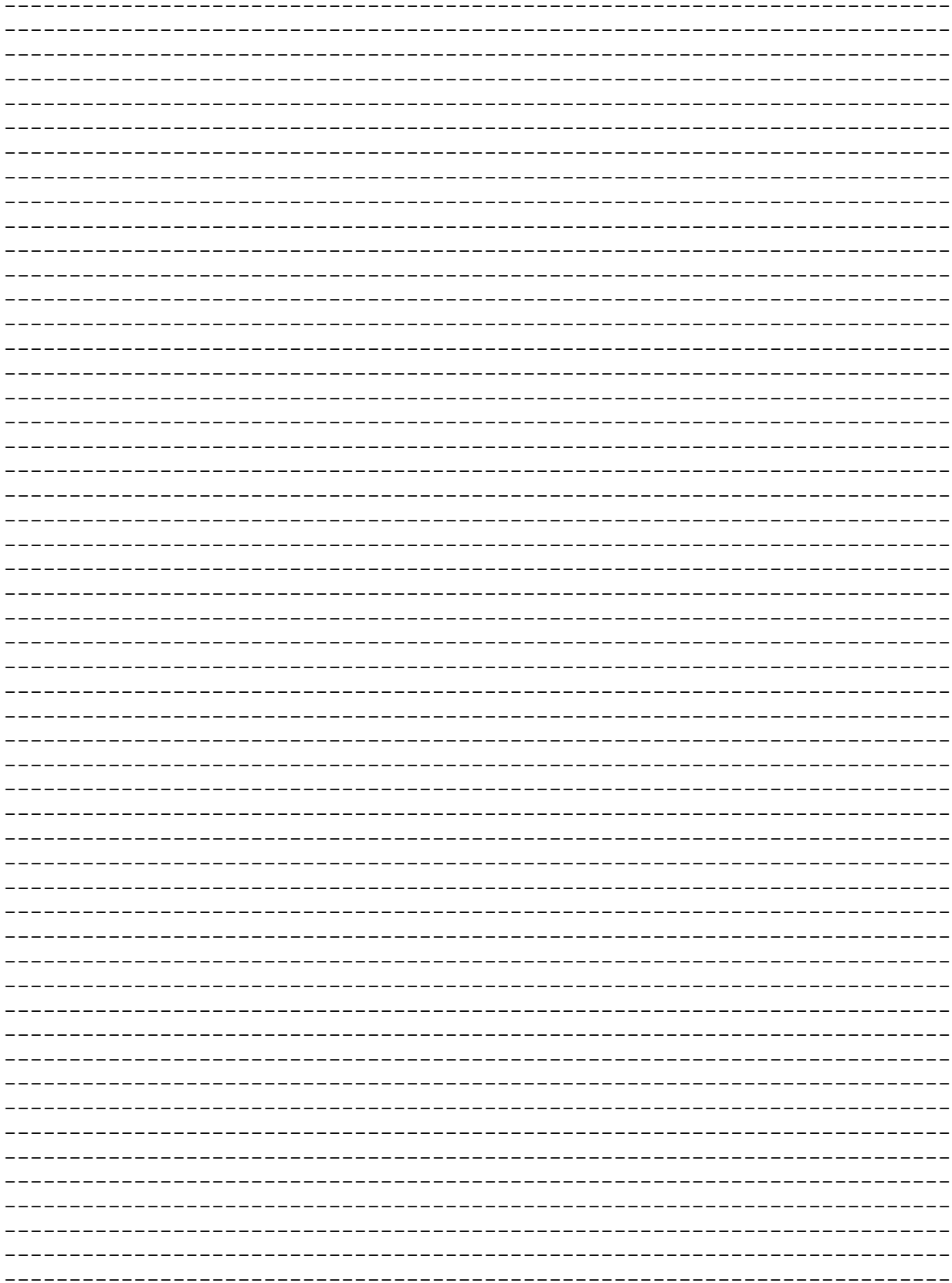
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[illegible]

[illegible]

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LepidariaForbesii-----

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[illegible]

This image shows a blank sheet of white paper with horizontal dashed lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting or drawing. There are no margins, text, or other markings on the paper.

