Learning Plan

Name: Lisa Meyer	**Age of Children**: 6 – 9 years	**Date**: November 9, 2021
Title: Egg Mystery Story Problem		

Learning Standards and Outcomes

Learning Standard:

Math Common Core State Standards

CCSS 2.OA.A.1 Use addition and subtraction within 100 to solve one and two step word problems. Involving situations of adding, to taking from, putting together, taking apart, and comparing with unknown in all positions by using drawings and equations with a symbol for the unknown number to represent the problem.

CCSS 2.OA.B.2 Fluently add and subtract within 20 using mental strategies by the end of Grade 2, know from memory all sums of two one-digit numbers.

New Generation Science Standards

2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.

Child Outcome:

The Student will be able to …

1. **Make a drawing to visually represent their mathematical thinking for a word problem**
2. **Write an equation that has two equal sides separated by an equal sign to solve a word problem**
3. **Use addition and subtraction to solve word problems within 20**
4. **Make observations, discuss, and draw a picture representing the diversity of chicken life.**

Learning Experience

Describe the Learning Activity/Opportunity

Students use the combination of three colored eggs in four nesting boxes to solve math story problems requiring addition and subtraction. Students draw pictures and write equations to solve the story problems accurately. Eggs are a common house hold item that children are familiar with in their home setting. To substitute, small balls, rocks, pieces of candy could also be used for a hands-on representation of story problems before they are drawn out. For the science connection, student may want to visit a chicken farm or research chickens to make observation about the diversity of chicken breeds and the eggs they lay.

Resources Needed:

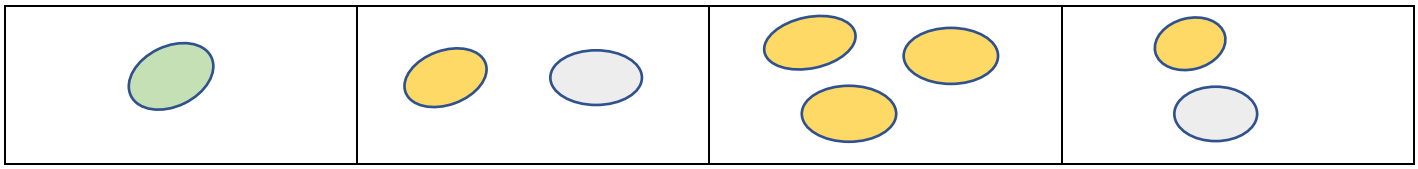
Paper, pencil, crayons or colored pencils, research materials about chickens if desired.

Procedures:

1. ***ENGAGE***

"Welcome to the chicken yard. My chickens have been very busy today laying eggs. Let's see how many I have. I have four boxes and, in those boxes, I have these many eggs."

Mrs. Meyer's Nesting Boxes

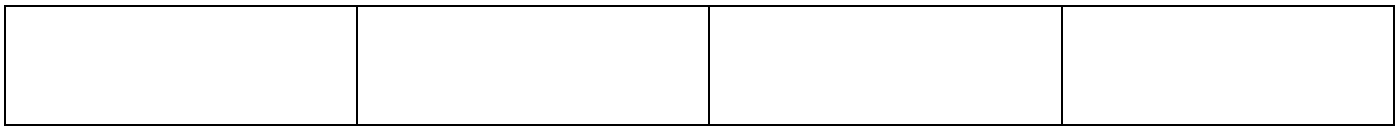


2. ***EXPLORE***

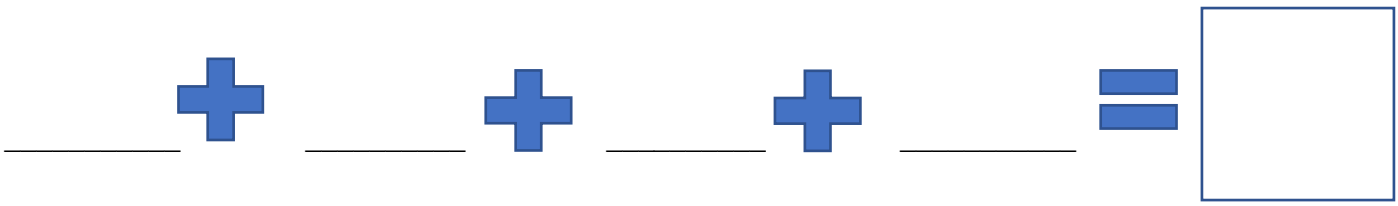
1. Students will draw a picture and write an equation to represent Mrs. Meyer's nesting boxes story problem.

