

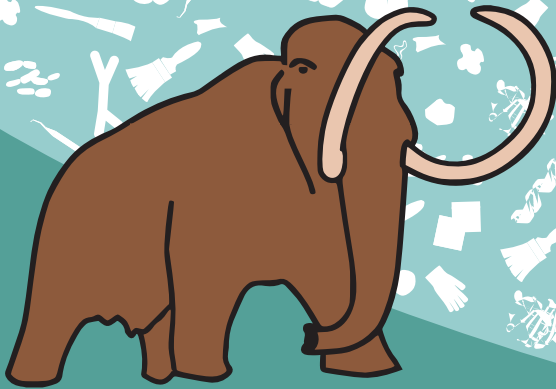
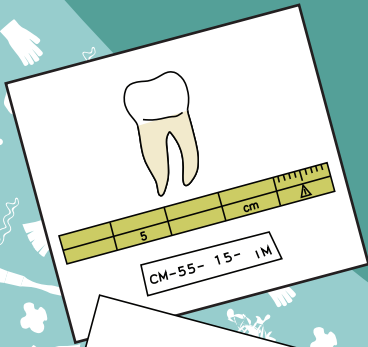
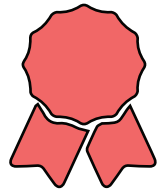
Muun batsama

# WAJAKBAU EJETUSA DEKAMU



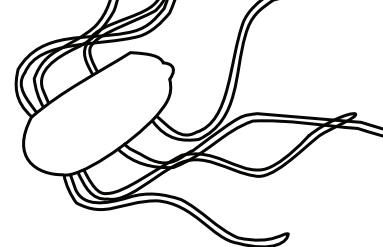
Juu papiya juka:

Duik muun puju  
wajakbaun unuimtug  
autustina nunauwai



Juka papi usugti timauwai  
The Max Planck Institute for  
Evolutionary Anthropology





Muun batsama

# WAJAKBAU EJETUSA DEKAMU

Juu papiya juka:

Duik muun puju  
wajakbaun unuimtug  
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**Juka papi usugti timauwai**

The Max Planck Institute  
for Evolutionary Anthropology



**Iwáinakbau:** Max Planck Institute for Evolutionary Anthropology

**Agaju:** Christina Warinner

**Agaju tsaníakmauri:** Jessica Hendy

**Yáínitmauri:**

Zandra Fagernäs

Jessica Hendy

Allison Mann

Åshild Vågene

Ke Wang

Christina Warinner

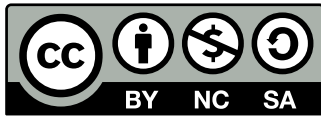
**Awajunnun agagmau:**

Eduardo Segundo Weepiu Samekash

**Tsaninka yaínitmau:**

Eduardo Weepiu Daekat, Robin Pizango Sejekam

Juu papi usugti ta nuka takasmauwai ilustración nuintu científica tanui agagbaun pachis etsejui.



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# YAA IMAJI

Juti duik mun initik batsama wajakbau ejetusa egau aidauti ainaji. Jega yacha aidau takatainum, janch pegkeg nugkuja, uwej wegatai wegamaka, botas wegamaka wajaka ekemsa duik muun taka wajakbauk dimainai. Yacha nui takau aidauk nuu ejetusa takatain apujus egamain ainawai duik muunta takatain dinanakug.



Nunca tiwija ditae

## Yakta ukuki nugkan tainiag dinakjag...

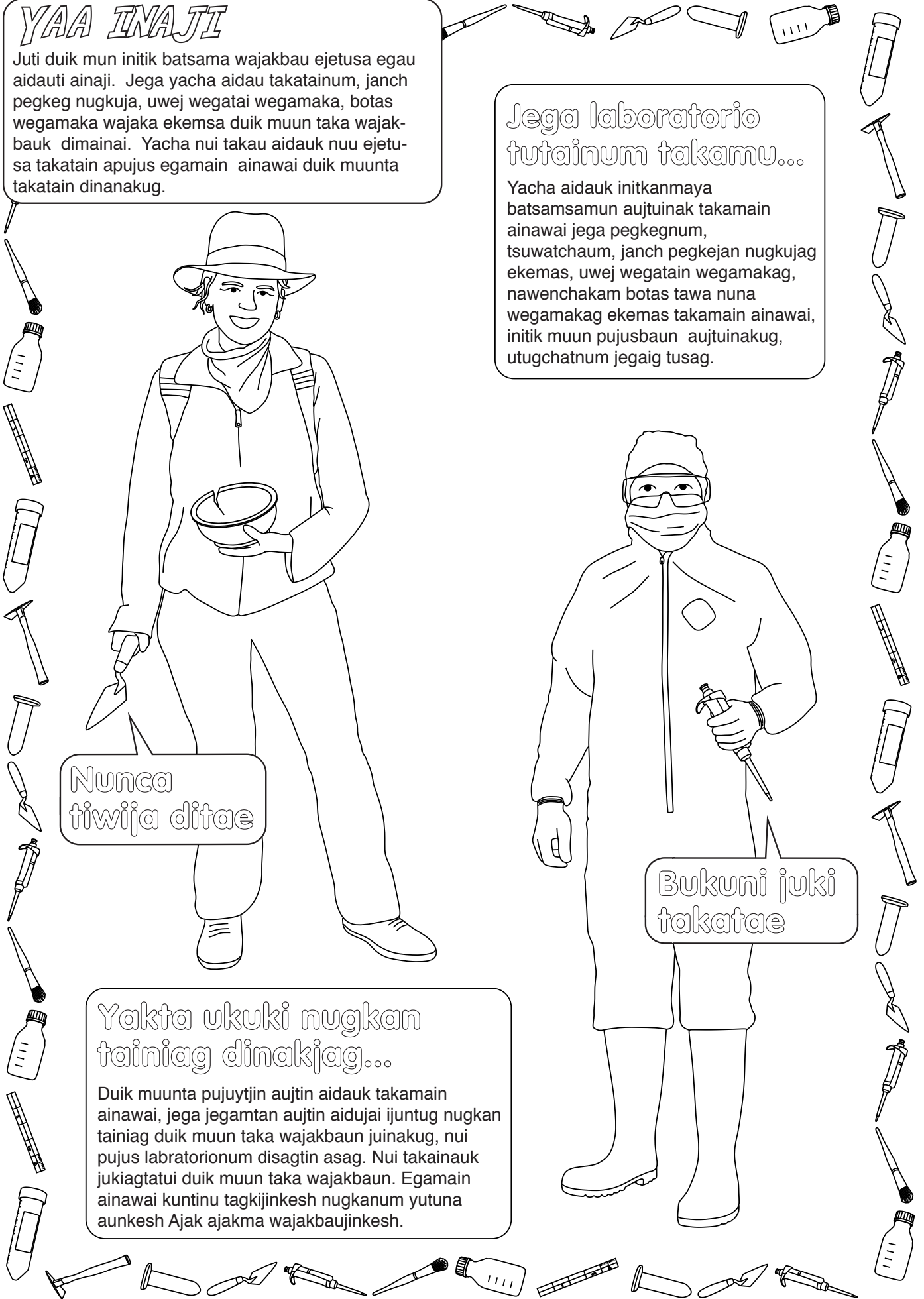
Duik muunta pujuytjin aujtin aidauk takamain ainawai, jega jegamtan aujtin aidujai ijuntug nugkan tainiag duik muun taka wajakbaun juinakug, nui pujus labratorionum disagtin asag. Nui takainauk jukiagtatui duik muun taka wajakbaun. Egamain ainawai kuntinu tagkijinkesh nugkanum yutuna aukesh Ajak ajakma wajakbaujinkesh.

## Jega laboratorio tutainum takamu...

Yacha aidauk initkanmaya batsamsamun aujtuinak takamain ainawai jega pegkegnum, tsuwatchaum, janch pegkejan nugkujag ekemas, uwej wegatain wegamakag, nawenchakam botas tawa nuna wegamakag ekemas takamain ainawai, initik muun pujusbaun aujtuinakug, utugchatnum jegaig tusag.



Bukuni juki takatae





# NUGKA TAI EGAMU

Duik muunta pujutjin aujtin aidauk wenawai ashí nugkanum tentea yujajus duik duik muun batsama wajakbaun aujtuinakug. Ashi nugka tautain jukiag, tikich equipo enjamtain pegkeg aidau jukiag. Nuigtushkam juna takainauk etsejuk ashí dekamunum takamainai.

Department of Immigration  
**TREKKING PERMIT**  
accordance with the rule 33 of  
the permission is to be  
in the area of Mustang  
District (except  
to 19

**NATIONAL TRUST FOR NATURE CONSERVATION**  
**Entry Permit (ACAMCA/GCA)**  
Schedule - 2 (Relating to Sub-Rule (1) of Rule 19)

Receipt No. **0281630**

Entry Permit No. \_\_\_\_\_

Full Name: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Passport No. \_\_\_\_\_

