Mathematics: The Language of STEM

Frieda's Farm – Understand Percent of a Number as Part of a Whole

CONTENT AND TASK DECISIONS

Grade Level(s): 5th & 6th

Description of the Task: Students will use invented strategies and algorithms to solve word problems involving percentages.

Indiana Mathematics Content Standards: 5.NS.2**,** 5.NS.6, 6.NS.5

Indiana Mathematic Process Standards: PS.1, PS.2, PS.4, PS.5

Language Objectives: SWBAT verbally explain their invented strategies used to solve the word problems.

Math Goals: Students will develop an understanding of percentages and apply their knowledge to solve word problems.

Materials: Frieda's Farm Information Sheet, Frieda's Farm Exit Ticket, Frieda's Farm Prezi

THE LESSON

Before:

- Teacher will put Prezi on board, partner students up (use scaffolding where needed), and pass out Frieda's Farm information sheet.
- Teacher will introduce Frieda and her Farm using the Prezi.
- Teacher will ask students, "What do we mean by percentages"?

During:

- Teacher will introduce Problem #1: How many goats does Frieda have?
- Students will use previous knowledge of part/whole and invented strategies to find a number.
- Teacher will ask students to share their answers and write them on the board.
- Teacher will choose two or three groups to present the process they used to achieve their answer. (At this point the "right" answer does not matter. Do not give the answer yet.)
- Students will present their process and answers and discuss why their method would or would not work.

After:

- Teacher will introduce the vocabulary (part/whole for review, and percent). Teacher will explain that part of something (the whole) can be expressed as a percent.

- Work through Problem#1 with the students to show that 20% of 100 is 20. Frieda has 20 goats.

Before:

- Ask, “How can we figure out the percentage when the whole is not 100?”

During:

- Teacher will introduce Problem #2: How many chickens does Frieda have?
- Students will solve the problem using new and previous knowledge of percentages.
- Teacher will choose two or three different groups to present their answer and the strategies they used.
- Teacher will introduce different ways to find percent of a number and use Problem #2 as an example. (There is an example given but if you have your own way of finding a number with a given percentage you can substitute it with your example.)
- Write algorithm on the board for reference when working on Problem #3.

After:

- Teacher will introduce Problem #3.
- Students will solve the problem using either their invented strategies or the algorithm.
- Students will present their answers on an exit ticket.

Assessment:

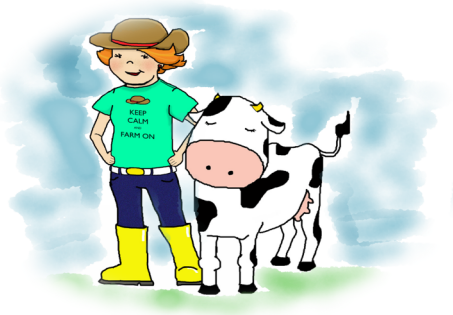
- Student will write their solutions for Problem #3 on an exit ticket.

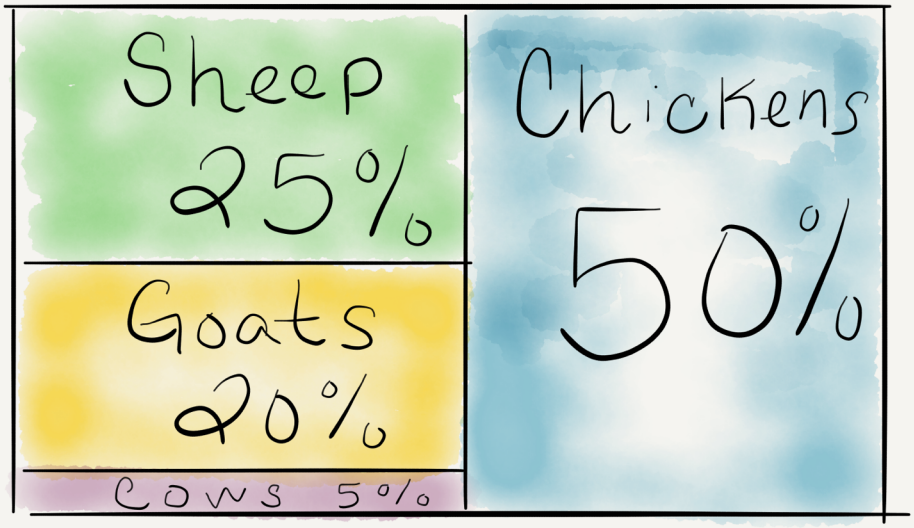
Observe: Students using various methods and cooperative learning to solve the percentage word problems.

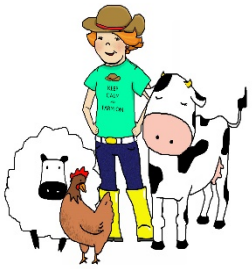
Ask: Show me how you got this answer? Does this answer make sense? How would teach this to someone else?

Additional Activities: Use Frieda’s Farm template to have students write their own word problems for classmates to solve.

Frieda's Farm







Frieda's Farm Exit Ticket

Name _____ Date_____

_____

How many cows does Frieda have? Show your work!