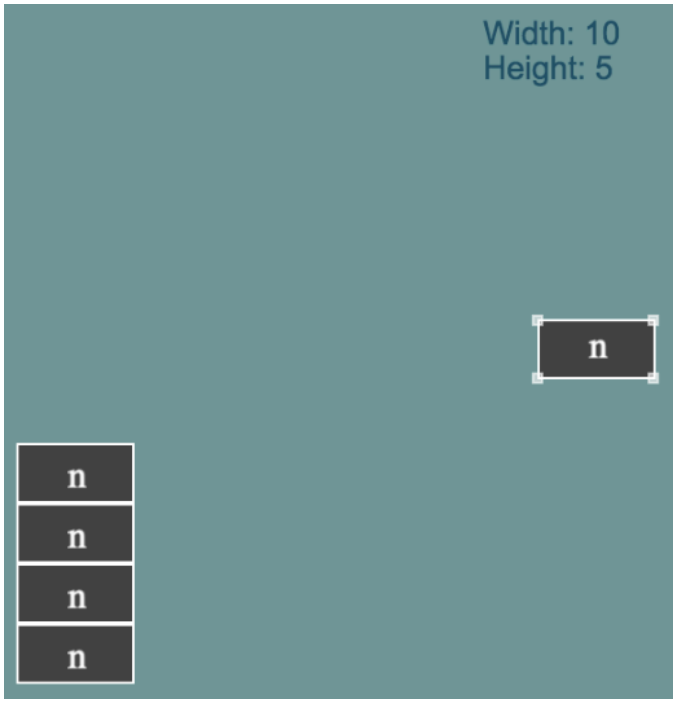
Educational Objectives for Variables

In playing the Math Snacks/Magic Spell/Superheroes/Swipe Night game, **the user will…**

1. Use a variable as a **symbol that represents** a set **quantity**. (The quantity may change, which is why you use a variable.)

   For example:
   Let n=☐ *, where you can build a tower out of 3n, 4n, etc. You can also change the size of the shape.*

   Development Notes: If we use this, could be a mini game



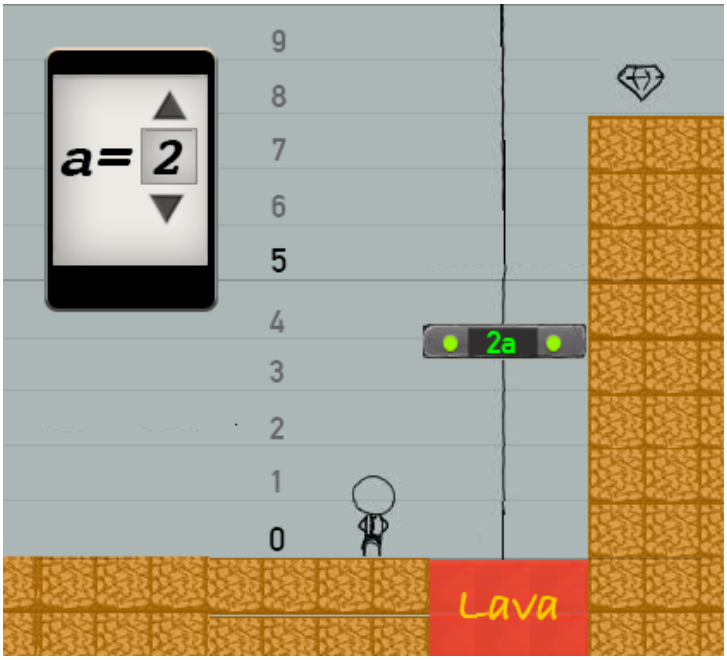
Educational Objectives for Variables

In playing the Math Snacks/Magic Spell/Superheroes/Swipe Night game, **the user will…**

2. Given a **set expression, change the value of a single variable**, to get the desired *result/answer*.

   For example:
   $a = 4$
   select platform height from
   2a-4, 2a+1, and a+1

   (user assigns *a* value to change platform height)



