

## Ke Kinorea Kūnalohia, Ka 'Īnika Kūnalohia

### *'Ōwehe Laulā:*

Ho'ohana nā kānaka 'epekema i ke kukui kuawehi (ultraviolet light) e 'ike i ka nui o ka sulfur dioxide i ke kinorea pele. Ma kēia ha'awina, e a'o ana nā haumāna i nā ka'akālai hi'ohia kuawehi i ka noi'i 'ana i "nā 'īnika kūnalohia" e hāweo i ke kukui kuawehi.

### *Nā Pahuhopu:*

E a'o ana ka haumana:

- pehea e ho'ohana ai i ke kukui kuawehi i nā mea kūnalohia;
- e noi'i e 'ike i ka ho'okumu 'ana i ka 'īnika kūnalohia 'oi a'e ma lalo o ke kukui kuawehi; a me
- e wehewehe pehea e omo ai i ke kukui kuawehi a loli ia i ka hāweo o nā 'akano (substances).

### *Nā Pono Ha'awina:*

- Ke kukui 'ele'ele pa'alima
- Ka wai Tonic water (me ka quinine i loko)
- Ke koloaka aniani me ka hu'a i hiki ke ho'ohālikelike i ka wai tonic
- Nā lā'au pulupulu (cotton swabs)
- Nā lā'au 'ōhikihihi niho (toothpicks)
- Vinegar
- Ke kopa holoī kinowai (me ka whitener i loko)
- Vitamin B-12
- Ka pepa ke'oke'o
- Ke kī'aha ea aniani
- Ka peni māka pa'a
- Ka Pepa Ha'awina Haumana: "Ka 'Īnika Kūnalohia"

### *Nā Pane I Ka Pepa Ha'awina Haumana:*

Ka 'Ikepili:

E 'oko'a ana nā pane

Ka 'Ikepili Kālalai:

1. E 'oko'a ana nā pane
2. E 'oko'a ana nā pane

Ka Hopena:

1. E 'oko'a ana nā pane
2. E 'oko'a ana nā pane

Nā Nīnau Hou A'e:

1. Hāweo nā 'akano ma muli o ke omo o ke kukui kuawehi a 'o ia ke kumu no ka hō'ike 'ana o ke kukui hāweo (fluorescence).

## Ke Kinoha Kūnalohia, Ka 'Īnika Kūnalohia

### Ke Ka'ina Hana Ha'awina:

1. E hō'ike i nā haumāna i nā kinowai 'elua i loko o nā ki'aha pepa aniani: ka wai tonic a me ke koloaka. E nīnau i nā haumāna inā hiki iā lākou ke 'ike i ka 'oko'a ma waena o nā kinowai 'elua.
2. E ho'ā ke kukui 'ele'ele mā nā kinowai 'elua. E wehewehe i nā haumāna ho'opuka ke kukui 'ele'ele i ke kukui kuawehi (ultraviolet light). Pono ka 'ili o ka wai tonic e hāweo i ke kala polū, 'a'ole hāweo ke kinowai 'ē a'e. E nīnau i nā haumāna inā maopopo iā lākou e 'ike i ka hāweo 'ana o ka wai tonic ma lalo o ke kukui kuawehi (omo nā 'akano i loko o ka wai tonic i ke kukui kuawehi a ho'opuka nā photon i ke kukui hāweo).
3. E ho'omana'o iā lākou pili ke kukui kuawehi i ka electromagnetic spectrum. Aia ke kōā hawewe (wavelength) ma ke kala (violet) kokoke i ka visible light spectrum, 'a'ole hiki ke 'ike kēia kukui e like me ke kukui ma'amau. E ho'omana'o iā lākou holo ke kukui ikehu ma ke 'ano he nalu—ua omo 'ia ka ikehu hawewe e ka wai tonic i ka hō'ike'ike.
4. E wehewehe e 'ike mua nā kānaka 'epekema i ke kinoha me ke kala 'ole mai ka lua pele e like me ka wai tonic hō'ike'ike. 'O ka hapa nui o ka manawa 'a'ole hiki ke 'ike i ka Sulfur dioxide akā omo 'ia i ke kukui kuawehi. Ke omo kekahi 'akano i ke kukui kuawehi, ho'opuka ke kukui ma ke kōā hawewe (wavelength) 'oko'a, hiki ke 'ike 'ia me he kukui hāweo lā ( e like me ke kukui 'ele'ele). Ho'ohana nā kānaka 'epekema i kēia e huli i ka nui o ka sulfur dioxide i loko o kekahi mea.
5. Inā hoihoi, e noi i nā haumāna e lawe mai i nā hāpana mai ko lākou hale (lawe mai i nā hāpana non-toxic wale nō) e hāweo ma lalo o ke kukui kuawehi i ka lā 'apōpō. Hiki ke ho'ā'o 'ia kēia mau hāpana me nā mea 'ē a'e i palapala 'ia ma ka Pepa Ha'awina Haumana: "Ka 'Īnika Kūnalohia." He mea maika'i inā ho'opau ka ha'awina i ho'okahi lā, hiki ke pāne'e i kēia anu'u a hana i ka anu'u 6.
6. E kāka'ahi i ka Pepa Ha'awina Haumana: "Ka 'Īnika Kūnalohia." E wehewehe hiki i nā 'akano like 'ole ke omo ke kukui kuawehi a ho'opuka i ke kukui kūmaka. E noi'i ana nā haumāna i nā 'akano like 'ole e 'ike o ka mea hea e hana i ka 'īnika kūnalohia.