Nationality: \_\_\_\_\_

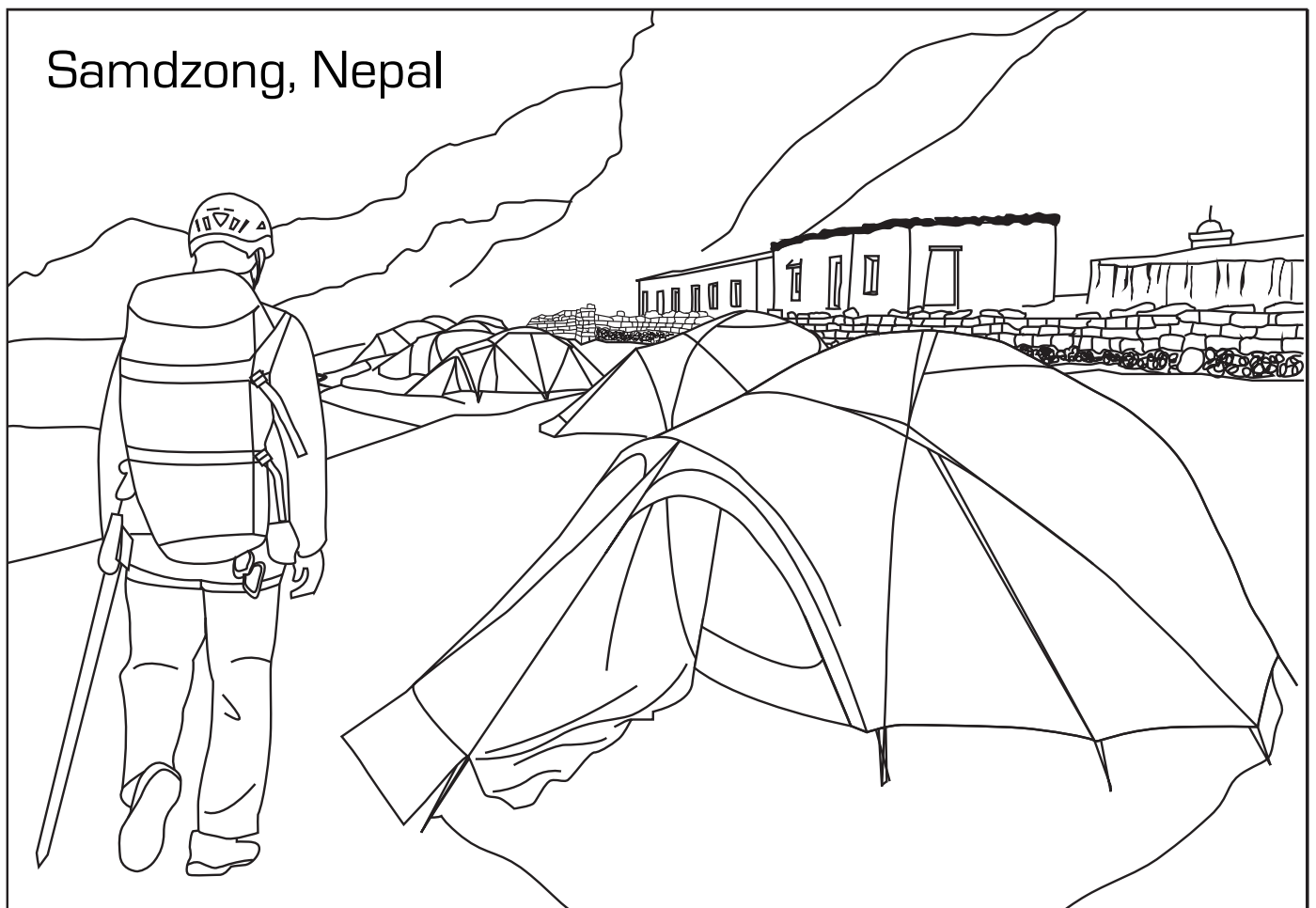
Purpose of Visit: \_\_\_\_\_

**NTNC-ACAMCA ENTRY FEE RECEIPT**  
Ticket No. **0281630**  
Date \_\_\_\_\_  
Nationality \_\_\_\_\_  
Agency Name: **SHERPA SHAIKUN-LA**  
Authorized Signatory \_\_\_\_\_

**TOURIST COPY**

Immigration Officer  
No

## Samdzong, Nepal



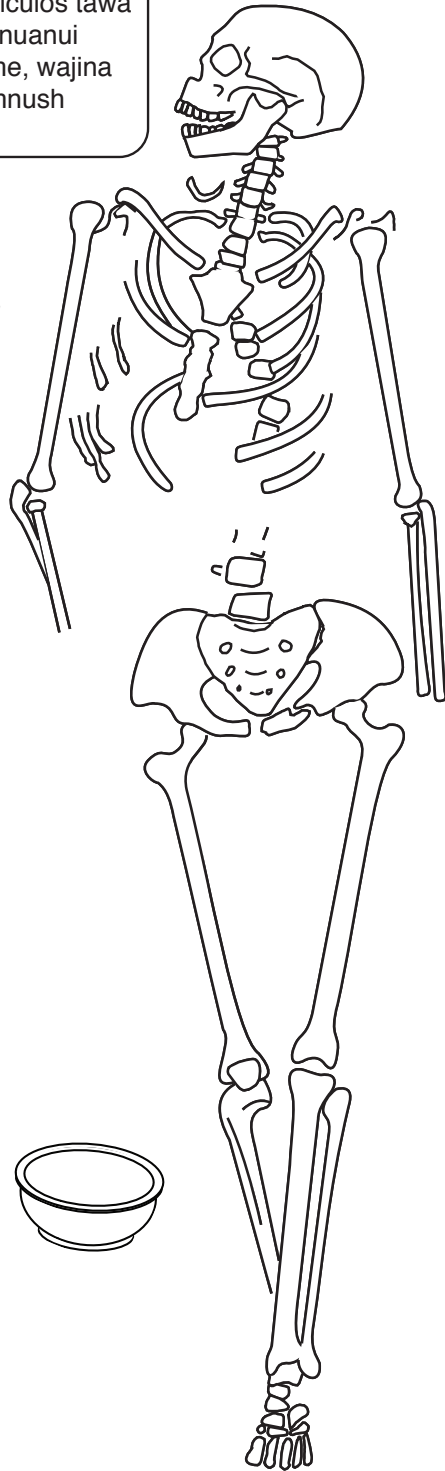


## Duik muunta nai ejetusa dekamumu

Dainum imatiksa dekataig awai, iina wakenia, yutunau aidaush, ii iwaku pujajinkesh dainum juawai. Calculos tawa nuu emeteawai bateria tutain, nuunui ejemain awai wajinak yuyanume, wajina yuakjag jamamtuchush batsamnush ajami dushakam.

## Ukuchnumia dainmaya dekamumu

Ukuhnum, dainum awai tsaintsau adau ADN tawa nui. Nuunui dekanui tuwiyag taush ainawa aentsuch inilkia aidaush, wajuk nimtinuk ajami, jiish, intashish. Antsag nainig dekainawai waji jataik jaa wajakush ainawai ADN patogeno tawa nui waken jaak wajakmaunash.



## Ichinkenia ampintsa dishais dekamumu

Ichinken duik muun yuu wajakbauji ampinjau aina nujai dekainawai waji proteinak yuyanume ajaknumianash, kuintumianash, ikamia yutain yuinakjash, jiyai wainmainchau ditaiyai dinakjash. Tuu ajaknak ajash yuyanume duik muntash nunashkam ejega wajakajui, yamaikishkam.

## Kuntuu uknchin dekamumu

Waji kuintinak tagkumianume kuintinash inilkesh, yamaisk nunasham.

## WAJI AUGNAWA

Duik muunta pujutjin aujin aidauk takainawai yacha aidau takatain, duik munta ichinken, duik munta nain, shikika umutaijin jukiag aujtuinak dekainawai duik muunta pujutjinak.

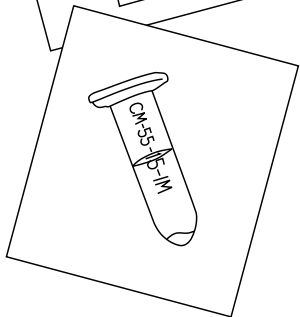
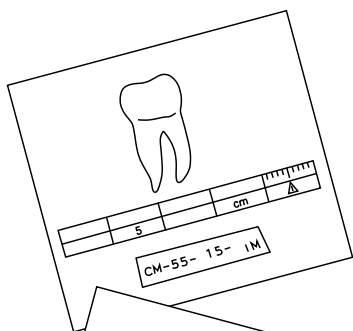
## DUSHA DEKAKTIUM ?

Duik muun nagkantin batsama wajaku aisdauk yamaik atsuinawai, Duka juwawai 40,000 mijan, tujash duka ADN tawai nuwi diyamak pujuinawai aents shuwinchau wegantu aina nuu ainawai.



## ITISH TUU WEGANTUK AINAJI

ADN tawa nui diyamak dekanui ina ika yachi yapajinki nimem miniajua duka, initik neandertal tutaya nuiya aents ainaji.



## Yapajinki wegamu

Initinia aentsu nai, ukunchi aina nunu autusa diyamunum dekamainai, wajuk batsama wajakuk ainawa ina duik apashjish. Wajuk iyashinish iwagnakig tantamuita duka yamai ii yamaiya juiya aents ainag juish.



# INITIKESH TUWIYAG MINIUWAITJI

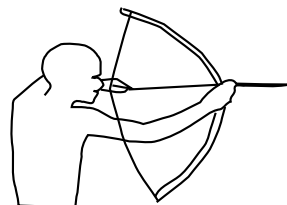
ADN tawa nui duka dekanui, duik munta ukunchi, nai, aujtusa diyamunum. Tuwi batsamnuk juwish kaunkaush ainawa duka.

Asia Central pujusa agagbau  
Mijan hierro, 700 mijan eke  
Cristo akintsaig puju wajakbau

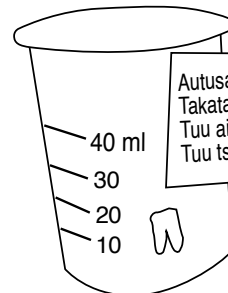


## DEKAKTIUM DUSHA?

Dukca radio carbono 14C tawa nuigkik emetnag atsui. Duka dase jukim wekaewai, ajak aidanmaashkam etsa sukuam najanui materia inorganica aina nuna materia oranicum Antsag kuintinumash carbono 14C tawa dushakam kuintinun iyashin nagkaemawai. Nuna disag dekainawai wajutik batsami nunak.