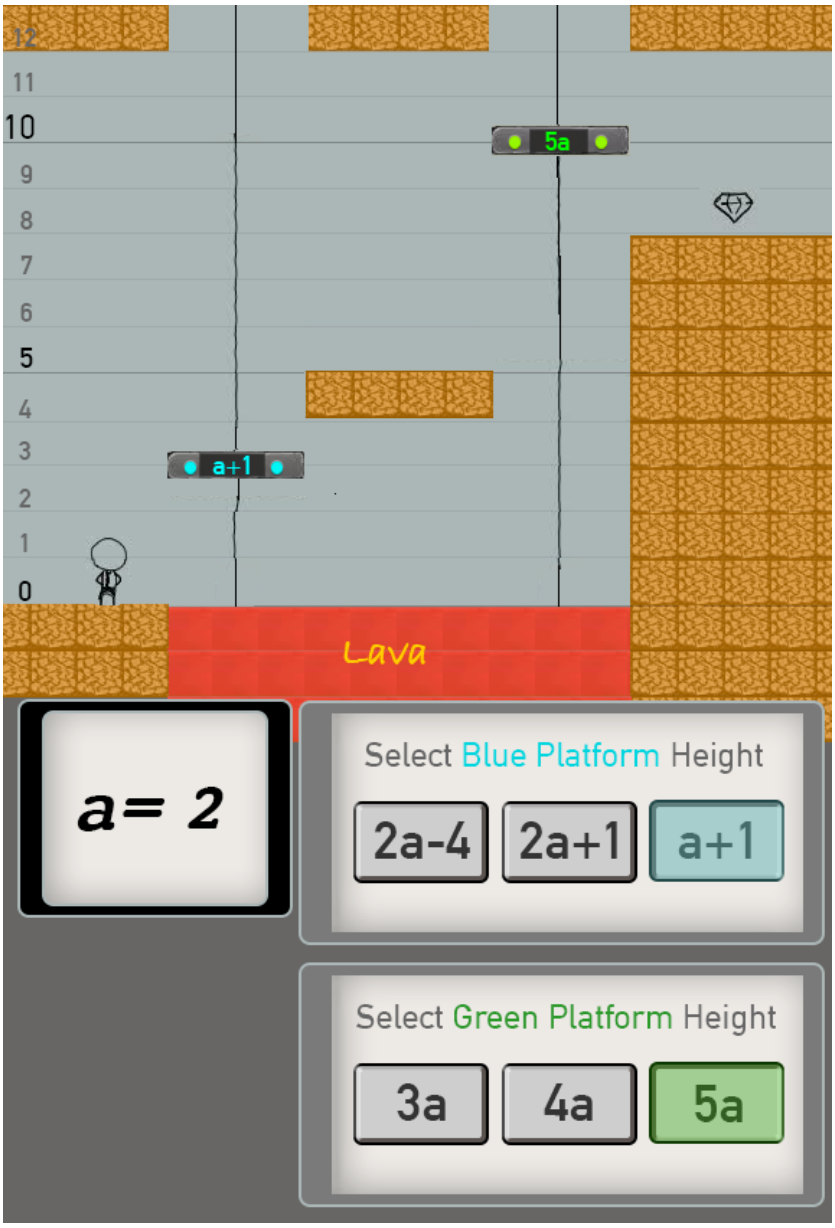
Educational Objectives for Variables

In playing the Math Snacks/Magic Spell/Superheroes/Swipe Night game, **the user will…**

3. Given a **set variable, change or select an expression**.

For example:
$a = 4$
starting platform height = $2a$
new platform height = ____
(in terms of a)

(user writes or selects expressions to adjust platform height based on $a = 4$)



Educational Objectives for Variables

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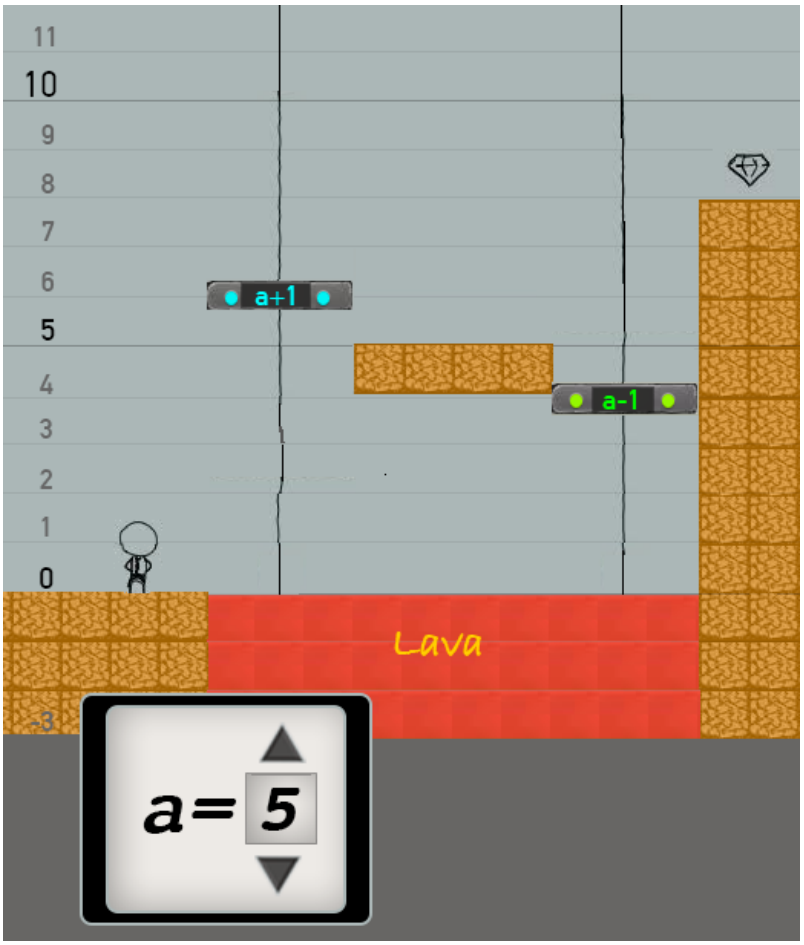
4. Change the value of a single variable, to see the **relationship between expressions that share that variable.**

