

Lei Day Pattern Games

Teacher Guide · Lei Day · May 1 · Hawai'i · Grades K–3 · ~20–30 min · Repeating Patterns · 2 Interactive Games

Pattern Builder: month.thence.us/lei-day-pattern-builder **Unit Counter:** month.thence.us/lei-day-unit-counter

At a Glance

Two companion math games for Grades K–3 tied to Lei Day (May 1, Hawai'i). Students string virtual leis using hibiscus, shell beads, and maile leaves to build and identify repeating patterns. Works as a whole-class warm-up, paired station, or independent digital center. No prep required — open the game links and go.

Lei Day Background

Lei Day was established in 1928 by poet Don Blanding and has grown into a statewide Hawai'i holiday celebrating Hawaiian culture, identity, and the art of lei-making. A lei is a garland — most often of fresh flowers, but also shells, seeds, feathers, or woven leaves — and the craft carries real weight: different materials have different meanings, and the choice of flowers, the stringing pattern, and the way a lei is presented all matter.

The three game elements have roots in actual Hawaiian lei traditions. Maile, a native vine with a distinctive fragrance, is considered one of the most sacred plants in Hawaiian culture and is used in formal leis for graduations, weddings, and other significant occasions. Hibiscus is Hawai'i's state flower. Shell beads appear in some of the oldest lei forms in the islands.

The pattern mechanic is not incidental: real lei patterns are designed with intentional symmetry and repetition, and a broken pattern in a ceremonial lei is considered a meaningful flaw.

The Two Games

LEI DAY PATTERN BUILDER

Grades K–3

- 5 difficulty levels: AB, AAB, ABC, ABBC, AABBC
- Students tap cards to build a lei pattern string
- Hint button reveals the pattern core
- Check button validates whether the pattern repeats correctly
- Printable completion receipt available on success

Tip: For K–1, project on a whiteboard and build the pattern together as a class before sending students to play independently.

LEI DAY UNIT COUNTER

Grades K–2 · Focused Practice

- 3 simultaneous cards: Easy (AB), Medium (AAB), Hard (ABC)
- Each card shows an example of 2 complete units
- Students build exactly 3 units in the workspace
- Students tap to place cards; tap a placed card to remove it
- Printable completion receipt on finishing all 3

Tip: The Unit Counter makes the abstract concept of a "pattern unit" concrete — students must stop at exactly 3 units, not just string as many cards as possible.

How to Use the Games

K–1	<p>Math focus: Creating and identifying simple repeating patterns (AB and AAB). This is typically students' first formal encounter with the idea that a pattern has a repeating unit — a core that starts over again.</p> <p>Begin with the Pattern Builder on AB mode. Project the game and think aloud as you add cards: "I put a flower, then a shell, then a flower, then a shell — I'm making the same thing over and over! That's a pattern." Ask students to predict what comes next before you add each card.</p> <p>Then open the Unit Counter side-by-side or as a follow-up. Focus only on the Easy card. Read the example together: "This shows 2 units. Let's count the parts in one unit..." Once students identify the unit, have them build 3 of the same unit in the workspace.</p> <p><i>Scaffold for K: Have students place physical objects on their desks that match what they're building on screen — blocks, colored cubes, or even real objects. The parallel concrete-and-digital experience supports students who are still building the symbolic understanding of pattern notation.</i></p>
2nd	<p>Math focus: Extending the concept of repeating patterns to 3-element units (ABC), and connecting patterns to early numerical reasoning — counting elements, predicting the nth term, recognizing how patterns relate to skip counting.</p> <p>Have students work through all three levels of the Unit Counter independently. The Hard card (ABC pattern) requires students to hold a 3-element unit in working memory while building 3 complete repetitions — a meaningful cognitive stretch at this grade.</p> <p>Then use the Pattern Builder as an extension: challenge students to build the longest correct AAB or ABC pattern they can before the bell rings. Ask: "How do you know when to start the next unit?"</p> <p><i>Classroom tip: After the Unit Counter, ask students: "How many cards did you need total for 3 units on the Hard card?" (9 cards for $ABC \times 3$). This bridges pattern structure to multiplication thinking — a Grade 2 readiness skill.</i></p>
3rd	<p>Math focus: Connecting repeating patterns to multiplication — if a 3-card unit repeats 5 times, there are 15 cards total. Extend to ABBC and AABBC patterns (4- and 5-element units) for students ready for a challenge.</p> <p>Open the Pattern Builder at ABBC or AABBC difficulty. Before students check their work, ask them to calculate how many cards they used and verify it's a multiple of the unit length. This connects the pattern structure directly to multiplication facts they are building fluency with.</p> <p>Use the Unit Counter as a quick warm-up to confirm mastery of the concept before introducing the multiplication connection.</p>