## Wajupa mijanak awa radio carbonujai dekamash



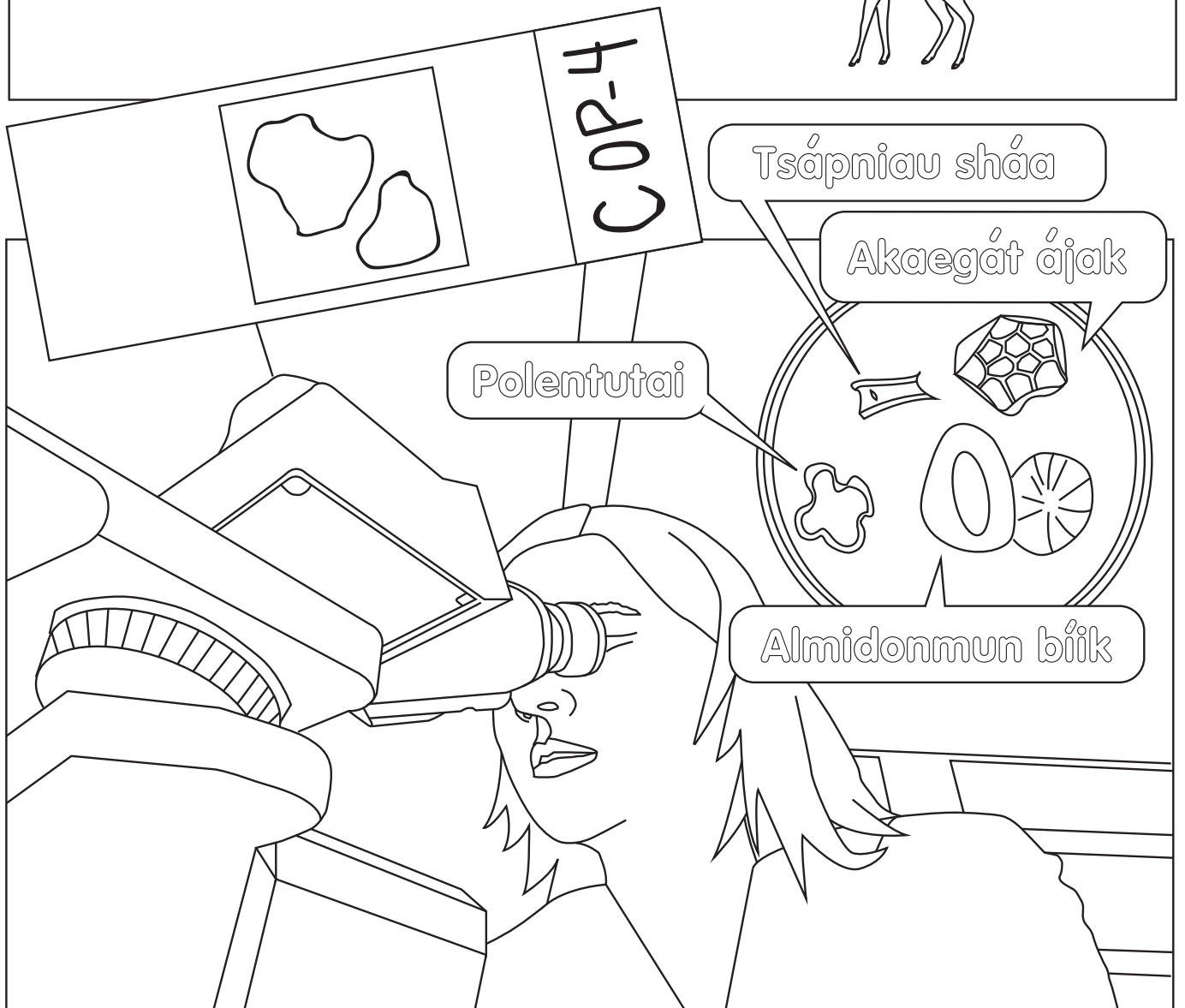
Autusa ejebau:  
Takatan takau wajakin ainawai:  
Tuu ainaunak ejeyush ajami:  
Tuu tsawanting ejeyush ajami:

Wajupa mijanak awa tamak radio carbonujai diyamak juwawai 40,000 mijan kuintin, ajak, aidauk.

# TNITIK YUU WJAKBAU

Yacha aidauk takamain ainawai jiyai wainmainchau ditayai microscopiojai. Duik muun yuu wajakbaun pinigjin, yutai apintsaun, dainian waitanak. Duwiy wainkau ainawai wajinak ajaush ajami yaunchesh Mayanmaya Mesoamericanmaya 2,000 mijana nuna awin batsama wajakajua dusha.

Copánnum - Hondurasnum,  
Mayanmaya clásicaunum  
300 mijan



# KUNTIN TAGKUMA WAJAKBAU

10,000 Mijana nagkaikiag batsamas duik mumntak ajakma wajakajui ajakan, kuntinashkam. Duka kuintinuk tagkumain nintin ajaku ainawai. Duka kuintinuk muun japiki esamtiktanum, nejen, muntsujin, duwapen atsumjaku tagkuma wajakmauwai.

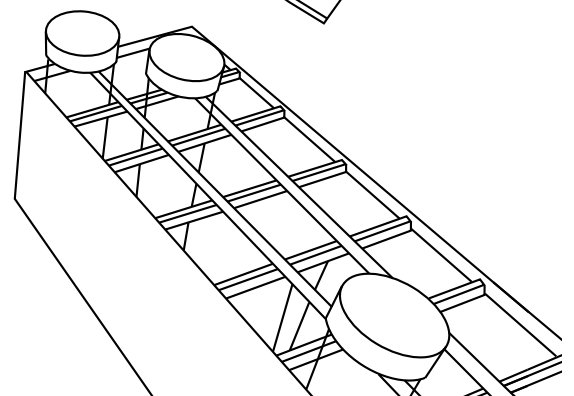
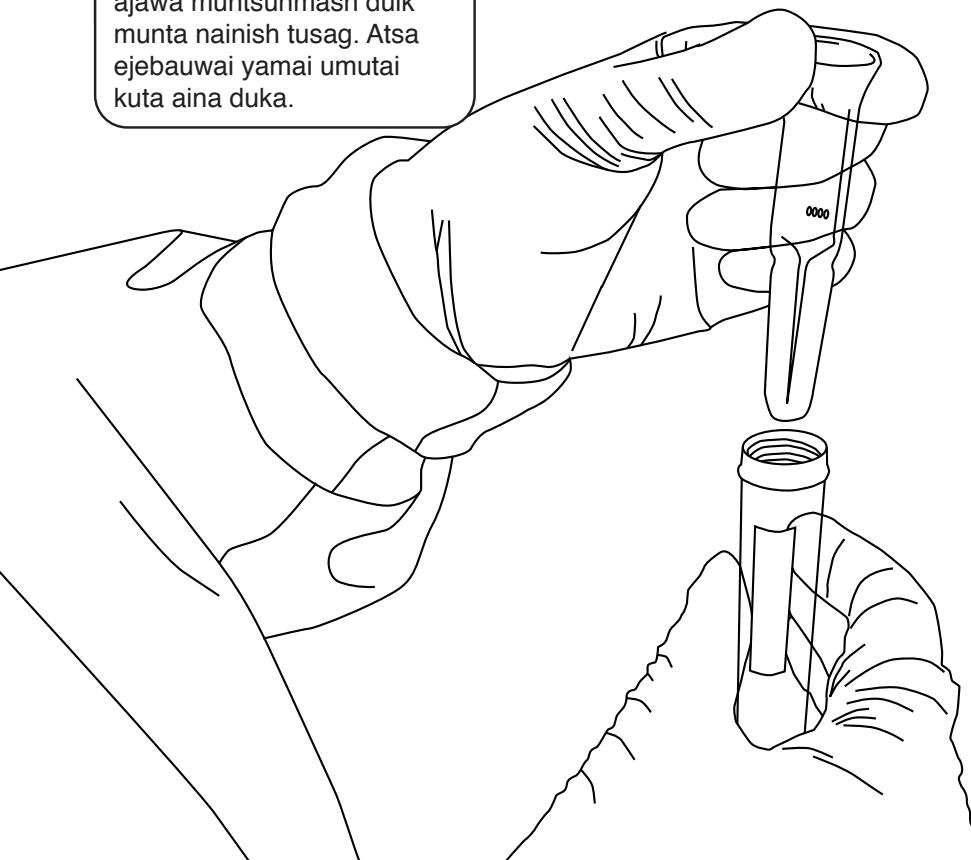
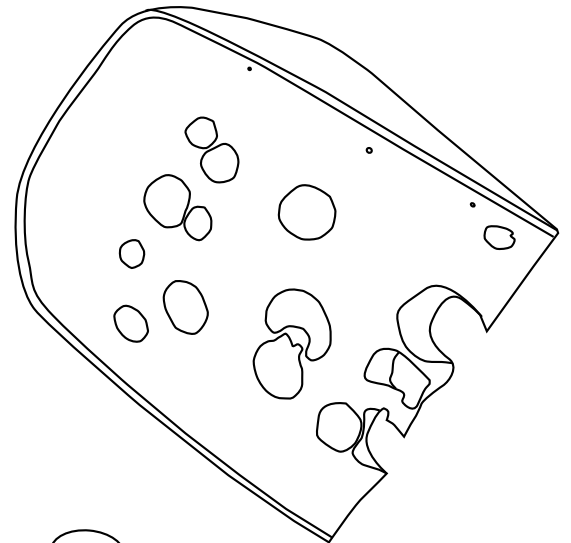
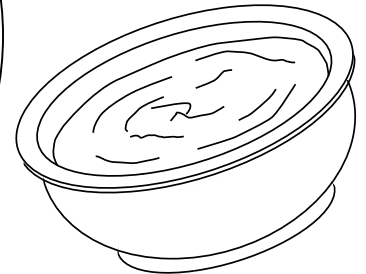
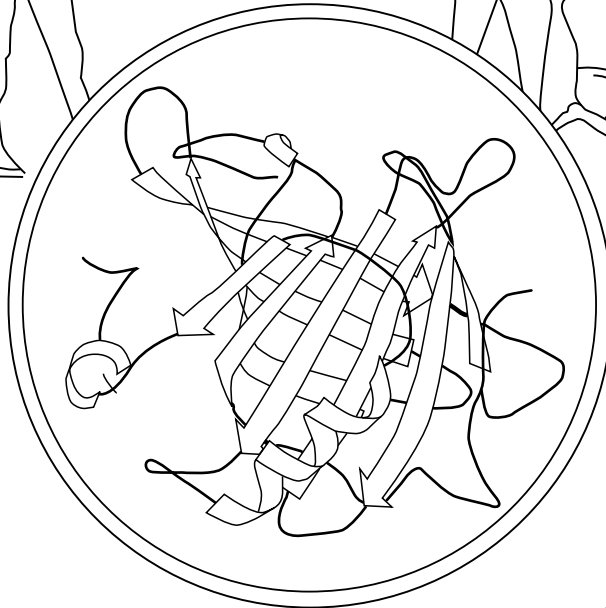
# DEKAMKIUM JUSHA...?

