

E Makahi'o I Nā Pō'ino Lua Pele: Kinoea A Me Polalauahi

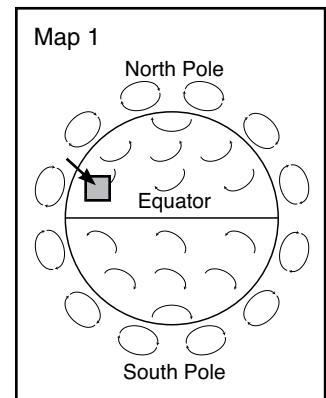
'Ōwehe Laulā:

Ho'okumu nā au paialewa i ka 'ahu honua, ka moana, a i 'ole ka lewapuni. I ka lewapuni, pi'i a'ela nā au paialewa ke ho'ololi ke ea anuanu me ke ea mehana. Ma muli o kēia pō'aiapuni me ke ea anuanu a me ke ea mehana, ho'okumu nā makani honua (global) a me nā makani 'one'i (local) ('o ka makani ke ea e pā papamoe i nā au paialewa). I kēia ha'awina, e a'o ana nā haumāna e pili ana i nā au paialewa o ka lewapuni (atmospheric convection) a e a'o ana i nā makani honua (global) a me nā makani 'one'i (local) a ke pā 'ana o nā makani i ke kinoea lua pele i Hawai'i.

Nā Pahuhopu:

E a'o ana ka haumana:

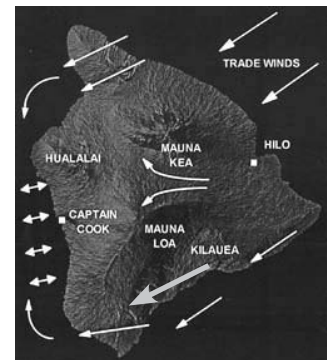
- e nānā pono i nā au paialewa o ka lewapuni a 'o ke kumu ho'i ka 'oko'a o ka pa'apū o ke ea mehana a me ke ea 'olu'olu;
- ho'ololi nā au paialewa i nā lauana makani o nā makani honua a me nā makani 'one'i;
- he pō'ino ke kinoea sulfur dioxide i nā lauana makani 'one'i i Hawai'i; a me
- e ho'omaulia i ka manawa o ke kinoea e hō'ea i kekahi kaona ma muli o nā kumu kūikawā (conditions).



Nā Pono Ha'awina:

- 2 poepoe huluhulu
- 2 'ōwili ki'i ea (film canisters)
- Peppermint extract
- Almond extract (a i 'ole kekahi extract 'ē a'e)
- Ka poepoe honua
- Ka pe'ahi pākaukau
- Ka Māliko: "Ke Au Paialewa O Ka Lewapuni"
- Ka Pepa Ha'awina Haumana: "Hahai I Ke Ala O Ke Kinoea Lua Pele"

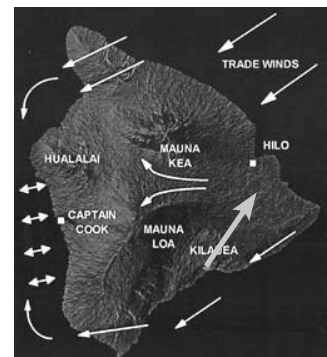
Map 2



Nā Pane I Ka Pepa Ha'awina Haumana:

1. Komo ka palapala 'āina a kaha ka wahi 'o Hawai'i.
2. A. Hikina 'Ākau (Northeast) a i Komohana Hema (Southwest)
3. komo ka palapala 'āina a kaha ka trajectory
4. B. Captain Cook
5. komo ka palapala 'āina a kaha ka trajectory
6. A. Hilo
7. Pā mai ka makani i ke kinoea i nā mukupuni i ka lā a pā aku ka makani i ka pō.
8. E 'oko'a ana nā pane, akā pono ka pane e wehewehe i ka loli 'ana o ka pa'apū ea ma muli o ke ana wela.
9. Pono ka hola 1/2.

Map 3



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Ho'omākaukau I Ka Ha'awina :

Ma mua o ka ha'awina, e kau i ka poepoe huluhulu i loko o ka peppermint extract a komo ka poepoe huluhulu i loko o ka 'ōwili ki'i ea (film canister). Pa'a maika'i ka pani. E hana hou i ke ka'ina hana me ka almond extract. (HE MEMO: inā he pāheu kekahi o nā haumāna i nā pineki (peanut) extracts. Inā pēlā, hiki ke ho'ohana i ka almond extract me kekahi extract 'ē a'e: 'alani, a pēlā aku.)