LoxantheraSpeciosa

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[illegible]

LysianaFilifolia -----
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-----AATCAA---
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MacrosolenCochinchinensis -----

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-----CGGGAACAGCCC-
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GCCTC--
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This image shows a full page of white paper with horizontal dashed lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the paper.

[illegible]

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DesmariaMutabilis

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[illegible]

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NotantheraHeterophylla

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[illegible]

This image shows a full page of white paper with horizontal dashed lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

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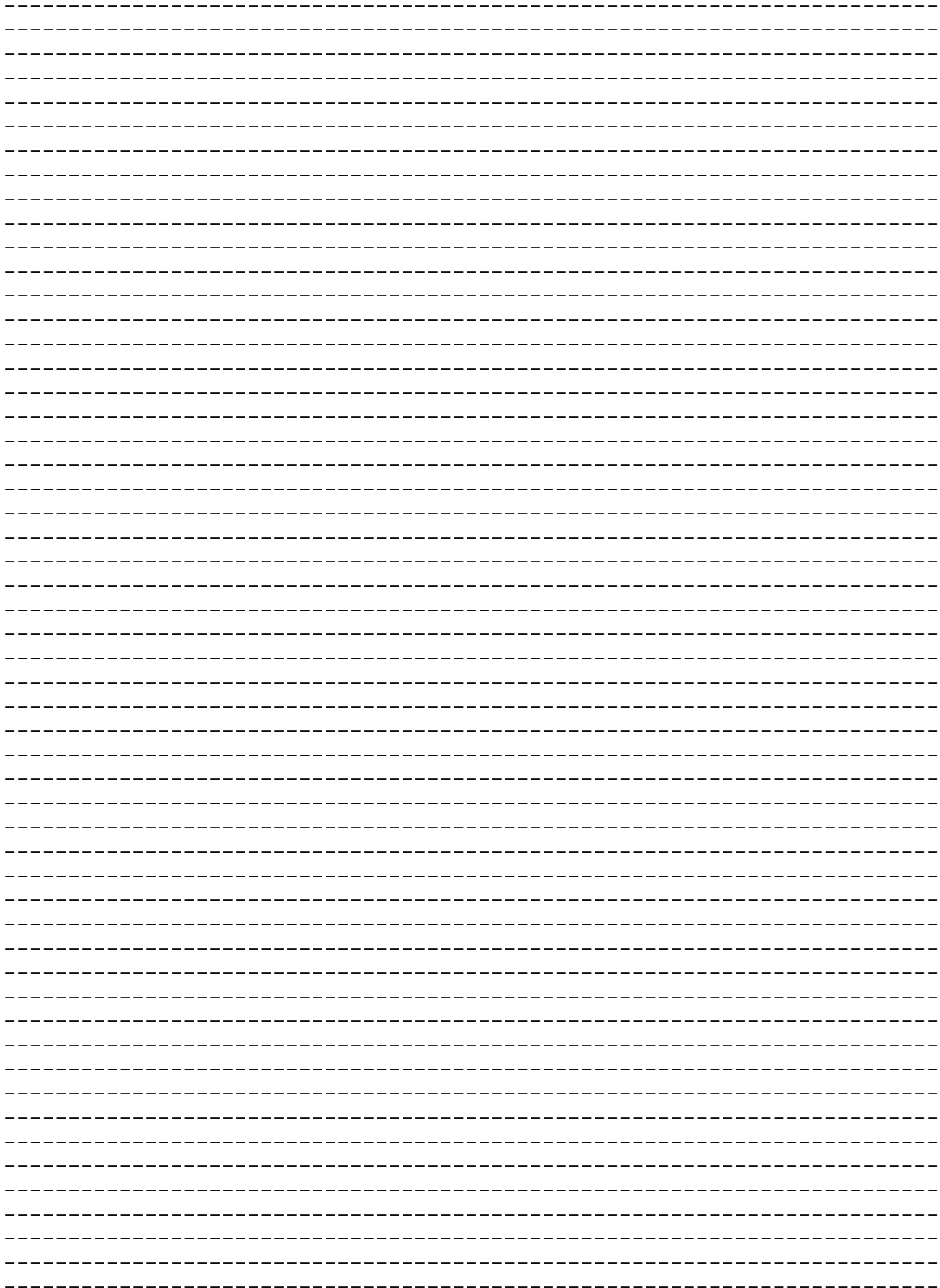
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[illegible]