Nuu kuintin tsakapamunak tsakapa wajakajui bisontes tutain Europeanmayan, nuigtushuros tuu wajaku ainawai. Duka juu kuintin muun bovino tutaya anin ajaku ainawai. Nunak dekas initia muun tagkuma wajaku ainawai. Duka shig dekanui pininsula Anatolia tuu wajaku aina nui. Yamaik duka Turquia tutaiyai nuggak.



# Yutai kutaptin wegantu aidau

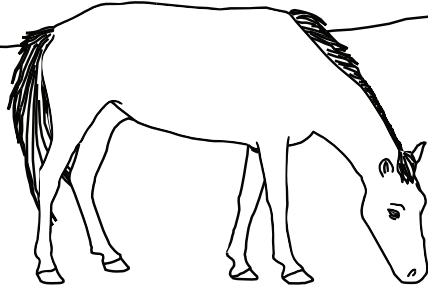
Yutai kutaptin wegantuk kajakus ejebau ainatsui. Tujash aents yacha bioarquiologo pujatan autusu aidauk takasu ainawai maquin espectrometria tutain kutaktatatu aidaunmash tuu proteina aidauk ajawa muntsunmash duik munta nainish tusag. Atsa ejebauwai yamai umutai kuta aina duka.



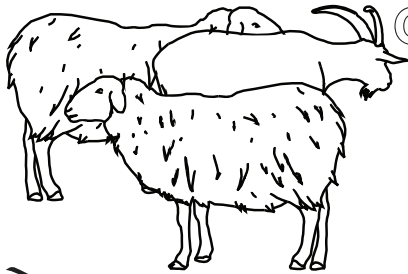
# Mongolianmaya kuntin dekamu

Ima kuashat kuintinuk ai wajakui Mongolia nugka tawa nui. Caballo, reses, yaks, cabras, uwig, renos, camellos. Kuntinun kuitamin aidauk jii wajakajuui umutain kuta aidau nuu kuintin aidau muntsuji jukiag.

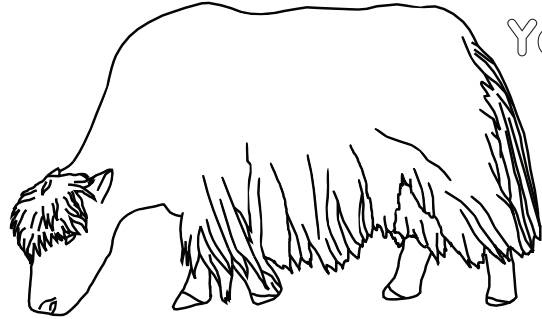
Kawayu



Uwig

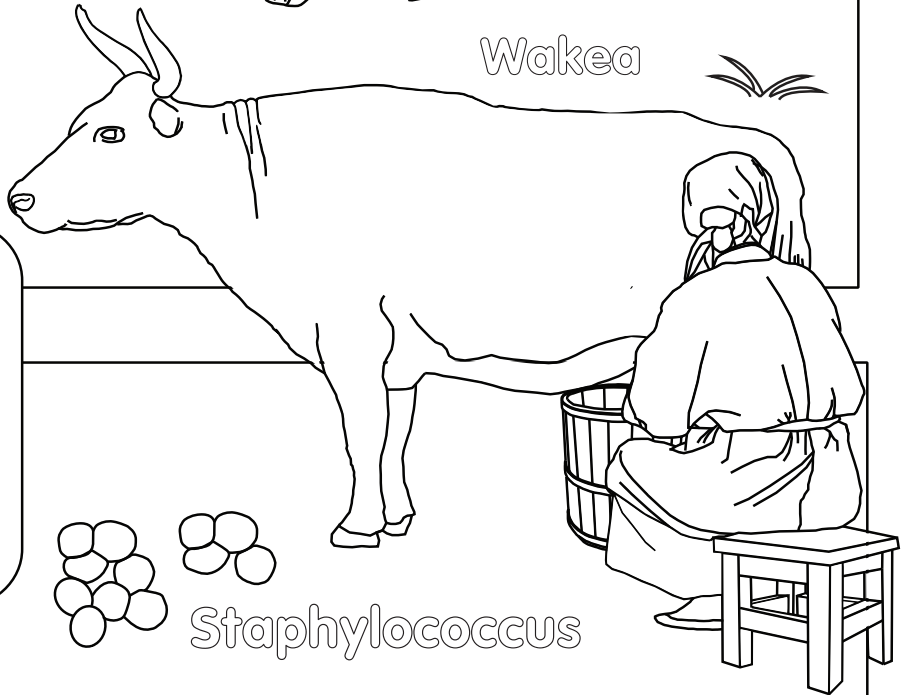


Cabratutai



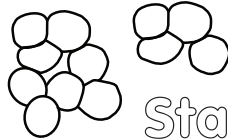
Yak

Wakea

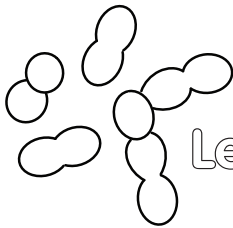


## YUTAI KUTA AIDAU

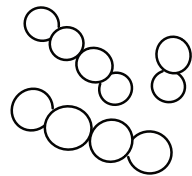
Yutai muntsu weantu kuta aidau nak ima kuashat jii wajuku ainawai mogolia tawa nuiyan juna aents yacha juna aujtin aidauk ejuyu ainawai 3,500 mijana nuna awin nagkamas.



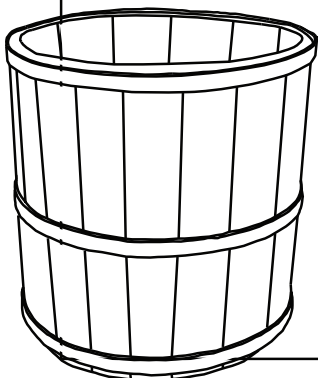
Staphylococcus



Leuconostoc

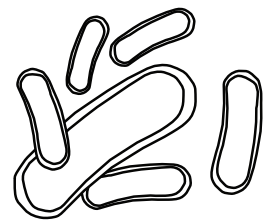


Lactococcus



## Microrganismos yutai kutanmaya

Microorganismos, ima pgekeg bacterias, nuigtu kajinmitkau nagkamas jinui kuashat nimtin yutai kuta lácteo tutai aina duka. Yugurt, mantequila, queso tutai aina nuu. Aida. Tuja nuigtushkam ejemauwai aaruul requesón seco tawa nuu, tikish airag duka caballo muntsuji cervezan najan wajakajui Mongolia tawa nuig.



Lactobacillus

am hilantia...  
deuone decantare: qui tonim  
aut Acidia

color qui oculis dicitur  
b; capat nec sapor qui fan  
nec dimum; molle quod  
nat; r tamen aliquis est y  
fale est. explicare non  
sup iohem. Quos viti  
in utimis Affiat: omnis  
sugge

# DUIK MUUNT JATI DEKAMU

Ukuchnum, dainum awai waji jatanak achimaush ajami yaunchukesh nuu dekamuk. DNA tawa nui dekau ainawai yacha aidauk duiik muuntash tuu jatanmag waitnush ajami unk. Duka jinvitis, Cries tawa nui nain najamainak waitu wajaku ainawai.

non 22  
p dchis m iofai? Nunc sequit udeze  
tembz p Garthm de puer ier li. qm e. gto



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**Omne Bonum**  
Omne Bonum tawa duka makichik papi muun latin chichamai agagmau siglo xiv Europeanmaya pujutji agagmau Biblioteca Real Britanica tawa nui shig kuitamkam awai. Nuig awai apijatin dain autusu aidau nuigtu ampijatin jamamtuchu pujutash wajuk awa, nuigtush tuu jatanak achimaush ajami edad media tuna nuish.

tes fm a? mesam plantia m ossib; max  
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uento fisci; iohes m

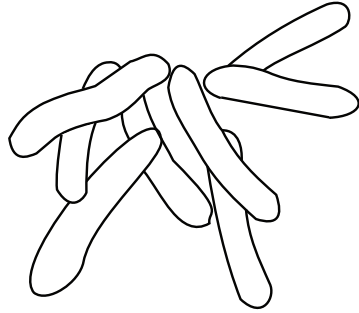
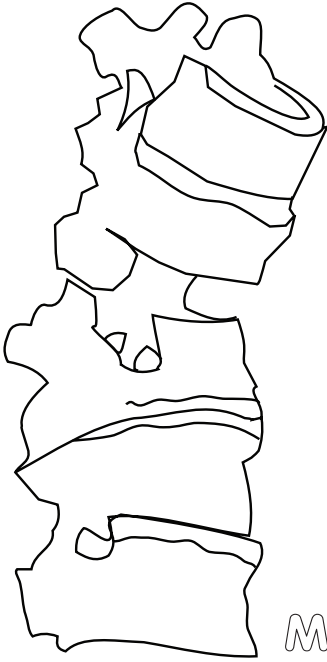


quos priores p...  
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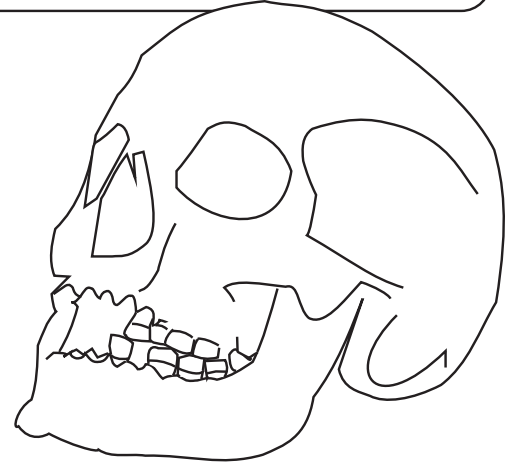
tantis. in p...  
a dulcora sup me

## SUWASHNUMIA JATA KUCHAPJAI

Suwashnumia jatak uchap lepra tutaya duka jatak microbacterium tawa duka suwashnum achijatui, tuja, tikish kuchap lupra tawa duka iyashnum achijatnai. Nuna duik muntak chima wajakajuui. Nuu jata jimaja duka ukunchnum nuigt ADN tawa nui acha aidau sdekau ainawai. Duik muntash waji jataik jaa wajakush ajami nunak.