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**He Mana'o No Nā Kumu:** Hāweo ka Vitamin B-12 i loko o ka vinegar ma lalo o ke kukui kuawehi akā hāweo pū ka vinegar wale nō. Hiki i nā haumāna ke ho'ā'o e hui pū i nā 'akano like 'ole.

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**Nā Ha'awina Hou A'e:** (1) Ma muli o ka lā a me ke kukui kuawehi, hiki ke pāpa'a ka 'ili a loa'a ka ma'i 'a'ai 'ili. Hiki i nā haumāna ke ho'ohana i nā ultraviolet-detecting Frisbees a i 'ole nā beads e noi'i i ka ikaika o ke kukui kuawehi mai ka lā. Hiki iā lākou ke ho'ololi i ka hi'ohi'ona i ke kakele 'ana o nā Frisbees a me ka beads me ka 'aila pale lā SPF 'oko'a. (2) Hāweo ikaika ka petroleum jelly ma lalo o ke kukui kuawehi ke kau ia ma ka lima. Hiki i nā haumāna ke komo nā mikilima me ka petroleum jelly i mea e hāweo ka lima i ka pō.

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## Ka 'Īnika Kūnalohia

### *Ka 'Ike Hou A'e:*

Hāweo nā 'akano like 'ole ma lalo o ke kukui kuawehi. Omo kēia mau 'akano i ke kukui kuawehi a laila ho'opuka i ke kukui i hiki iā kākou ke 'ike ke kukui hāweo (fluorescence). Hiki ke ho'ohana i kēia mau 'akano ma ke 'ano he "'īnika kūnalohia" a i 'ole 'īnika e 'ō'ili ma lalo o ke kukui kuawehi.

### *Ka Wānana:*

'O ke 'akano hea ka mea 'īnika kūnalohia 'oi a'e?

Wānana au i ke 'akano \_\_\_\_\_ ka mea 'īnika kūnalohia 'oi a'e.

### *Nā Pono Ha'awina:*

- |   |                                     |
|---|-------------------------------------|
| • Ke kukui 'ele'ele pa'alima            | • Ke kopa holoī kinowai             |
| • Ka pepa ke'oke'o                      | • Vitamin B-12                      |
| • Ka wai tonic                          | • Ke kī'aha ea aniani               |
| • Nā lā'au pulupulu (cotton swabs)      | • Ka peni māka pa'a                 |
| • Nā lā'au 'ōhikihiki niho (toothpicks) | • nā 'akano mai ka hale, (inā pono) |
| • Vinegar                               |                                     |

### *Nā Kuhikuhi:*

1. E ki'i i kekahi mau kī'aha ea aniani. E lepili i nā kī'aha pākahi me ka peni māka pa'a e hō'ōia i ka mea i loko o ke kī'aha. (e like me, ke kopa holoī kinowai, vinegar, a pela aku)
2. E ninini i ke kinowai li'ili'i e ho'ā'o 'ia i nā kī'aha ea aniani (vinegar, ke kopa holoī kinowai, a me ka wai tonic). Pono ka vitamin B-12 e hehe'e i ka wai i mea e ho'ā'o 'ia ma ke 'ano he 'īnika.
3. Kau ka lā'au pulupulu a i 'ole ka lā'au 'ōhikihiki niho i ho'okahi ko'ana. E ho'ā'o e kākau i nā hua'ōlelo ma ka pepa, a waiho a i mālo'o.
4. Ke mālo'o ka pepa, pā ke kukui 'ele'ele i ka pepa, e nānā pono inā hāweo ka 'akano.
5. E palapala i ka 'akano e ho'ā'o 'ia a me nā lōina i ka mahele "'Ikepili."
6. E hana hou i kēia ka'ina hana me nā 'akano 'ē a'e e ho'oholo i ka 'akano hea ka mea 'īnika kūnalohia 'oi a'e.
7. E no'ono'o pono i nā mea "maika'i" a i 'ole "maika'i 'ole" o ka 'īnika kūnalohia. Ka pāla'ela'e? Ka manawa mālo'o? Nā mea 'ē a'e? E kākau i kēia mau mea ma ka Nīnau 1.
8. Inā hoihoi, hiki ke hui pū i nā 'akano i nā kī'aha 'ē a'e no ka ho'ā'o 'ana. Mai pōina e palapala i nā 'akano āu i ho'ohana ai a e kākau i nā lōina o ia mau 'akano i ka mahele "'Ikepili."

