

Class Pet: Guinea Pig Pellets Math Task Grades 3-5

Warning! This is not your typical lesson plan! The goal of this math task is to allow for students to be the ones doing the majority of the thinking and problem solving. They are not given the step-by-step instructions ahead of time like many of them are used to. Choosing to fight the battle of creating thinkers is not an easy one, but it is purposeful one. Also, this task, centered around problem solving, is designed to milk as many objectives from one scenario versus completely 20 problems on one content skill.

Notice and Wonder

Show a bag of Guinea Pig pellets and ask:

“What do you notice about this bag of Guinea Pig food?”

Anticipated Responses:

Color, heavy vs. light, name, labels and what they say/mean

“What are some things you wonder about when you see this bag and when we feed our pet?”

Anticipate Responses that have a mathematical answer:

How many Pellets are in the bag?

How many Pellets does the pet eat in a day?

How much food will we need this year for the pet?

How much does it cost to feed the pet all year?

Nonmathematical Answer: What do they taste like?

You are on your own here.



🐹 *How many Pellets are in the bag?*

Discuss amount labeled on the bag. Are they sold by weight? Listed as grams or ounces and pounds? Have students make predictions about how many they think are in the bag and then discuss ways you could get a closer number to the actual number of pellets and discuss the difference between a guess and an estimation built on a strategy. Have the students brainstorm those ways, record and explore them. One estimation strategy to ensure is discussed and explored would be to have them measure out an ounce on a scale and then count how many pellets are in the ounce. Convert the weight of the bag to ounces to calculate a reasonable estimation for the amount of pellets in the bag.

Once estimations have been made, complete by having them actually count them. Divide the pellets between groups of students. Have them group the pellets in tens and then hundreds using various containers (baggies, cupcake liners, anything...). Add all groups together. This activity also reinforces place value and addition with regrouping. Luther teachers also suggested (complete with pictures - very cool!) using base 10 blocks to represent the number, reinforcing the connections.

🐹 *How many Pellets does the pet eat in a day?*

Most pet foods will have recommended daily portions. Use these to measure out what the pet needs for the day. If the recommendation is 3 oz. a day, having already found out how many pellets were in 1 oz. makes you one calculation away from the answer.

🐹 *How much does it cost to feed the pet all year?*

Using the amount in the bag and the amount in a daily portion, calculate how many days it will take to finish one bag. Considering how many days are in the school year, including weekends and holidays, the students can calculate how many bags they would go through in the year.

Learning From Other Groups

Review strategies used by different groups. It may be handy to take pictures as the groups are working. You can show them and discuss, whole group, what the various groups were doing to help themselves organize and solve the problem.

Luther Teachers suggested the activity of the student groups creating similar situations and questions, and then having them trade with other groups to see if they could come up with solutions.

Anchor Chart

Consider making an anchor chart in the room somewhere with all of the solutions your class came up with. Keep track of the amount of food you buy and how much you paid for it (or if it was donated) so that you can compare your math with the actual amounts by the end of the year.

Milking the Problem

Teacher's Notice and Wonder

I noticed the different ways you attacked this same problem.

I wonder if there are other situations I could apply these strategies.

Anticipated Students Responses:

What are the other things the pet will need? How much will they cost?

What about house pets or farm animals? How much feed would you need for 10 chickens?

How much would it cost? How much could you get from selling the eggs? Would you cover the cost of the feed?

If I ate a snack size M&Ms for every day for a year, how many would that be? How much would that cost?

The list of possibilities is endless, and fun, go with it!

Task's Strengths

1. It is connected to their interest for their class pet. If you have a different class pet, use their food instead. If you do not have a class pet, bring in pictures of a house pet or friend's pet. Encourage them to bring in photos of their pets and, from there, generate interest in caring for them. This will lead to questions about what they eat and they are hooked and ready for your exploration into problem solving. Livestock would also lend itself perfectly to this scenario, talk about real life connections!
2. Notice and Wonder- asking the students what they notice about the situation and then asking them what they wonder helps them generate the questions, fostering a natural curiosity and motivation to find the solutions versus being told what to find. Keeping the purpose of the lesson in mind, teachers should be ready to steer the conversation towards specific questions if it doesn't flow that way naturally.
3. Multiple entry points - this situation has the ability to be solved in many ways. Encourage and discuss the variety that surfaces in the process.
4. Flexible and Multilevel - As the teacher, choose what works best for your class in terms of meeting your standards, lesson objective, and student interest. This task is designed to engage the teacher's creativity as well as the students' critical thinking.

Content Skills: Estimation, Place Value, and Number Operations

Process Skills: Problem Solving, Reasoning, and Connections