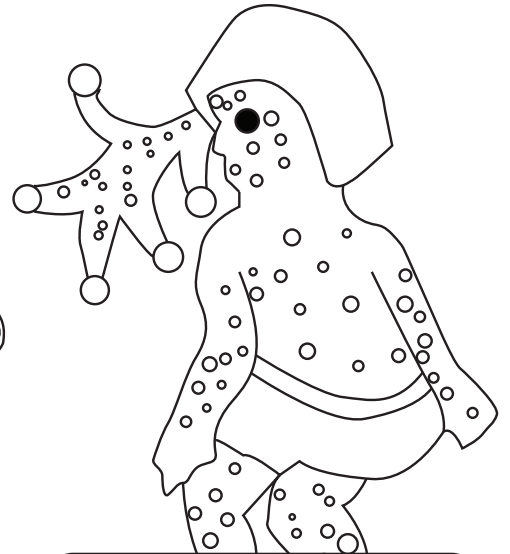


*Mycobacterium leprae*

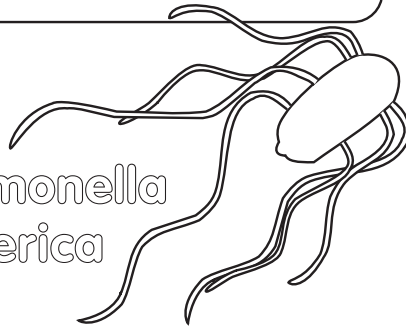


## COCOLIZTLI

Juu jatanakcocoliztli tuu wajaku ainawai muun Azteca aidauk, duka jatak shig kuashat ijinauwai yamai Mexico tuna nui batsatunak. Mijan 1,545 nuniashkush 1,550 tawa nuu mijantin shig kuashat jinau ainawai.

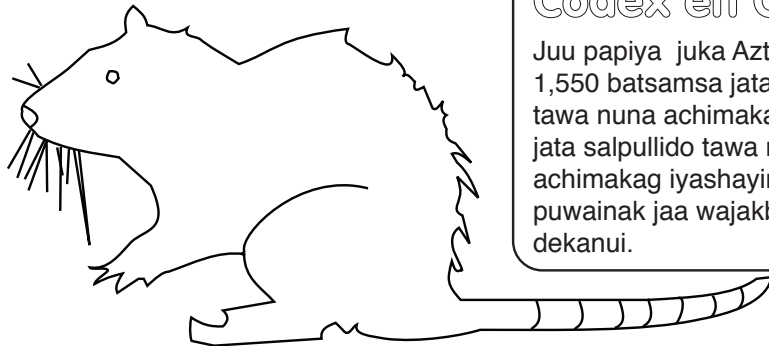


*Salmonella enterica*



## Dr. Schnabel

Dr, ampijatin yacha aidauk jata ishamainai jinuinaunak mijan siglo xvii tawa nuig yapinak asi ijik pishak audau bukega nunin waig dase pegkegchaun mejegkaig tusa tsuwajatu wajakajui.

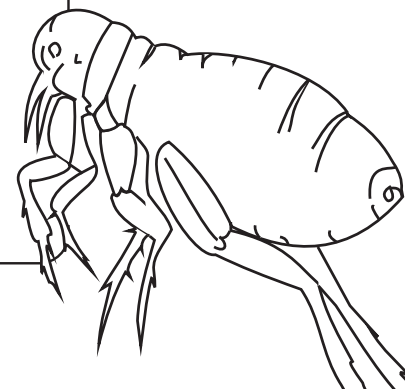


## Codex en Cruz

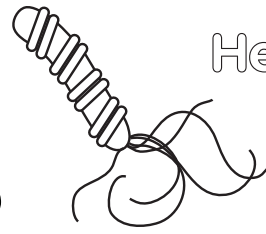
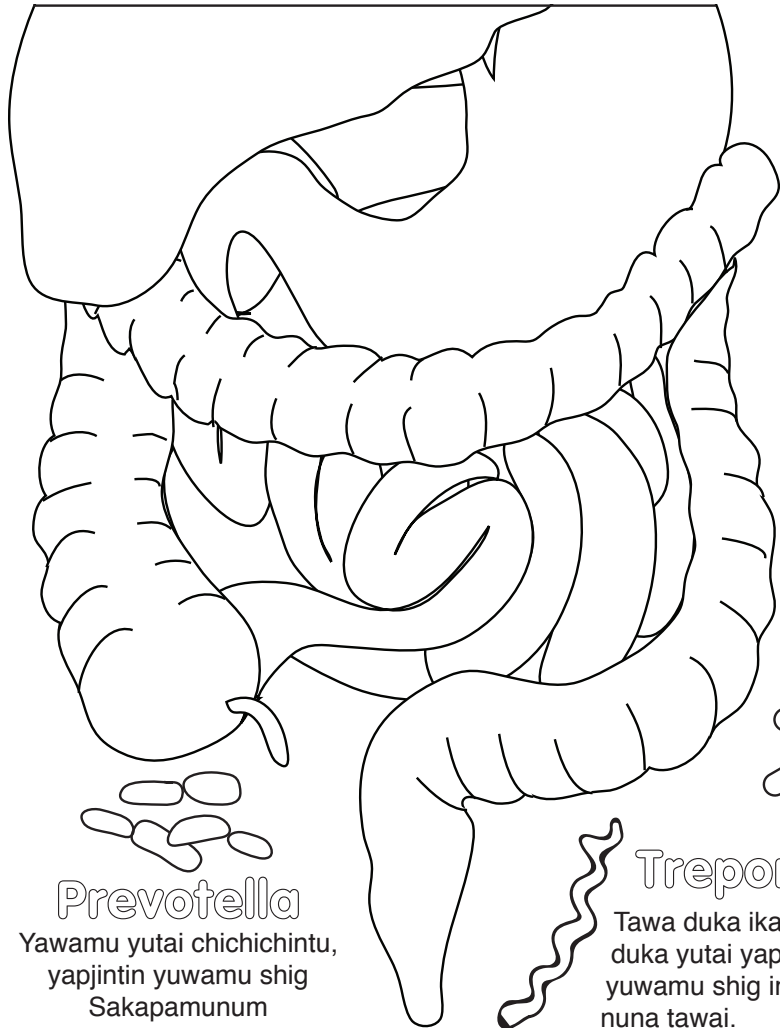
Juu papiya juka Azteca mijan 1,550 batsamsa jatan Cocoliztli tawa nuna achimakag tsuwenak, jata salpullido tawa nuna achimakag iyashayin numpan puwainak jaa wajakbau nuu aidau dekanui.

## JATA PESTE TUTAI

Juka jatak yujakui bacteria yersinia pestis tawa nui, duka katipi sugkunia jinkiuwai. Aents nuu katipi sugkuji bukunamunum jata peste bobonica tabau jinkiuwai. Juu jatak kuashat ijijatuwai mijan 1,346 nuniashkush mijan 1,353 tin, aentsun jimituk Europeanmayan amukui.







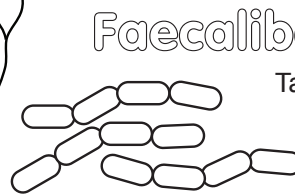
Helicobacter  
pylori

Awa juka tantanum  
pujus kuchapan apujui  
tikichin cancer tawa nuna



Bifidobacterium

Tawa juka yayawai uchi  
yama akintsauchin  
muntsu muntsua shig  
jakapamunum



Faecalibacterium

Tawa juka najatui yutain  
células aensti apujin  
aya nuu yuatnun.

Prevotella

Yawamu yutai chichichintu,  
yapjintin yuwamu shig  
Sakapamunum

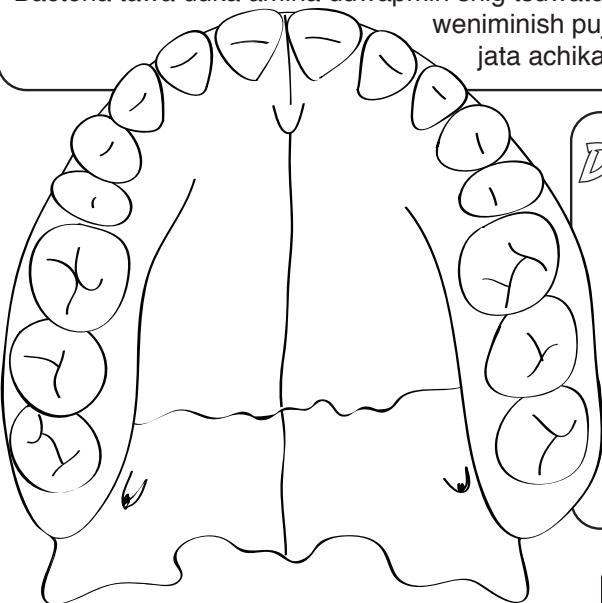


Treponema

Tawa duka ikamia  
duka yutai yapjintin  
yuwamu shig imna  
nuna tawai.

