Moʻolelo Story Activity

Team Goal

**Level 1**
Communicate the meaning of verse(s) in a Hawaiian mele by constructing a model (map) or a graphic story (comic). Use coding to design algorithms that share information.

**Level 2**
Construct a model (map) or comic that uses multiple algorithms to share knowledge that communicates a story with a sense of place and meaning from Hawaiian mele.

**Level 3**
Construct a model or comic that uses multiple algorithms to sequentially guide your audience through a story that is inspired by traditional Hawaiian mele. Be sure to communicate a sense of place and purpose.

**Grades**
K-12

**Career Pathways**
Computer Scientist
Programmer
Inventor
Graphic Novelist/Artist
Engineer

**Academics**
Math: Operations, Algorithms, Angles, Speed, Patterns
Computer Science: Block Code
Social Studies: Maps, Myths, Culture
Language Arts: Storytelling

**Professional Career Skills**
Communication
Collaboration
Problem Solving
Interpretation
Perseverance

**Materials**
Computer with Speakers
Mele
Makey Makey kit
Conductive tape or foil
Craft Materials (markers, etc.)
# Think like a computer scientist with Makey Makey

<table>
<thead>
<tr>
<th>Algorithm</th>
<th>Cloud Computing</th>
<th>Computer Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>As you drag and drop block code in Scratch, you are creating a list of specific steps. Your algorithm can be interfaced with through Makey Makey, which can also be coded to read different key strokes.</td>
<td>Scratch is internet-based, so information from the cloud is needed to run a program. But if you find ways to download code, cloud computing isn’t always needed to run programs with Makey Makey.</td>
<td>You write sets of algorithms, or directions, which interface with Makey Makey and your model.</td>
</tr>
</tbody>
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<tr>
<th>Computational Thinking</th>
<th>Debugging</th>
<th>Database</th>
</tr>
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<tr>
<td>There are many different ways to solve a problem with Makey Makey and Scratch. You need to use patterns, think abstractly, and write algorithms.</td>
<td>When you test your code with your Makey Makey hardware, you might find a glitch that needs to be redesigned!</td>
<td>Scratch has organized database of block code into categories like sound, events, control, looks, etc. Block code in “events” can be activated by the Makey Makey board.</td>
</tr>
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<tr>
<th>Binary</th>
<th>Machine Language</th>
<th>Artificial Intelligence</th>
</tr>
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<tbody>
<tr>
<td>A computer’s brain reads only two options, like 1 or 0. All algorithms, or lists of steps, are made up of these two options. Code is translated into this binary “machine language.”</td>
<td>Inside Makey Makey is a tiny processor that works with a computer’s USB port so it can emulate a regular keyboard. The code you write in Scratch is translated into machine language, written in numbers.</td>
<td>Makey Makey can’t hear your speech or recognize images. They only sense when a complete circuit is made.</td>
</tr>
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<th>Programming Language</th>
<th>Natural Language Processing</th>
<th>Parallel and Distributed Computing</th>
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<tr>
<td>Your Makey Makey is a keyboard with a processor that can interpret Scratch language. The keyboard can be rekeyed, by being recoded using Arduino, which compiles code into C/C++.</td>
<td>You can record your voice on Scratch, in an algorithm that responds to inputs from the Makey Makey. However, these tools can’t understand (process, respond or manipulate) your words.</td>
<td>You can code keys to use multiple Makey Makey’s from one computer, but they won’t communicate, share messages or solve problems together.</td>
</tr>
</tbody>
</table>

Define the Problem
Choose a goal to tackle with your team!

Gather Pertinent Information
Install the Makey Makey Board using either resource below:
- https://makeymakey.com/pages/how-to
Make a Scratch account: https://scratch.mit.edu
You may use the Hawaiian mele provided or explore your own.
Research the location that each verse may take place on each island.

Generate Multiple Solutions
Write your own algorithms or remix existing Scratch block code using:
- https://scratch.mit.edu/projects/182263358
Design a model (map or comic).
Use circuitry so the model works with the program!

Choose a Solution
Choose the algorithms and model that works best.
Bring team ideas together into one solution.

Design a Culturally Responsive Solution
Does your model work with algorithms so you are sharing accurate information? Does your model tell a story that makes sense?
What knowledge about the island or culture are you sharing with storytelling?

Test and Optimize
Run your programs with the model.
Does it work? Is it easy to use?
Recheck circuits and connections. Recheck your lines of code.
Use what you learned to improve your interactive solution.