"If I have these many eggs in my four boxes, how many eggs do I have in all?"

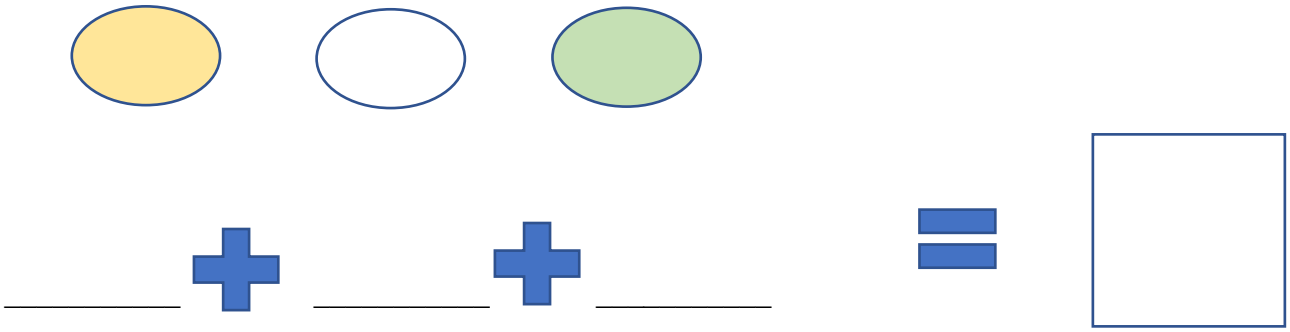
Mrs. Meyer's Nesting Boxes



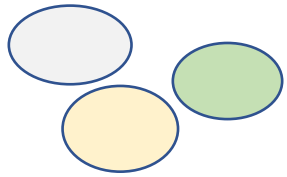
"Write an equation to show your thinking."



"My brown eggs, white eggs, and green eggs all together make how many eggs?"



"If I have 12 chickens and collected 8 eggs in my bowl, how many chickens didn't lay an egg?"



________ − ________ = ☐

Number of Chickens — Number of Eggs — Number of Chickens who Didn't lay eggs

3. *MAKE SENSE*

1. Students will draw a picture to represent their **OWN** chicken farm.

"**You decide what kind of chickens you will have on your farm**! Here are some ideas!" Some popular breeds are, Delaware (brown eggs), Rhode Island Red (brown eggs), Ameraucana (blue or green eggs), and Brown Leghorns (white eggs). If desired, do your own research about different kinds of chickens and the eggs they lay. Note: Encourage students to select several different breeds so they have enough data for equations and they can make comparisons between the colored eggs they collect.

2. Students will draw a picture to represent their **OWN** egg collecting story problem.

"**Now you are the chicken farmer**! You have 20 chickens on your farm!"
(Note: Teacher or students may choose a smaller number to match math ability levels.)
"Start by drawing four **nesting boxes**. <u>A nesting box is a safe, quiet place off the floor of the chicken coop where chickens lay their eggs</u>. Chickens will often share nesting boxes with their friends, so you find more then one egg in a box."

"When you go out to collect eggs you find a different number of eggs in each of your four chicken boxes. Draw a **picture** of your own nesting boxes with the eggs inside. <u>A picture is a visual representation of a person, object, or scene</u>. Using your imagination, draw 0, 1, 2, 3, 4, or 5 eggs in each box. <u>Color</u> some of your eggs <u>white</u>, some <u>brown</u>, and some <u>green</u>.

My Chicken's Nesting Boxes

Write an **equation** to show your mathematical thinking and the answer for the next three story problems. An equation is a mathematical sentence that has two equal sides separated by an equal sign.

1. If you have these many eggs in your four boxes, how many eggs do you have in all? Draw a **picture** and write an **equation** to show the answer.

2. Your brown eggs, white eggs, and green eggs all together make how many eggs in all? Draw a **picture** and write an **equation** to show the answer.

3. If you have 20 chickens and collected _____ eggs in your bowl, how many of your chickens didn't lay an egg?" Draw a **picture** and write an **equation** to show the answer.

4. CLOSE

"Wow, look at all the eggs your chickens laid in their nesting boxes. You must be a very good chicken farmer. Tell me all about your egg collecting."

Ask children to share their own story problems about their chicken farms.