## TINITIKISH TUU MICROBIOK AIWA JAKUI NUU DEKAMAMUY

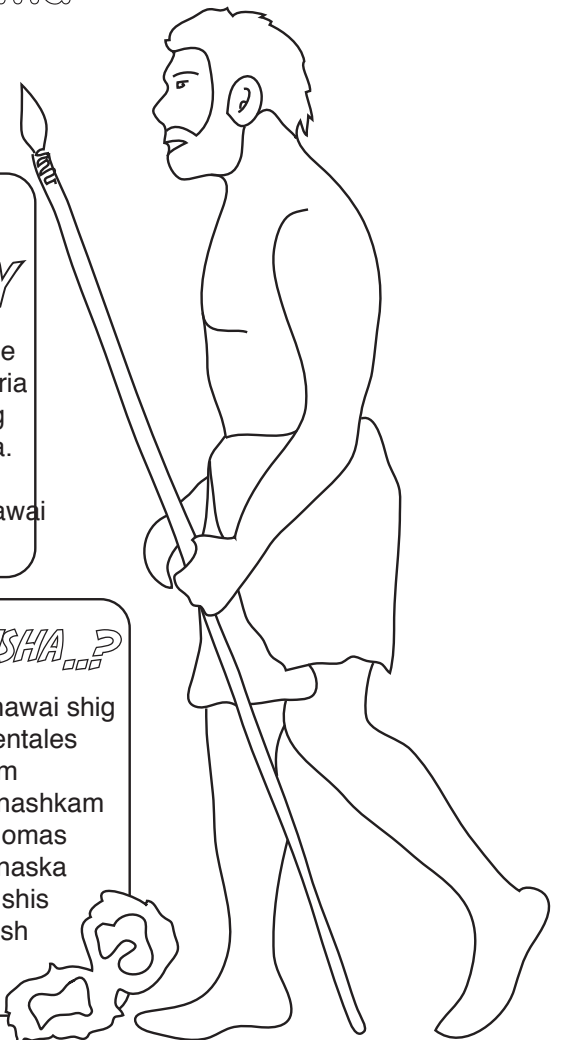
Amina iyashmek shig kuashat trillones células bacterianas ajutjamui, tule nina jega atus batsatui. Nuú así ijmaik microbioma tutaiyai. Duka bacteria aidau batsatui amina ampujmin. Duka yaimpawai yujumak yuwamu shig sakapatnum. Nuniak senchimikawai amina iyashmin inmune tawa nuna. Bacteria tawa duka amina duwapmin shig tsuwatchauemawai. Ntsag weniminish pujawai nunik ayamjupawai jata achikai tusashkam.



### DEKAUKUM JUSHA...?

Yacha aidauk aujtuinawai shig ajetitatus cálculos dentales tawa nna, nigtushkam paleoheces tawa nunashkam shig ejetatus microbiomas ancestrales tawa nunaska dekatatus, i.matikak shis dekatatus wajuk jatash najaneawaki nuna.

Porphyromonas

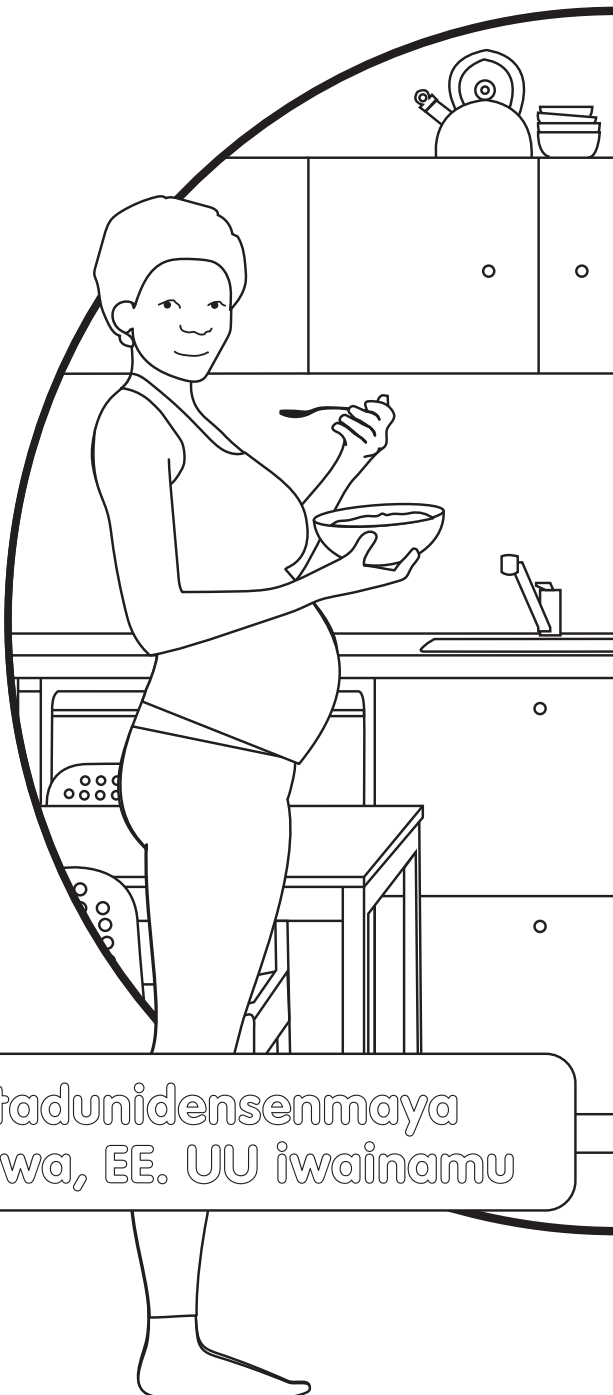


## EGAMAK YUU AIDAU

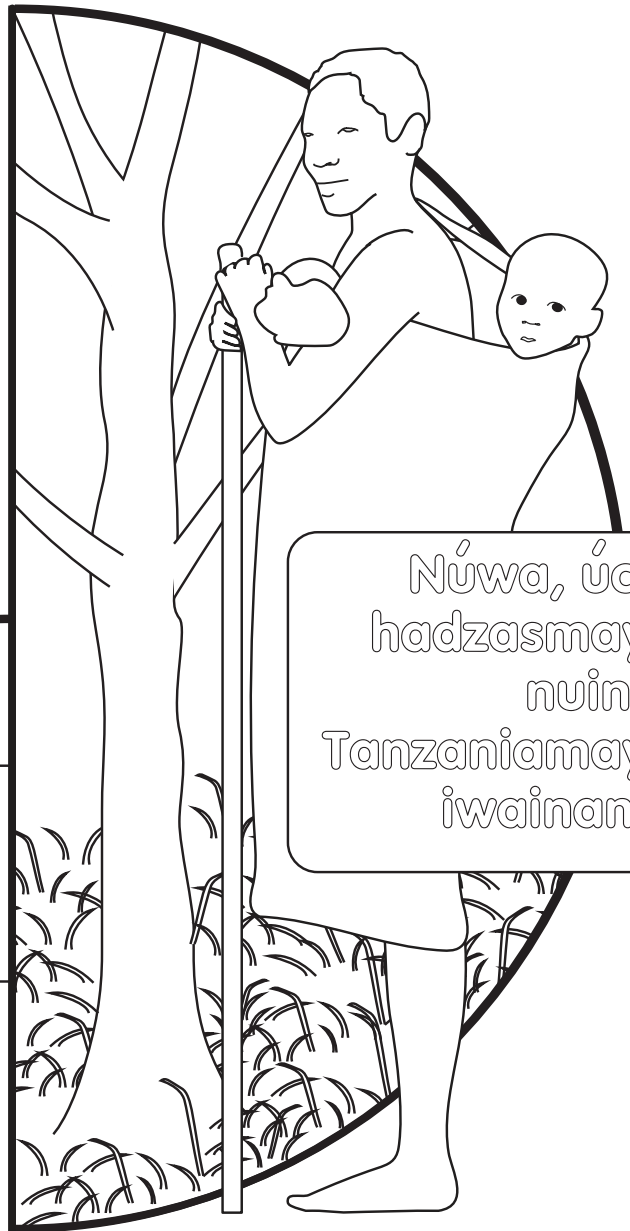
Kuntinum egamak yuu aidau, jigkain juuk yuu aidau, ikamian egak yuu aidau yutaig kushat yapajinki wee wajakui, makimakichik ajak yutai aidau tsawanjin nejeke wetai.

Eke ajak ajakmat jegatsaigki 10,000 mijan jegatsaigkik aentsuk ikamian juus yuu wajaku ainawai.

Yamaiya juiya ikamian juus yu aidauk ampuijin ajuinawai microbiomaas tawa nunu ka kuashat nimitin aidau, apash wiyakuch aidau nagkaesau.



Estadunidensenmaya  
núwa, EE. UU iwainamu



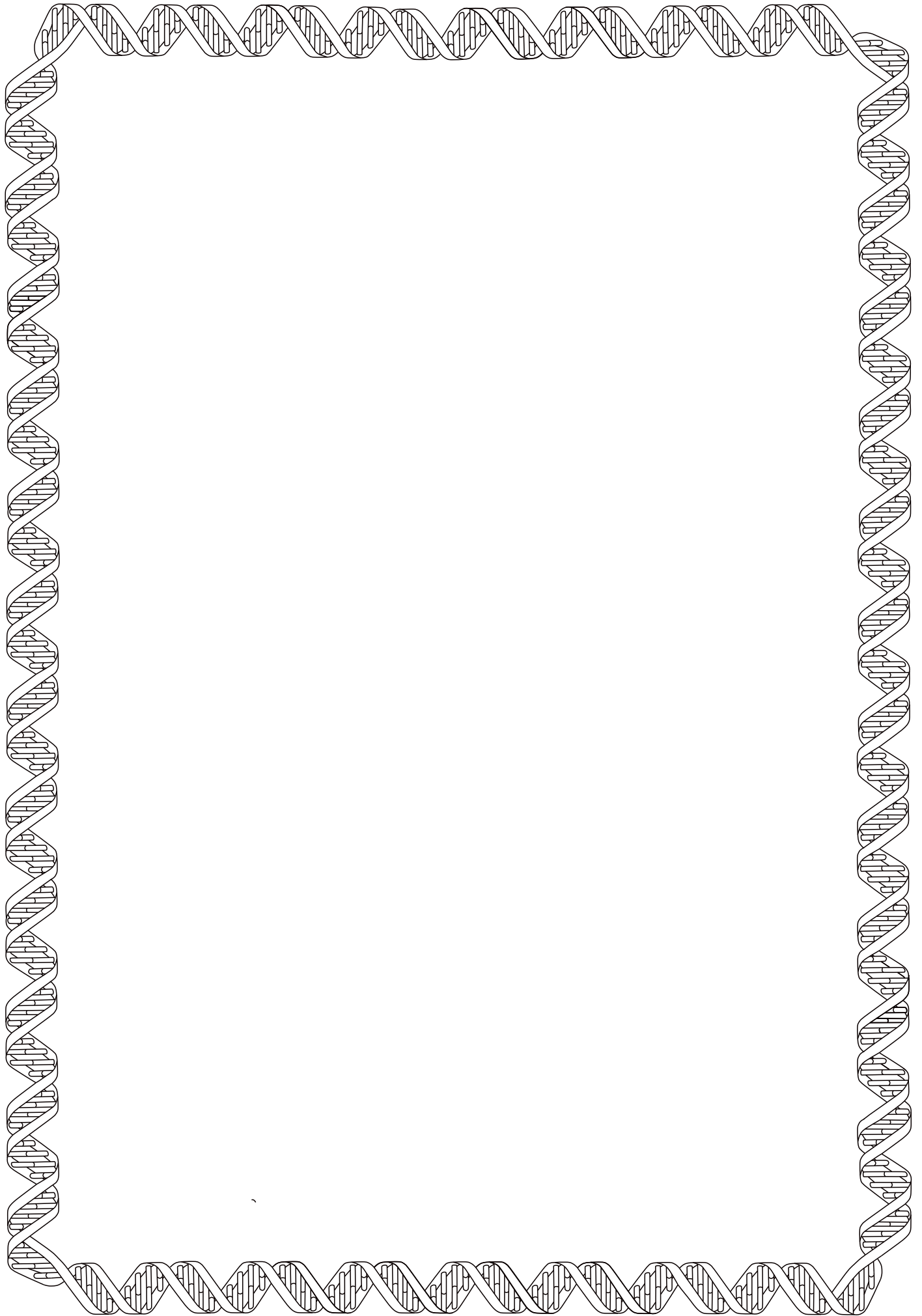
Núwa, úchi  
hadzasmaya  
nuintu  
Tanzaniamaya  
iwainamu

