

Focus
Standards
and Claim

Claim 4
4.OA.A

Stimulus

Picking a Pet

Your class is trying to decide what type of animal to get for the class pet. Your teacher is letting the class vote to choose a goldfish, a turtle, or a hamster as the class pet.

All 20 students in your class voted for both their 1st choice and their 2nd choice for the class pet. The results are shown in Table 1.

Table 1. Class Pet Votes

Student	1st Choice	2nd Choice	Student	1st Choice	2nd Choice
1	Turtle	Hamster	11	Turtle	Hamster
2	Goldfish	Hamster	12	Turtle	Goldfish
3	Goldfish	Turtle	13	Hamster	Turtle
4	Hamster	Turtle	14	Hamster	Goldfish
5	Goldfish	Turtle	15	Turtle	Goldfish
6	Turtle	Goldfish	16	Goldfish	Turtle
7	Hamster	Goldfish	17	Turtle	Goldfish
8	Turtle	Goldfish	18	Turtle	Goldfish
9	Goldfish	Hamster	19	Turtle	Hamster
10	Goldfish	Hamster	20	Goldfish	Hamster

Item Prompt

Your teacher wants to use a point system to select the winning pet. She wants each pet to get a certain number of points for each 1st choice vote and a certain number of points for each 2nd choice vote.

Your teacher decides to use these rules for her point system:

- Points need to be positive whole numbers
- Points for a 1st choice vote have to be greater than or equal to the points for a 2nd choice vote.

Determine point values for the 1st and 2nd choice that would result in the **turtle winning**. Use words and numbers to explain how this point system results in the turtle winning.

Sample Responses

Sample Response A

Well, the students all had the choice to pick what pet they wanted they all picked 1st choices and 2nd choices. In total there are 20 students. $20 \times 2 = 40$. In total there are 40 votes because all the students had 2 votes. The turtle won because most of the students voted for the turtle as the class pet.

1st choice turtle: 9

2nd choice: 5

Sample Response B

The first choice point equals 5 points

Turtle: $7 \times 5 = 35$

Goldfish: $4 \times 5 = 20$

Hamster: $9 \times 5 = 45$

The second choice point is worth 3

Turtle: $9 \times 3 = 27$

Goldfish: $8 \times 3 = 24$

Hamster = $4 \times 3 = 12$

Turtle: $35 + 27 = 62$

Goldfish: $20 + 24 = 44$

Hamster $45 + 12 = 57$

Sample
Response C

Hampster:

First: 4

Second 14

$$4 + 14 = 18$$

Turtles votes:

First: 18

Second: 10

$$18 + 10 = 28$$

Goldfish:

First: 7

Second: 16

$$7 + 16 = 23$$

First votes equal 2 votes and second votes equal 1 vote and the turtle got the most out of the hamster and the goldfish. Turtle – 28 votes, hamster = 18 votes, and the goldfish = 23.

Sample
Response D

If you had two points for every first choice and one point for every second place, the turtle would end up with 23, the hamster 15, the goldfish 22. Since the turtle has the most points, the turtle wins.

Sample
Response E

To make the turtle win you can add two or up to either 1st choice or 2nd choice. For example,

Turtle at 1st = 14 points in all

$$14 + 2 = 16 \text{ votes}$$

Reason: the greatest is 15 so that's why I added two

Sample
Response F

1st choice = 2 points

2nd choice = 1 point

Turtle: $18 + 5 = 23$

Hamster: $8 + 7 = 15$

Goldfish: $14 + 8 = 22$

A point system with the first vote being 2 points and the second vote being 1 point would make the turtle win because it would have the most points. Also, if both votes were the same the goldfish would win because it had more points than the goldfish or the hamster.

Sample
Response G

1st choice = 3 point

2nd choice = 1 point

First choice

Hamster = 21 points

Goldfish = 12 points

Turtle = 27 points

Second Choice

Hamster = 8 points

Goldfish = 7 points

Turtle = 5 points

Sample
Response H

3 = first vote

3 = second vote

Sample Response I	<p>1st = 10 p 2nd = 1 p</p> <p>T $90 + 5 = 95$ H $40 + 7 = 47$ G $70 + 8 = 78$</p> <p>I decided that the 1st vote would cost 10 points and the 2nd vote 1 point. The turtle got 95 points in total, the hamster got 47 points in total, and the goldfish got 78 points in total. Which means the turtle won for the overall class pet.</p>
Sample Response J	<p>If each vote were worth 1 point, the goldfish would have 15 points, the hamster would have 11 points, and the turtle would have 16 points, which means 16 is greater than 15 and 16 is greater than 11.</p>
Sample Response K	<p>So for each name or hamster that's how many there would be so there is more turtle than others so the turtle won.</p> <p>Ex:</p> <p>T = turtle G = goldfish For each letter = 1</p> <p>T g T T h T T g</p>