



Arcade Token Tracker

Mission: You start with 50 tokens at the arcade. Every game costs 4 tokens and wins 12 tickets, plus a 5-ticket welcome bonus. Play games, track the patterns, and write expressions that predict tokens and tickets for ANY number of games.

Big question: How can we write and evaluate expressions for a real situation?

★ Warm-up: Translate it

Write each phrase as an expression.

4 less than a number n ✓ $n - 4$.

12 times a number g , plus 5 ✓ $12g + 5$.

Key vocabulary

Expression	A math phrase with numbers, variables, and operations.
Substitute	Replace the variable with a number.
Evaluate	Find the value of an expression.
Constant	A number that doesn't change, like the 5-ticket bonus.

1 Box 1

Tokens expression

Which expression gives tokens left after g games?

☐ $50 - 4g$ ☐ $4g - 50$ ☐ $50 + 4g$ ☐ $46g$

✓ $50 - 4g$

Tickets expression

Which expression gives tickets after g games ($g \geq 1$)?

☐ $12g + 5$ ☐ $17g$ ☐ $12 + 5g$ ☐ $5g + 12g$

✓ $12g + 5$

2 Box 2

Evaluate

Evaluate $12g + 5$ for $g = 8$. How many tickets?

Answer: _____ ✓ **101**

Show your thinking:

Check with the machine

In the simulator: Play until you have played 8 games.

How many tokens are left after 8 games?

Answer: _____ ✓ **18**

3 Box 3

Out of tokens

In the simulator: Play as many games as you can.

What is the most games you can play?

Answer: _____ ✓ 12

4 Box 4

Legend: the prize Legend only

A giant panda prize costs 150 tickets. What is the fewest games to earn it?

Answer: _____ games ✓ 13

Show your thinking:

5 Box 5

Explain the expression

Explain what each part of $50 - 4g$ means at the arcade.

Look for: Explains 50; Explains 4; Explains g



Exit ticket: answer the big question in your own words

How can we write and evaluate expressions for a real situation?

Look for: Tokens left = $50 - 4g$, where g is the number of games. Tickets = $12g + 5$. An expression can predict the result for any number of games by substituting a value for g .

Completion codes

Students see a code like **ABC-I3** when they finish. The first part must match below. The letter is the level (E = Explorer, I = Investigator, L = Legend), and the number at the end is how many stars they earned.

Level	Code starts with
 Explorer	7QG-E
 Investigator	1RN-I
 Legend	1GP-L



Watch for these misconceptions

- " $3x$ means $3 + x$." It means 3 times x .
- "Do the operation you see." Use the inverse operation to undo it.
- "Only change one side of the equation." Whatever you do to one side, do to the other.