Ke Ka'ina Hana Ha'awina:

1. E nīnau i nā haumāna pehea e ho'ololi ai ka makani i ke ala o ka lehu a i 'ole ke kinoea make mai ka lua pele. E kākau i nā pane ma ka papa 'ele'ele.
2. E ho'ohana i ka Māliki "Ke Au Paialewa O Ka Lewapuni" e hō'ike i ka ho'okumu 'ana o nā au paialewa ke ho'ololi ke ana wela i ka pa'apū o ke ea. E wehewehe, ma ka pae honua (global level), pā ka lā i ka pō'ai waena honua (equator) ma mua o nā wēlau (poles), 'o ia ke kumu no ka pi'i 'ana o ke ea mehana ma ka pō'ai waena honua (equator). Pā ka makani 'olu'olu mai nā wēlau (poles) i ka pō'ai waena honua (equator). Hiki ke wānana i nā lauana makani ma ka pae honua (global level).
3. E wehewehe pi'i nā au paialewa li'ili'i ma nā 'ae kai no ka mea ho'owela ka lā i ke kai a me ke ea i nā manawa like 'ole. 'O kēia ke kumu no ka 'oko'a o nā makani honua a me nā makani 'one'i.
4. Hiki i nā haumāna ke hō'ike i ka pā 'ana o nā makani i nā kinoea i nā wahi pa'apū pū'uo. E noi i nā haumāna e kū laina ma kēlā 'ao'ao o ka lumi papa. E wehe i ka 'ōwili ki'i ea me ka peppermint extract a ho'opa'a i kou lima i ho'okahi a i 'ole 'elua kapua'i mai ka haumana mua i ka laina. E noi i nā haumāna e hāpai ka lima ke hanu i ke 'a'ala. E helu manawa i ka hiki 'ana o ke 'ala i ka mua, waena, a me ka hope o ka laina. (HE MEMO: 'A'ole paha e hiki ana ke 'ala i ka hope o ka laina; pau ka ha'awina ma hope o 5 minuke.)
5. E hana hou i kēia ka'ina hana me ka almond extract, akā ho'ā ka peahi a pā ka makani i nā haumāna ma ka laina. E kau i ka 'ōwili ki'i ea i mua o ka peahi. E helu manawa i ka hiki 'ana o ke 'ala e like me ka peppermint extract.
6. E nīnau i nā haumāna 'o ke 'ala hea ka mea i hiki mua i ka haumana ma hope o ka laina. E nīnau i nā haumāna he aha lā ka hana inā he 'ala kinoea mai ka lua pele? Inā pono e ha'alele ka wahi e aho inā he makani ko laila a i 'ole 'a'ohe makani?(HE MEMO: Hiki ke ho'ohana i nā lā'au incense inā hoihoi e hō'ike i ka hana o ke kinoea.)
7. E kākā'ahi i ka Pepa Ha'awina Haumana: "Hahai I Ke Ala O Ke Kinoea Lua Pele." E nīnau i nā haumāna pehea e ho'ololi ai ka makani i ke ala o ka lehu a i 'ole ke kinoea make mai ka lua pele.

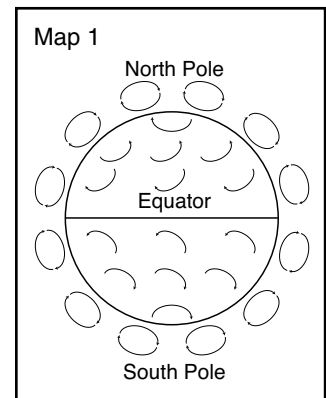
Hahai I Ke Ala O Ke Kinoea Lua Pele

Nā Kuhikuhi: E ho'ohana i ka 'ike i hā'awi 'ia e ke kumu a me kēia ha'awina e pane i nā nīnau.

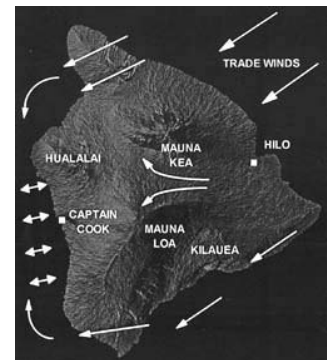
Ka 'Ike Hou A'e: Lua'i nā lua pele i ka pele, ka pōhāhā a me nā kinoea make. Aia 'ekolu mau kinoea lua pele ma'amau e ho'oweliweli i ke ola o nā kānaka: sulfur dioxide, carbon dioxide, a me hydrogen fluoride. He mau pilikia nā kinoea make i ka 'ōnaehana hanu. Hiki ke ho'omake i kekahi inā nui a'e ke kinoea make a me nā lauana anilā o ka makani, ka māmā a me ka 'ao'ao o ka makani.

He lua pele 'eu 'o Kīlauea ma ka Honua, ho'oku'u 'o Kīlauea i 2,000 mau kana (tons) o ke kinoea sulfur dioxide i kēlā me kēia lā. Mō'auī (reacts) ke kinoea i ka lā, oxygen, ka 'ehu lepo, a me ke kai/wai e ho'okumu i ka polalauahi pele a i 'ole "vog." He pilina ma waena o nā lauana makani a me nā wahi me ka pō'ino mai ka sulfur dioxide i ho'oku'u 'ia e ka lua pele 'o Kīlauea.