Share & Reflect
How did your team find solutions and practice perseverance?
Talk to your team: What went well? What could have gone better?
Makey Makey Quick Start
https://makeymakey.com

Connect!
A) Connect board using the USB port.
B) Follow directions (close pop up windows):
   https://makeymakey.com/pages/how-to
C) Build a circuit that allows electrons to flow!

Connect alligator clips to one or more of the attachments.
- Up Arrow
- Right Arrow
- Down Arrow
- Space
- Left Arrow
- Click

Connect alligator clips to form the other part of the circuit.

Make a switch! Use your hands, or design a wand to open and close the circuit!

Explore conductive materials to connect your model: pencil graphite, copper tape, clay, plants, and even fruits!

Write code in Scratch to program your model to share specific information!
https://scratch.mit.edu
Find each Block Code in the color coded menu to write algorithms. Be creative as you build multiple algorithms for a program that dramatizes your story with sound effects and voice.

**Sample Scratch Block Code**
https://scratch.mit.edu/projects/182263358

<table>
<thead>
<tr>
<th>Block Code</th>
<th>Description</th>
<th>Purpose</th>
</tr>
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<tbody>
<tr>
<td><code>when space key pressed</code></td>
<td>The ‘space key’ runs this code.</td>
<td>Your map or comic will interact with your code to dramatize a story.</td>
</tr>
<tr>
<td><code>repeat 2</code></td>
<td>This section repeats twice</td>
<td>Music helps to set the tone of the scene or setting in a story. Use code to write short music compositions.</td>
</tr>
<tr>
<td><code>play drum 10</code> for .25 beats</td>
<td>Drum #10 plays quarter beat</td>
<td>Record your voice, and save the block of code into the algorithm to help tell the story.</td>
</tr>
<tr>
<td><code>play drum 10</code> for .5 beats</td>
<td>Drum #10 plays half beat</td>
<td></td>
</tr>
<tr>
<td><code>play drum 9</code> for .25 beats</td>
<td>Drum #9 plays quarter beat</td>
<td></td>
</tr>
<tr>
<td><code>play drum 1</code> for .25 beats</td>
<td>Drum #1 plays quarter beat</td>
<td></td>
</tr>
<tr>
<td><code>play sound Your Story</code></td>
<td>Your pre-made recording plays</td>
<td></td>
</tr>
</tbody>
</table>

**Makey Makey: Building Circuits that Work with Scratch Code**

- **Design and Color** your model, map or graphic comic based on the mele or myth that you read.

- **Code** algorithms that help to tell a story. These algorithms will become a program that interacts with your map or comic!

- **Attach** conductive material (tape, foil, or clay) to the places that will be brought to life by your code.

- **Connect** the conductive material to the Makey Makey using alligator clips. Remember to ground each circuit!

- **Plug** in the Makey Makey to the computer running Scratch code. Be sure to turn up the volume!
HILO HANAKAHI

Hilo, Hanakahi, i ka ua Kani-lehua, Hilo, Hanakahi, rain rustling lehua.
Puna, paia ʻala, i ka paia ʻala i ka hala. Puna, fragrant bowers, bowers fragrant with hala.
Kaʻū, i ka makani, i ka makani kuehu lepo. Kaʻū, the wind, the dirt scattering wind.
Kona, i ke kai, i ke kai māʻokiʻoki. Kona, the sea, the streaked sea.
Ka-wai-hae, i ke kai, i ke kai hāwanawana. Ka-wai-hae, the sea, the whispering sea.
Wai-mea, i ka ua, i ka ua Kīpuʻupuʻu. Wai-mea, the rain, the Kīpuʻupuʻu rain.
Kohala, i ka makani, i ka makani ʻĀpaʻapaʻa. Kohala, the wind, the ʻĀpaʻapaʻa wind.
Hāmākua, i ka pali, i ka pali lele koaʻe. Hāmākua, the cliff, the tropic birds flying cliffs.
Haʻina ka puana, i ka ua Kani-lehua. Tell the refrain, rain rustling lehua.

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### MAIKA’I KAUA’I

<table>
<thead>
<tr>
<th>Hawaiian Phrase</th>
<th>English Translation</th>
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<tr>
<td>Maika’i wale nō Kaua’i</td>
<td>So very beautiful is Kaua’i</td>
</tr>
<tr>
<td>Hemolele wale i ka mālie.</td>
<td>So perfect in the calm.</td>
</tr>
<tr>
<td>Kuahiwi nani, Wai’ale’āle,</td>
<td>Pretty mountain, Wai’ale’āle,</td>
</tr>
<tr>
<td>Lei ana i ka mokihana.</td>
<td>Wears the mokihana lei.</td>
</tr>
<tr>
<td>Hanohano wale ’o Hanalei</td>
<td>So glorious is Hanalei</td>
</tr>
<tr>
<td>I ka ua nui hō‘e ha ‘ili</td>
<td>With the great rain that pains the skin</td>
</tr>
<tr>
<td>I ka wai o ’u‘inakolo</td>
<td>And the rustling water</td>
</tr>
<tr>
<td>I ka poli o Namolokama.</td>
<td>In the heart of Namolokama.</td>
</tr>
<tr>
<td>Maika’i nō Kaua’i,</td>
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MOLOKA‘I NUI A HINA

Ua nani nā hono a Pi‘i-lani
I ke kū kilakila i ka ʻōpua.