   For example:
   Platforms that share 1 variable
   Blue platform height = $a + 1$
   Green platform height = $a - 1$

   (user changes b, and notices that the difference between platform heights is always 2)



Educational Objectives for Variables

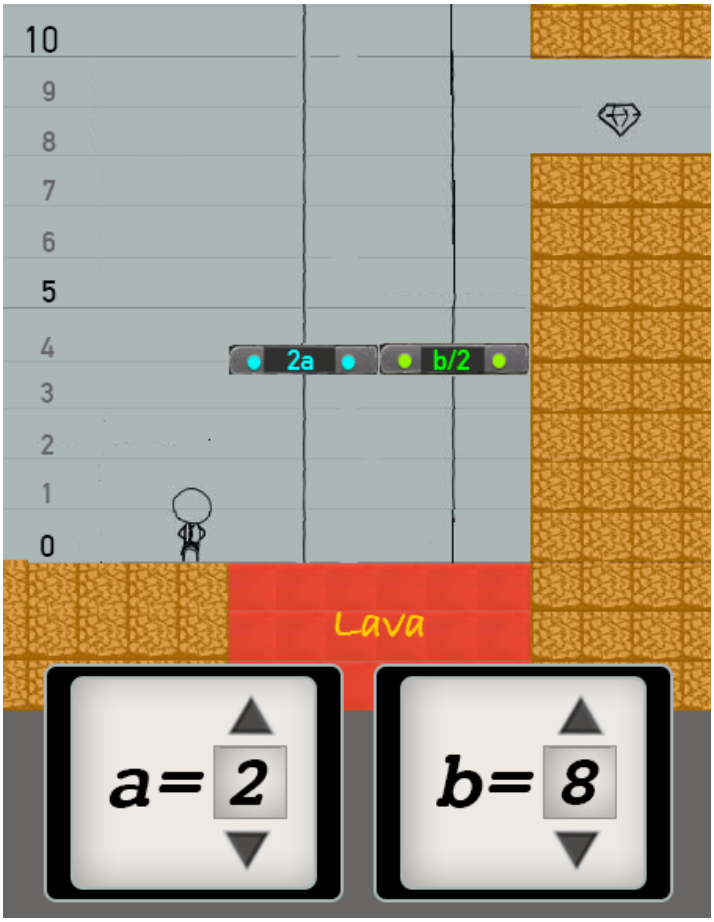
In playing the Math Snacks/Magic Spell/Superheroes/Swipe Night game, **the user will…**

5. Change **one or both variables** in **expressions that equal each other**. In doing so, they define *one variable in terms of another*

For example:
We want Blue platform height = Green platform height
Blue platform height = 2*a*
Green platform height = *b*+1
Thus, we want 2*a* =*b*+1

(user changes either value of *a* or *b*, or both)

Development Notes: Could be good to correlate the variables, such as weight to height for catapults, or height to height in platforms, or height to number of blocks.



Educational Objectives for Variables

In playing the Math Snacks/Magic Spell/Superheroes/Swipe Night game, **the user will…**

6. **Change one variable by changing another variable.** One variable depends on another variable.

   For example:
   Platform height = 2*a*
   a = 3*b*

   (user changes value of b to change platform height)

   Development Notes: ***MAY NOT USE.*** *Will integrate only if it feels doable in the game.*