Unit 3: Expressions and Equations

SBAC alignment for *Unit 3: Expressions and Equations Activity 1*

Claim(s)	**Claim 1: Concepts and Procedures** Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Assessment Target(s):	1 A: Analyze proportional relationships and use them to solve real-world and mathematical problems.
Content Domain:	Ratios and Proportional relationships
Standard(s):	**7.RP.2** Recognize and represent proportional relationships between quantities.
DOK:	2

Unit 3: Expressions and Equations *Activity 1*

Aunty Lani uses lauhala to weave bracelets. The amount of lauhala she uses is proportional to the number of bracelets she weaves.

Lauhala bracelet

Aunty Lani uses $22\frac{1}{2}$ lauhala leaves to make 10 bracelets.

Which equation represents the relationship between h, the number of lauhala leaves she uses, and b, the number of bracelets she makes?

(a) $h = \frac{4}{9}b$

(b) $h = 2\frac{1}{2}b$

(c) $h = 2\frac{1}{4}b$

(d) $h = 10b$

SBAC alignment for *Unit 3: Expressions and Equations Activity 2*

Claim(s)	**Claim 1: Concepts and Procedures** Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Assessment Target(s):	1 D: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
Content Domain:	Expressions and Equations
Standard(s):	**7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
DOK:	2

Unit 3: Expressions and Equations *Activity 2*

Kawika is an expert in making rope from coconut fibers. He wants to trade some of his rope to get some ʻulu (breadfruit) and some maiʻa (banana). His neighbor is willing to trade these fruits with Kawika at the following rates.

- One (1) ʻulu for 1.04 meters of rope.

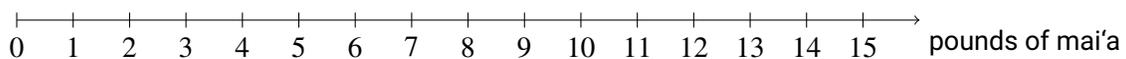- One (1) pound of maiʻa for 0.72 meters of rope.
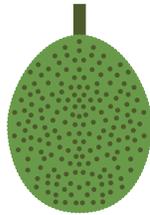
ʻUlu   Maiʻa

1. Kawika can trade **up to** 10 meters of rope with his neighbor. Kawika decides to trade some rope to get two (2) ʻulu and will trade some of the remaining rope to get some maiʻa. Write and solve an inequality that represents the **pounds** of maiʻa, m, that Kawika can get after he traded for the ʻulu.

2. On the number line below, draw a graph that represents the number of pounds of maiʻa that Kawika can buy.

0   1   2   3   4   5   6   7   8   9   10   11   12   13   14   15   pounds of maiʻa

SBAC alignment for *Unit 3: Expressions and Equations Activity 3*

Claim(s)	**Claim 2: Problem Solving** (primary claim) Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies. **Claim 1: Concepts and Procedures** (secondary claim) Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Assessment Target(s):	2 D: Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas). 2 A: Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace. 1 D: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
Content Domain:	Expressions and Equations
Standard(s):	**7.EE.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **7.EE.2** Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05." **7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
DOK:	2

Unit 3: Expressions and Equations *Activity 3*

In traditional Hawaiian life, it is very common to trade or donate extra supplies to your neighbors. Suppose that your village produces a lot of 'uala (sweet potato), and a neighboring village produces a lot of 'ulu (breadfruit). The two villages regularly trade pounds of 'uala for numbers of 'ulu at a constant rate.

'Uala   'Ulu
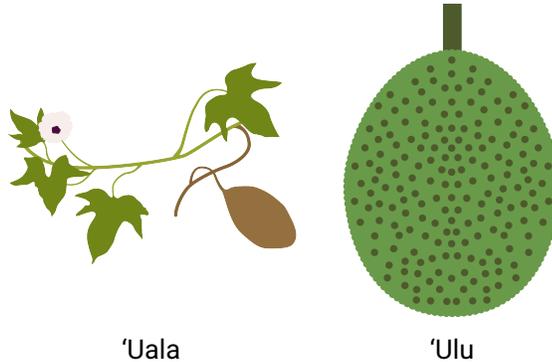
This year, the 'uala in your village grew rapidly so your village decided to give 20% more 'uala than normal.

1. Let x be the weight, in pounds, of 'uala that is normally traded for one (1) 'ulu fruit. Write an expression that can be used to find the number of pounds of 'uala that would be traded for an 'ulu now.

A friend from the neighboring village came by and gave you an 'ulu. You gave him 3.72 pounds of 'uala, because that is the new rate for an 'ulu.

2. Write and solve an equation to determine how many pounds of 'uala, your friend would have gotten last year for the 'ulu.