## AENTS WIYAKUCH AIDAU

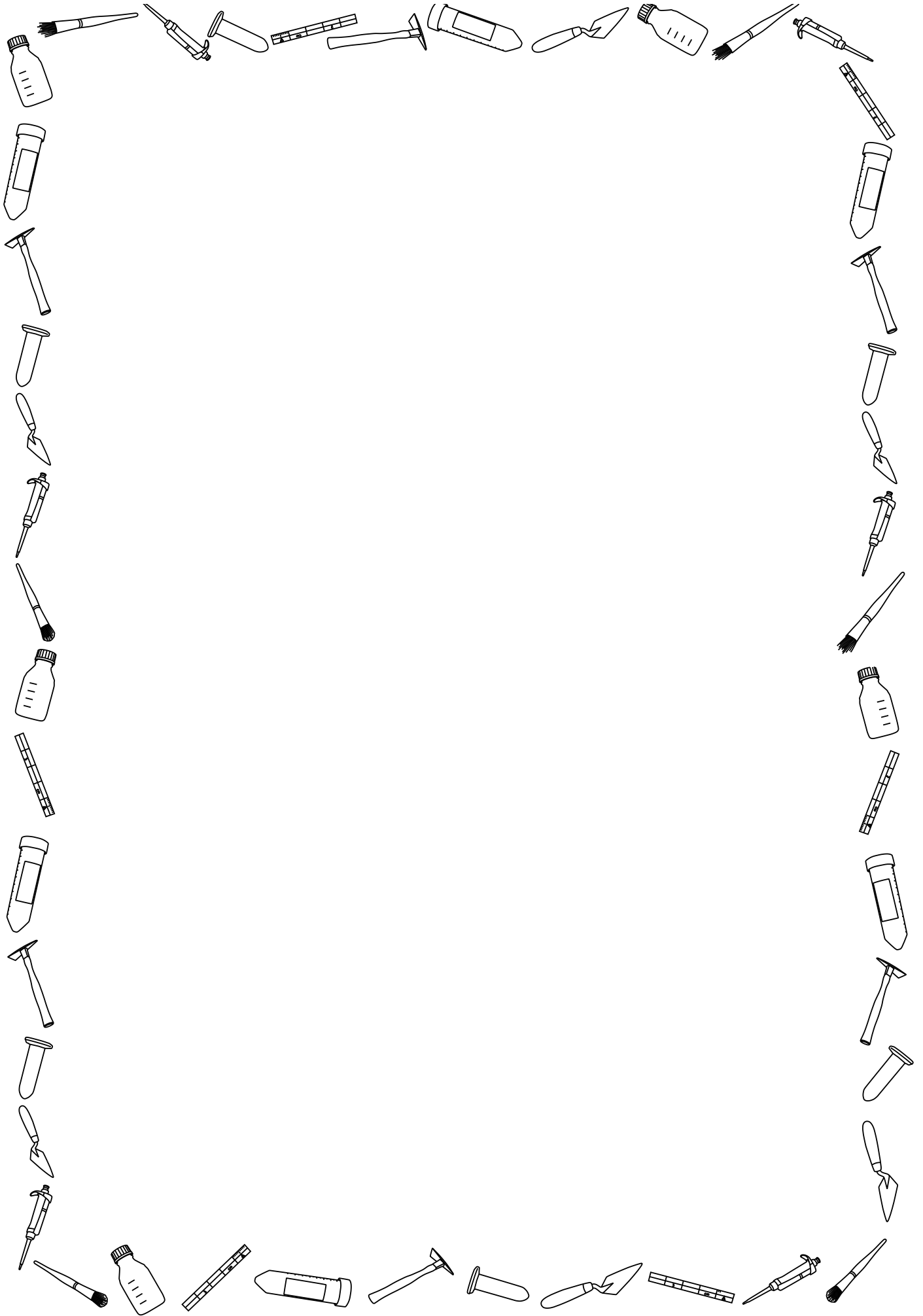
Aents wiyakuch aidau yamaik yuinawai ajak aidau ajamayan, shig kuitamsa nugka shig umigkamunum ajamunmayan. Tujash ajak nuu nimitin audaun, tinama yuatsui.

Yamaik, ajak shig nejeati takug nugkan shig tsajuk, suwin nukajai machimag ajakbaun jukag ukuinawai ajak ijumtainum. Dunak ajaknak nimen dekegkagkesh yapagtuinawai dutikawag juinawai atushat sujuktatus.

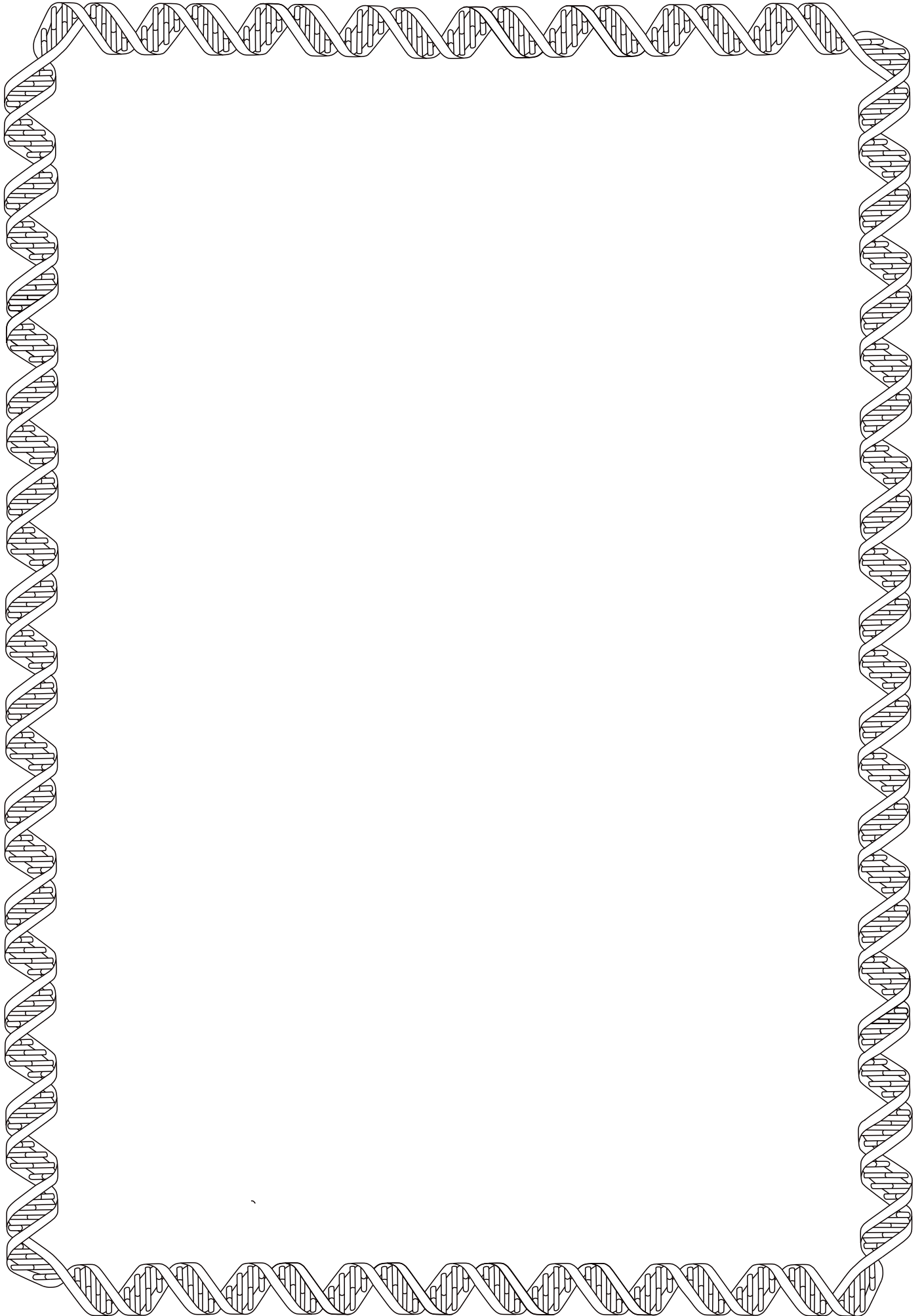
Tuja aents wiyakuch yakat muunumia wiyakuch aidauk imanika ampijinig atsujui microbiomas tawa duka, NUNIN AIDAU asag kakajus jatah kakajus tsagaumainchaunash achimamain ainawai.