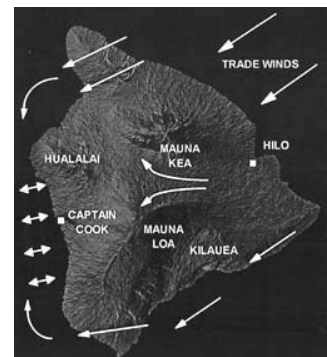
1. E ho'ohana i ka poepoe honua e huli i ka wahi o Hawai'i. E kaha i ka wahi o Hawai'i ma ka Palapala 'Āina 1 (e ho'ohana i Tropic of Cancer a me ka International Date Line no ke kōkua).
2. E nānā hou i ka Palapala 'Āina 1. Hō'ike nā nahau ma ka palapala 'āina i ka 'ao'ao ma'amau o nā makani honua (global winds). 'O ka 'ao'ao hea ka 'ao'ao ma'amau o ka pā 'ana o nā makani i Hawai'i?
 - a. Hikina 'Ākau i Komohana Hema
 - b. Hikina Hema i Hikina 'Ākau
 - c. Komohana 'Ākau i Hikina Hema
3. Pā nā makani i Hawai'i i ka 'ao'ao i hō'ike 'ia e nā nahau ma ka Palapala 'Āina 2. Kuhikuhi hou nā makani honua (prevailing) ke hiki nā makani i ka mokupuni a ho'okumu i ka lauana poepoe ma ka palapala 'āina. E kahaki'i i ke ala o nā kinoea mai ka lua pele 'o Kīlauea ma ka Palapala 'Āina 2.
4. E nānā hou i ka Palapala 'Āina 2. 'O ke kūlanakauhale a i 'ole kaona hea ma ka mokupuni 'o Hawai'i ka wahi e loli ana e ke ala o ke kinoea?
 - a. Hilo
 - b. Captain Cook
 - c. Waimea
5. I kekahi manawa, 'a'ole pā nā makani (prevailing), a pā mai ka 'ao'ao Hema ('o ia ho'i nā makani Kona). Ma ka Palapala 'Āina 3, e kahaki'i i ke ala o nā kinoea ma ke 'ano makani Kona.
6. E nānā hou i ka Palapala 'Āina 3. Ma muli o nā makani Kona, 'o ke kūlanakauhale a i 'ole kaona hea ma ka mokupuni 'o Hawai'i ka wahi e loli ana e ke ala o ke kinoea?
 - a. Hilo
 - b. Captain Cook
 - c. Waimea



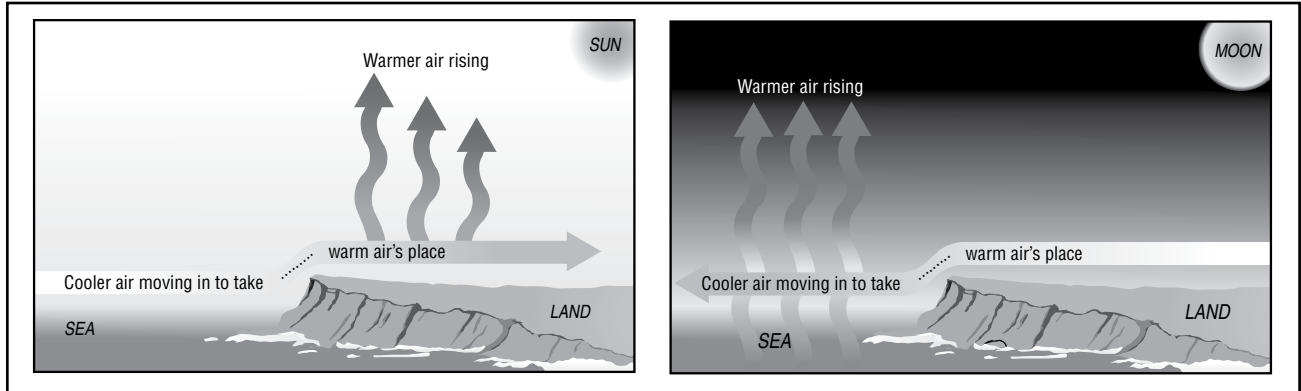
Map 2



Map 3



Hahai I Ke Ala O Ke Kinoea Lua Pele



7. 'O ka makani ke ea e pā papamoe i nā au paialewa. E nānā i nā 'oko'a o ka pā 'ana o ke ea i ka pō a me ka lā i ka Huahelu 1. E pā ana ka makani i nā kinoea i ka mokupuni a i 'ole i 'ō ka mokupuni i ka lā? Pehea ka pō?

8. E wehewehe i ka 'oko'a o ka makani i ka lā a me ka pō.

9. Pehea inā puka mai ke kinoea ma kekahi lua pele hou ma O'ahu. Aia ka lua pele i 15 mau mile Hikina 'Ākau (NE) mai ke kaona o Wai'anae. Pā nā makani prevailing i 30 mau mile i ka hola pākahi. Āhea e hiki ai ke kinoea i Wai'anae? _____

E hō'ike i kāu hana ma lalo nei.