[illegible]

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Dendropemon Caribaeus

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[illegible]

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OryctanthusOccidentalis

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[illegible]

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PassoviaPyrifolia

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[illegible]

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GAAAC--

This image shows a full page of primary-ruled paper. It features multiple sets of horizontal dashed lines, each set consisting of three lines (top, middle, bottom) which are commonly used for teaching handwriting to children. The lines are evenly spaced and extend across the entire width of the page. There is no text or other markings on the paper.

-----AGA-----

TGTGAAACTGCGATTGGCTCATTAAATCAGTTATAGTTTGTGGTATTTGCTACTCGGATAACCGTAGT

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[illegible]

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[illegible]

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[illegible]

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[illegible]

[illegible]

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[illegible]

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TAG-----

[illegible]

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[illegible]

[illegible]

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DendrophthoeCurvata

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[illegible]

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[illegible]

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[illegible]

TAG

[illegible]

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SeptulinaGlauca

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MoquiniellaRubra

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[illegible]

ActinanthellaMenyharthii

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[illegible]

BakerellaSpecies -----

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This image shows a full page of white paper with horizontal dashed lines. The lines are evenly spaced and run across the entire width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the paper.

BerhautiaSenegalensis

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EnglerinaRamulosa -----
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OncellaAmbigua

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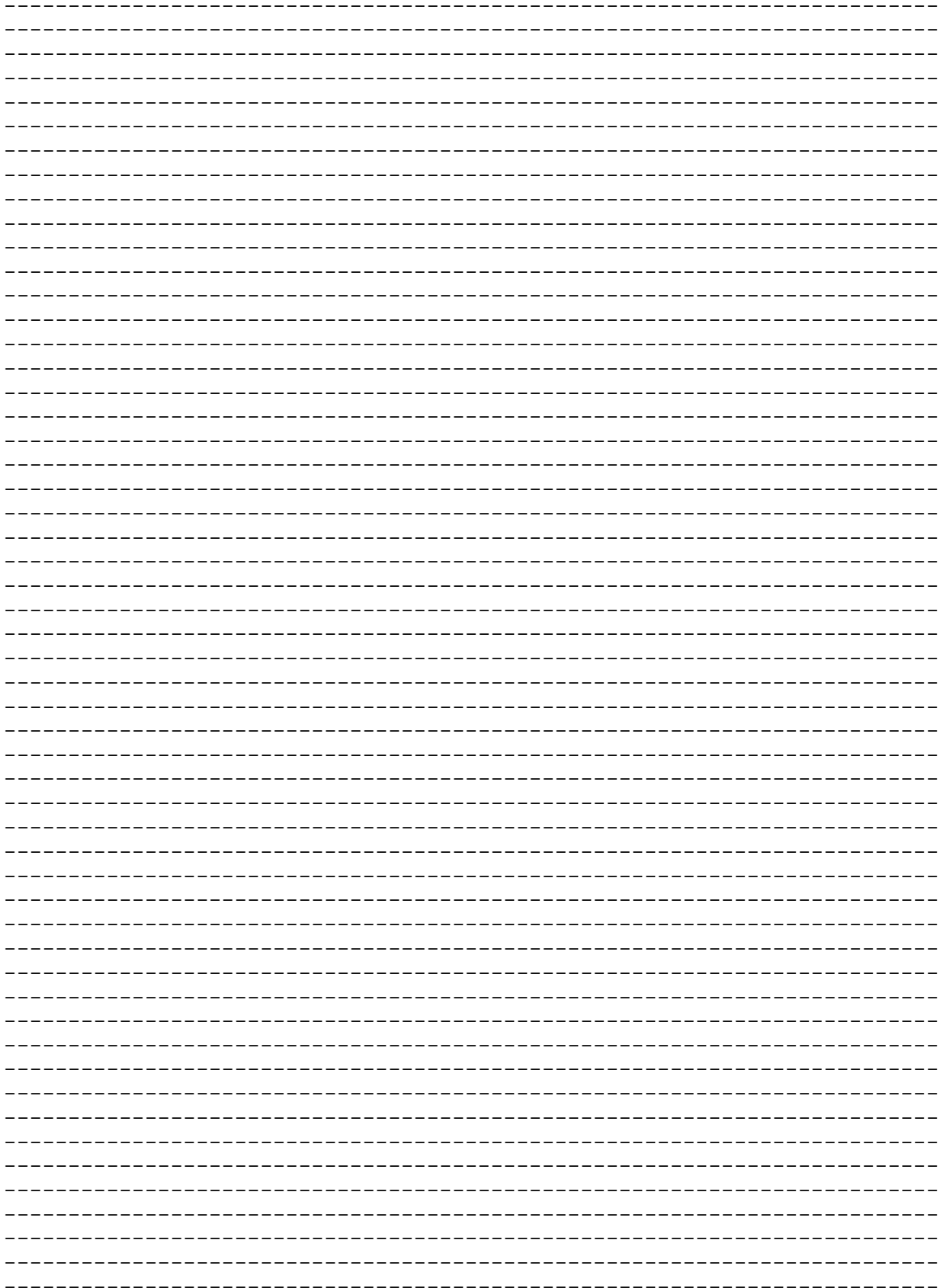
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SpragueanellaRhamnifolia