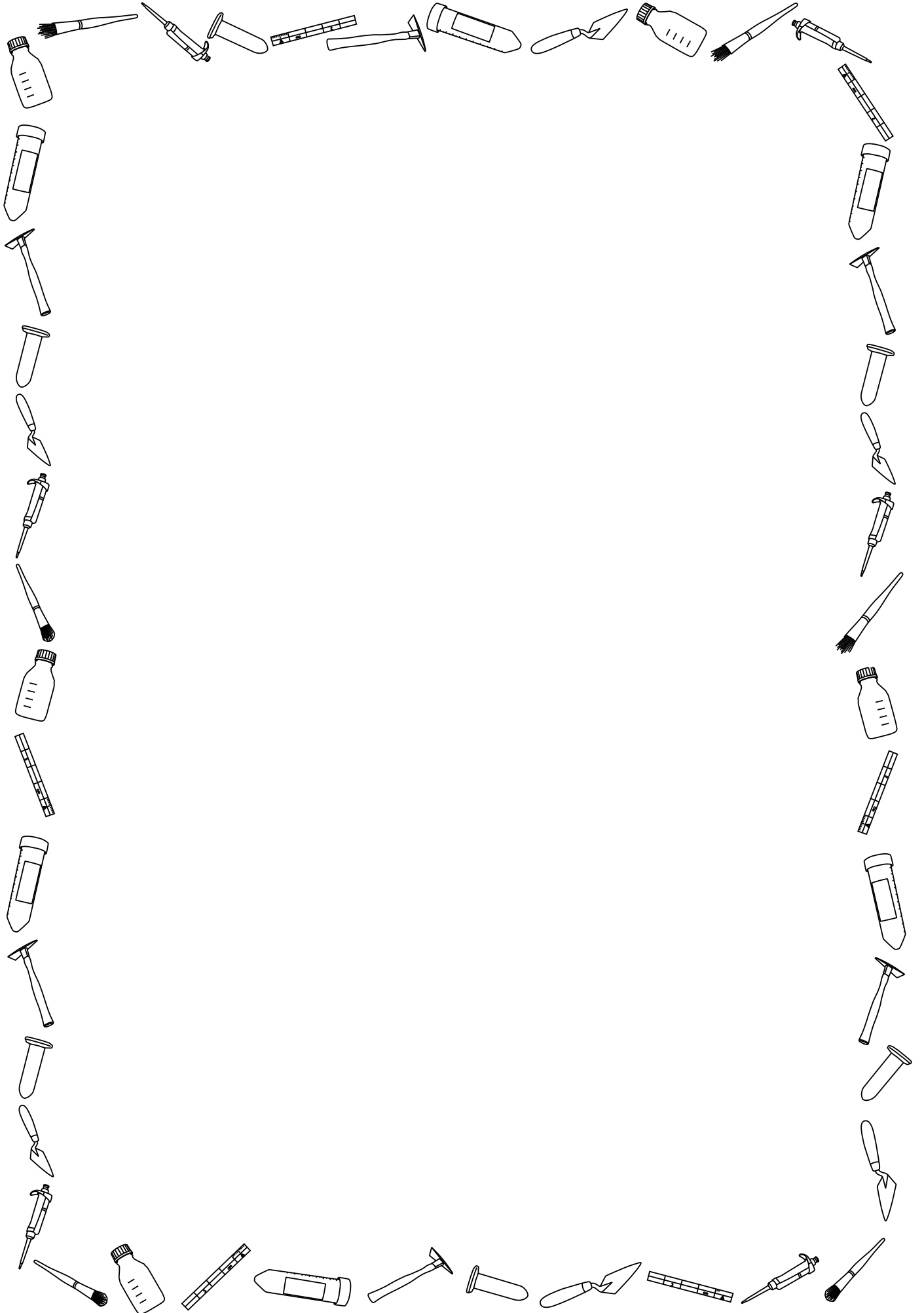




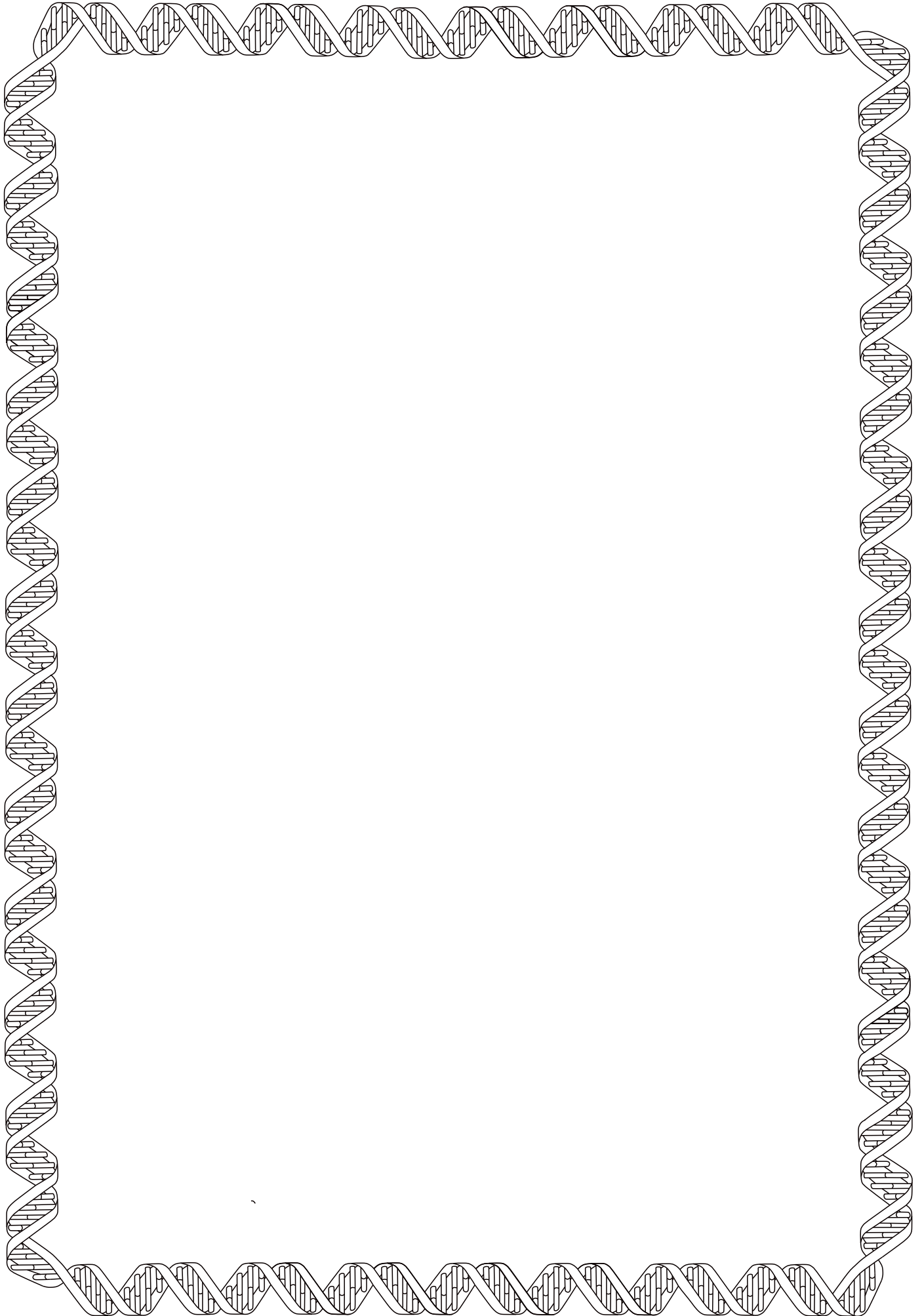






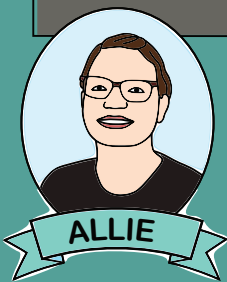




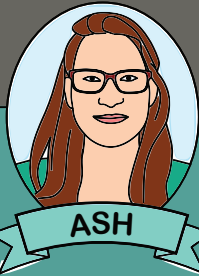




## Max Planck Institute for Evolutionary Anthropology



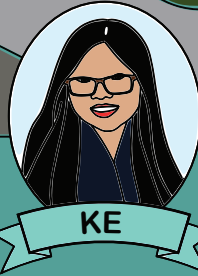
ALLIE



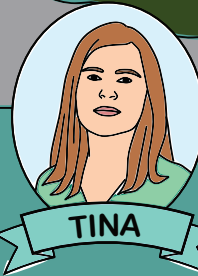
ASH



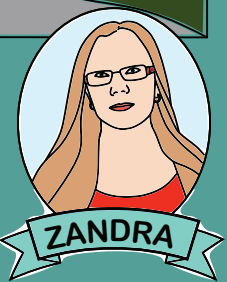
JESSIE



KE



TINA



ZANDRA

### Muun batsama

# WAJAKBAU EJETUSA DEKAMU Yakagmi juu papí

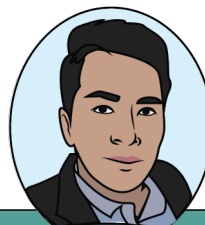
¡Unuimatjata Arqueologo aidaush bioarqueologos aidaush ijntusash ii minimun pachisa inibaunash! Uyunkagtusta ish yaki ainaji, waji autusaya ejenawa nagkamsa minimush aents ainag juish, yamai jata achimaja jatanum jegamua dusha. Unuimatjata tuwiyag miniuwaitjai initikesh tuu mijantinig batsamsasmuita radiocarbono tawa nujai diyamash. Dekata wajuk yacha aidaush ejeyuwaita nuik muun yuu wajakbaunash yutai apintsu aidau autusa ejebaunmash. Ejeta waji ajak, waji kuntin aidaunak tagkumianume, antsgag yutai kutaktatu ejebauwa nuna awish. Ejeta waji jataik jayanume, wji jata ishamainaik initikesh ayanume ina apachjish.

Awajunnum agagmau:

Eduardo Segundo Weepiu Samekash

Tsaninka yainitmau:

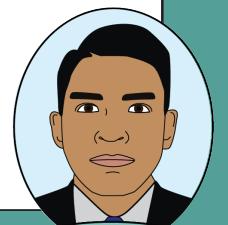
Eduardo Weepiu Daekat, Robin Pizango Sejekam



EDUARDO



EDUARDO



ROBIN