


# GRADE 5 MATH AND SOCIAL STUDIES: Our Own Farm

Summary of Learning Opportunity		
<p>As a class, we had been studying agriculture as a Canadian industry, and the relationships between farms and communities. After a fieldtrip to the supermarket to investigate different types of meat available and their costs, students were interested in finding out whether starting their own livestock farms to feed their families would be worth it. We used resources such as <a href="#">BC Agriculture in the Classroom</a> and websites from local farmers who sell products to the community. In Math, we had also been learning about multiplying and dividing with decimals, area and dimensions, and financial literacy. This learning opportunity put these skills into context.</p>		
Curricular Competencies	Math 5	<ul style="list-style-type: none"> <li>Reasoning and Analyzing: Model mathematics in contextualized experiences</li> <li>Understanding and Solving: Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving</li> <li>Communicating and Representing: Explain and justify mathematical ideas and decisions</li> <li>Connecting and reflecting: Reflect on mathematical thinking</li> </ul>
Curricular Content	Math 5	<ul style="list-style-type: none"> <li>Financial literacy — monetary calculations, including making change with amounts to 1000 dollars and developing simple financial plans</li> <li>Multiplication and division to three digits, including division with remainders</li> </ul>
	Social Studies 5	<ul style="list-style-type: none"> <li>Resources and economic development in different regions of Canada</li> </ul>

Numeracy Connections	Instruction and Assessment	Competencies Developed, Practiced, and/or Assessed
<p>NUMERACY: Interprets—Extracts relevant information →</p> <p>NUMERACY: Interprets—Identifies parameters and limitations</p>	<p>Students worked in small groups to research the context of livestock farming. They extracted relevant information and identified the parameters and limitations of the context. Many students used <a href="#">Family Farm Livestock</a> as a source of information.</p>	<p>Reasoning and Analyzing: Model mathematics in contextualized experiences</p>
<p>NUMERACY: Applies—Translates the scenario into a mathematical problem (mathematizes) →</p>	<p>Students used a teacher-created worksheet as a guide for their contextual research. The students discussed the information extracted from their research before recording it on the research worksheet.</p>	<p>Understanding and Solving: Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving</p>
<p>NUMERACY: Communicates—Defends decisions and assumptions →</p>	<p>The teacher assessed the learning process by observing students’ research and discussion, and recorded anecdotal observations based on the numeracy and math curricular competencies identified. The teacher also spoke with students one-on-one.</p>	<p>Communicating and Representing: Explain and justify mathematical ideas and decisions</p> <p>Connecting and Reflecting: Reflect on mathematical thinking</p>

## Proficient Student Work, Teacher Assessment, and Teacher Reflection

### Hogs



What is livestock? Check on Britannica Kids Encyclopedia to find a definition.  
Livestock is raising meat to be sold at the market.

What are hogs or feeder pigs?  
Hogs are livestock and a kind of meat that you see in Farms.

Information from  
<https://familyfarmvisitors.com/the-oldest-meat-animals-to-raise-cowrite>

#### Basic Facts about Feeder Pig Farming

- You are raising feeder pigs
- You raise them from the time they are 8 week old piglets
- They weigh 60 pounds when you get them
- It costs \$55 per piglet if you buy 10
- It costs \$51.50 per piglet if you buy 20
- It costs \$49.25 if you buy over 50
- It takes an additional 4 months to raise a pig to it's full size to be eaten (6 months total)
- Feeder eat special, nutritious feed (feed= food)
- Feed comes in bags of 100 pounds, and it costs \$30 per bag
- Feeder pigs eat about 3 pounds of feed per pound they gain
- Each pig weights about 250 pounds when they are ready to be eaten
- It costs \$100 per pig to process them (you take them to the butcher, where they kill and prepare the meat for you)
- The pigs produce 70% meat after they are prepared (ie. not including bones, skin)
- Feeder pigs take up 8 square feet per pig to raise

How much would it cost to buy 10 pigs?  
 $\$55 \times 10 = \$550$

Answer: \$550

It would cost \$550 to buy 10 pigs

How much would it cost to buy 30 pigs?  
 $\$51.50 \times 30 = \$1545$

Answer: \$1545

It would cost \$1545 to buy 30 pigs

How much would it cost to buy 50 pigs?  
 $\$49.25 \times 50 = \$2462.50$

Answer: \$2462.50

It would cost \$2462.50 to buy 50 pigs

How much would one pound of feed cost?  
 $\frac{100}{300} = \$0.33$

Answer: It would cost \$0.33 per lb of feed cost

How much would it cost to feed one pig for its entire lifetime?  
 $250 \times 3 = 750$   
 $750 \times \$0.33 = \$247.50$

Answer: It would cost \$247.50 for the life time.


How much would it cost to feed all your pigs?  
 $100 \times 3 = 300$   
 $300 \times \$0.33 = \$99$

Answer: It would cost \$99 to feed all my pigs

How many pigs would you recommend buying, and why?  
10 because it is not to much and not to little.

How much would it cost to buy all these pigs?  
It would cost \$550

What are some types of prepared pork you can buy at the supermarket? Sketch and label!



How much would it cost to process all your pigs?  
 $100 \times 1.75 = \$175$

Answer: It would cost \$175 to process all my pigs

How much meat in pounds would one pig produce?  
 $250 \times 0.7 = 175$

Answer: It would produce 175.0 pounds.

How much meat in pounds would all your pigs produce?  
 $10 \times 175 = 1750$

Answer: All my pigs if bought would produce 1750.

Based on this information, do you think it is cost-effective to raise your own feeder pigs? Explain.  
It think its better buy if from the store because pig farming it to expensive.

### Teacher's Observations and Assessment

This student was **proficient** in extracting relevant information and parameters to help solve the problem: they carefully read the “facts” section on the worksheet out loud, underlined several key points, and discussed their internet research findings with their group. They read the information not solely to “find the answer”, but out of interest, which helped to make sense of the problem in context.

The student commented “It’s possible to raise pigs on cheaper food, which means the overall cost is cheaper”. Other evidence of proficient mathematization includes estimating the weight of a pig. The student concluded “I think it’s better to buy it [meat] from the store because pig farming is too expensive”. In our one-on-one conversation, the student defended their decision by discussing limitations to farming such as the time and start up expenses needed to run a farm. They commented “It’s easier to buy some meat for like, \$10. If you have a farm and are raising pigs, you need to have way more money to start with.”

The student made several mathematical errors, both in terms of calculations and how to approach multi step questions and is **developing** in the curricular content.

### Teacher's Reflection

The K-12 Learning Progressions helped me to develop critical thinking skills in addition to assessing my students’ math skills. I developed some of the questions in the task which encouraged the students to think critically about this real-world situation. I can see that this student is very capable of extracting relevant information and conceptualizing the problem in order to work through the inquiry question.