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[illegible]

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ChampereiaManillana

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ATA-----GGTCGAGTTTGGTATTTGGATATT-----ATTTGTATCAATGACCTGGTT-----
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LepionurusSylvestris -----
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CCGTAGTAATTCTAGAGCTAATACGTGCAACAATCCCCGACT--T-
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CGAGCAATGGATACTTTG-----TAA-----

This image shows a full page of white paper with horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and run across the entire width of the page. There are no margins, text, or other markings present.

-----AACTAA-----

TTACAGACTGTGAAACTGCGAATGGGCTCATTAATCAGTTATAGTTTGTGTGATGGTATCTGCTACTCGGATAA
CCGTAGTAATTTCTAGAGCTAATACGTGCAACAATCCCCGACT--T-
CCGGAAGGGATGCATTTATTAGATAAAAAGGTCGACGCGGGCTT-T-----
GCCCCGTTGCTCTGATGATTCATGATAACTCGACGGATCGCATGG-
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-----AAGTTACGAGGATTTCCCT-
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G-CGAAAGACTAATCGAACCATCTAGT-----

This image shows a full page of white paper with horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

TACAAATTGTAAAACGTTTAATTAGTCGAATGTAT-----CACCAGAATCATGTGCTTATT---
TCCGCTAAGGAT-----CTTAAC-----CAAAATCCA-----TTTTTC---
GAGCATAACAAAAAT-----TTGTATTTTCAAATGATACTG-----
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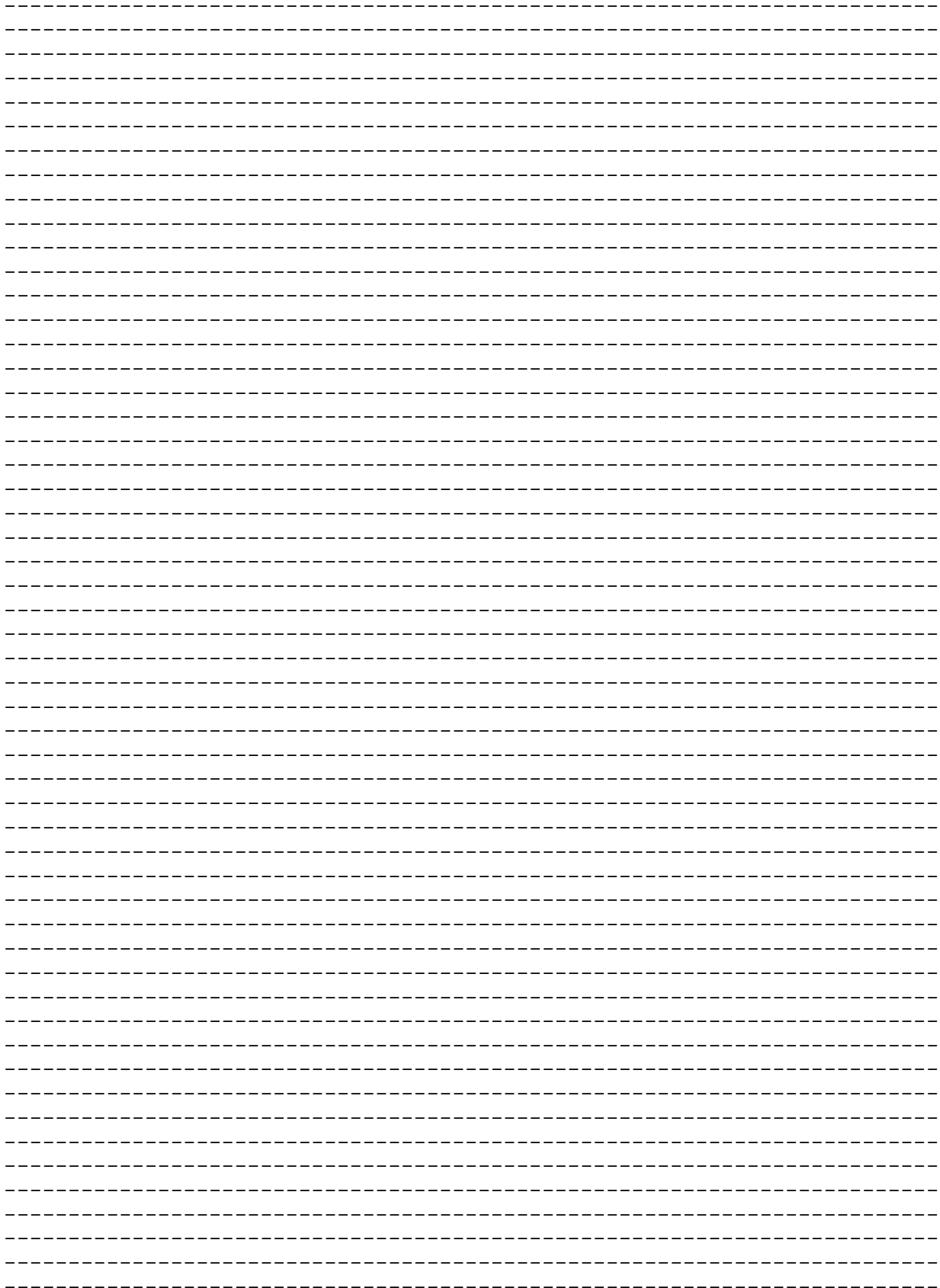
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[illegible]



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This image shows a full page of primary-ruled paper. It features multiple sets of horizontal lines designed for handwriting practice. Each set consists of a solid top line, a dashed midline, and a solid bottom line. The entire page is filled with these repeating patterns from top to bottom, providing ample space for practicing letter formation and alignment.

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[illegible]

[illegible]

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[illegible]

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OsyridicarposSchimperianus

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AAA-
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ThesiumRamosum

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AcanthosyrisAsipapote

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This image shows a full page of white paper with horizontal dashed lines. The lines are evenly spaced and run across the entire width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the paper.

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[illegible]

[illegible]

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[illegible]

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ScleropyrumPentandrum
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StaufferiaCapuronii

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ComandraUmbellata

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[illegible]

[illegible]

GeocaulonLividum

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[illegible]

ExocarposSparteus

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LepidocerasChilense

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EubrachionAmbiguum

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[illegible]

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MyoschilosOblongum

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NestroniaUmbellula

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NanodeaMuscosa

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LeptomeriaAphylla

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[illegible]

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[illegible]

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[illegible]

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ArceuthobiumOxycedri

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KorthalsellaLatissima

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