Classroom tip: Pose this challenge after play: “If I have an ABBC pattern and I strung 20 cards, is that possible? Why or why not?” (No — 20 isn’t a multiple of 4.) This is rich number theory in a pattern context.

Sample Lesson Flow (20–30 min)

3–5 min Lei Day context

Share what Lei Day is and where it comes from (see Lei Day Background above). If possible, show a photo of a maile lei alongside a hibiscus lei — the visual contrast between the two anchors the game’s materials in something real. One useful detail for students: in Hawai‘i, it’s considered rude to refuse a lei or to remove one in front of the person who gave it to you.

5–7 min Whole-class modeling — Pattern Builder

Project the Pattern Builder. Model selecting a difficulty and building a pattern, thinking aloud about the pattern unit. Use the Hint button to confirm, then check your work. Do one cycle together before releasing students.

10–12 min Independent or partner play

Students play on devices — Pattern Builder first, then Unit Counter. Circulate and prompt: “What is your pattern unit? How many times does it repeat?” Encourage use of the Hint button for productive struggle rather than frustration.

5 min Share-out + exit reflection

Bring 2–3 students up to show their patterns. Ask the class to identify the unit. Optional: students write or draw their favorite pattern in a math journal before the lesson closes.

Key Vocabulary

Pattern A sequence that follows a rule and repeats predictably.	Pattern unit / core The smallest section of a repeating pattern that starts over again (e.g., hibiscus + shell in an AB pattern).	Repeat / Extend To copy the pattern unit again and again; to add more repetitions to an existing pattern.
Element / Term One item within the pattern — a single flower, shell, or leaf card.	AB / AAB / ABC Letter notation that names the structure of a pattern unit. Each different letter stands for a different element.	Lei A garland of flowers, leaves, or shells — traditionally given as a gift in Hawai‘i to celebrate or honor someone.

Discussion Questions

Use before, during, or after play to deepen pattern reasoning.

K–1	Can you point to where your pattern starts over? What is in your repeating part?
K–1	If I covered up the end of your lei, what do you think the next card would be? How do you know?
K–1	What would happen if you put two flowers in a row instead of one? Would it still be an AB pattern?
2nd	In the Unit Counter, how did you know you had exactly 3 units and not 2 or 4?
2nd	Can you describe your ABC pattern using words instead of letters? (e.g., “flower, shell, leaf, over and over”)
3rd	Your ABBC unit has 4 cards. If you made 5 complete units, how many cards total? How did you figure that out?
3rd	Can a lei with 10 cards be a perfect ABC pattern? What about 12 cards? How do you know?
All	Why would a lei-maker care about patterns? What might happen if the pattern was broken in the middle?
All	Where else do you see repeating patterns in everyday life — in clothing, buildings, music, or nature?

Standards Alignment

Georgia SuitCase Standards — Mathematics

Georgia K–12 Mathematics Standards (2023–24)

K.PAR.6.1 Create, extend, and describe repeating patterns with numbers and shapes, and explain the rationale for the pattern.

1.PAR.3.1 Investigate, create, and make predictions about repeating patterns with a core of up to 3 elements resulting from repeating an operation, as a series of shapes, or a number string.

2.PAR.4.1 Identify, describe, and create a numerical pattern resulting from repeating an operation such as addition and subtraction.

New York Next Gen Math

NY Next Generation Mathematics Learning Standards (2017, updated 2019)

NY-K.OA.6 Duplicate, extend, and create simple patterns using concrete objects.

Common Core — Mathematical Practices

Mathematical Practice standards apply across all K–12 grade levels.

MP.7 Look for and make use of structure. Students identify the repeating unit within a pattern and use that structure to extend and create new patterns.

MP.8 Look for and express regularity in repeated reasoning. Students recognize that patterns repeat predictably and use that regularity to build and verify their sequences.