ʻO kuʻu pua kukui, aia l Lani-kāula,
ʻO ka hene wai ʻolu lana mālie.

Hui

Ua like nō a like la — Me kuʻu one hānau,
Ke poʻokela i ka piko o nā kuahiwi,

Me Molokaʻi nui a Hina, Āina i ka wehiwehi,
E hoʻi nō au e pili.

E ka makani ē, e pā mai me ke aheahe,
ʻAuhea kuʻu pua kalaunu.

E ka makani ē, e pā mai me ke aheahe,
ʻAuhea kuʻu pua kalaunu.

Kiʻekiʻe Halawa i ke alo o nā pali,
Ka heke nō ia i kaʻu ʻike.

Lupalupa lau lipo i ke oho o ka palai,
Ma kuʻu poli mai ʻoe e hoʻoheno nei.

GREAT MOLOKA‘I OF HINA

How beautiful are the bays of Piʻi-lani
That stand majestically by the billowy clouds.

My kukui flower is at Lani-kāula,
Where water flows with cool and soothing rustle.

Chorus

Alike — The sands of my birth,
The tops of all mountains,

And Hina’s great Molokaʻi, Festive land,
May I return to stay.

O wind, blow gently,
Heed, my crown flower.

O wind, blow gently,
Heed, my crown flower.

Halawa is high amidst the cliffs,
Highest I have ever seen.

And here are lush leaves and green fern fronds,
So you are loved within my arms.

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Explore these plot events for your story! Good stories have characters that encounter and persevere through struggle. Explore obstacles that an antagonist (enemy/rival) might throw at your lead character. Brainstorm ways your protagonist (lead character) will persevere through each obstacle!

- **Obstacle**: Natural Disasters
- **Persevere With This Solution**: Make a Plan

- **Obstacle**: Unkind Words or Lack of Support
- **Persevere With This Solution**: Friendship & Making New Friends

- **Obstacle**: Research & Knowledge
- **Persevere With This Solution**: Fell Apart or Broke Down!

- **Obstacle**: Not Enough Resources
- **Persevere With This Solution**: Asking for Help

- **Obstacle**: Asking for Help
- **Persevere With This Solution**: Practice & Trying Again
Plot Events: Obstacle & Perseverance Cards

Explore these plot events for your story! Good stories have characters that encounter and persevere through struggle. Explore obstacles that an antagonist (enemy/rival) might throw at your lead character. Brainstorm ways your protagonist (lead character) will persevere through each obstacle!

- **OBSTACLE**: Running Late
- **OBSTACLE**: A Transformation, Turning Mad or Crazy
- **PERSEVERE WITH THIS SOLUTION**: Cleverness or Magical Power
- **OBSTACLE**: Lost Sense – Sight, Sound, Smell, Taste, Touch
- **PERSEVERE WITH THIS SOLUTION**: Support by Sacrificing Something
- **OBSTACLE**: Something/Someone is Stolen, Lost or Missing
- **OBSTACLE**: Rival Causes a Setback
- **PERSEVERE WITH THIS SOLUTION**: Searching or Gathering Resources
- **OBSTACLE**: Moral Dilemma or Bribery

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Use this guide to develop ideas for each key story element. Describe each block with words or depict each element in a drawing. You will later create a model that visualizes part or all of your story using stop motion animation.

**Title:**

**Screen Writer(s):**

**Meet the Antagonist**
(Enemy / Rival)

**Meet the Protagonist**
(Lead Character)

**Plot Event #1**
The Antagonist causes first obstacle.

The Protagonist tries to solve 1st obstacle by doing this…

but fails and learns…

**Plot Event #2**
The Antagonist causes second obstacle.

The Protagonist tries to solve 2nd obstacle by doing this…

but fails and learns…

**Plot Event #3**
The Antagonist causes final obstacle.

The Protagonist perseveres… and tries to solve final obstacle by doing this…

…and the Protagonist (hero) succeeds! The resolution or conclusion is….