I will check for visual representation in their **pictures** to match their equations. For example, the number of eggs in each nesting box matches the digits of addends for their first addition problem. Also, the number of colored eggs (brown, white, and green) in their picture matches the digits in their equation showing total number of colored eggs. Lastly, I will check for the use of subtraction in the last story problem. The correct answer to the children's **equations** is also important so the both side of the equation are equal to each other and separated by an equal sign.

Conclusion Questions to ask Child:

1. "Does the number of eggs in your four nesting boxes match the digits in your first addition equation? Did you add up your eggs to reach a correct total?"

2. "Does the number of brown, white, and green eggs in your picture match the digits in your second addition equation? Did you add up your eggs to reach a correct total?"

3. "Did you write a subtraction equation to solve the last story problem, and draw pictures to represent your thinking?"

The value of farming and the food that it provides us is demonstrated as an intrinsic value in the lesson. As well as keeping track of the number of eggs and overall production received from the hens.

5. ***FOLLOW UP***

"Congratulations on completing your own chicken farm egg collection story!"

<u>Continuation of the Egg Collection Story Problems</u>:

"When you collect eggs the next day, will you get the same number of eggs?"

Add to the egg collecting experience by repeating the same lesson questions, but the children change the combination of numbers and colors of eggs found in each nesting box. The important and effective strategy of drawing a picture and writing equations to solve story problems will be continued throughout the school year.

<u>New Dairy Farm Story Problem</u>:

Add to the collecting experience by repeating the lesson with pails of milk collected in the stalls of a barn. Children have 20 cows. Some cows are pregnant with calves. Some cows are bulls.

"How many pails of milk are collected in the four stalls of the barn?"
"If I have 20 cows and only collected ____ pails of milk how many cows did not get milked?" "Why?"

List a minimum of 3 new vocabulary words that children will develop as part of this learning plan:

1. Picture – a visual representation of a person, object, or scene.
2. Equation – a mathematical sentence that has two equal sides separated by an equal sign.
3. Nesting box - a safe quiet place off the floor of the chicken coop where chickens lay their eggs.

3 open-ended questions:

1. How many eggs did you find in your four nest boxes?
2. How many of your eggs were brown, white, or green?
3. If you have 20 chicken and collected _____ eggs how many chickens didn't lay eggs?

Why this activity is developmentally appropriate for this group of children.

Age Appropriate-

Egg story problems are an engaging lesson for children because it incorporates, animals and food, two of children's favorite topics. The child's competence in the operation skills of addition and subtraction meets second grade level common care standards. The child's competence in making and documenting observations of the diversity of chickens meets new generation science standards for second grade.

Individually appropriate-

Children choose the number of eggs in their boxes which puts them in control of the quantities that they want to work with. Children who desire a challenge can place more eggs in their boxes to produce higher numbers to add together. Children who desire less of a challenge can place fewer eggs in their boxes to produce lower numbers to add together.

Questions to Ask Children:
"Do you want an easier math problem? Put less eggs in your boxes."
"Do you want a challenge? Put more eggs in your boxes?"

Culturally Appropriate-
Teaching children to appreciate where our food comes from is a relevant value in many cultures. Farming is an integral part of many cultures. Families owning animal that provide the family with food is a basic survival skill passed down for many generations.
"Where do eggs come from?"
"Why do many families around the world keep chickens?"

Describe how in this activity you promote the following (please utilize specific examples and avoid overly vague generalizations or connections:

1. ***Promoting Analysis and Reasoning:***

Science Connection of Animal Observations Discussion Questions:
Students Make Observations:

"Why are there three different colored eggs in my nesting boxes?"
"Do different kinds of chicken breeds lay different kinds of eggs?"
"What breeds of chicken do you like?" "Why?"

Students Make Predictions:

"Based on the kinds of chicken breeds you have on your farm; do you think you will get more brown or white or green eggs?"
"Look at a friend's picture of their chickens. Based on their picture, do you think they will get more brown or white or green eggs."

2. ***Promoting Opportunities for Creating:***

Brainstorming-

1. Discussion of the different colored eggs "your 20 chickens" will lay.

"How many brown, white, or green eggs will your chickens lay?"
"How many eggs will the chickens lay in each box 0,1, 2, 3, 4, or 5?"

Planning-

1. Children will plan their own farm scene and draw a picture of their planning in the four nesting boxes.

"What will your farm scene look like?"
"Does your picture match what you have planned?"

2. Children will plan their equation that is a math sentence that has two equal sides separated by an equal sign.

"Does your equation have two equal side separated by an equal sign?"
"Does you equation have the correct answer making both side equal to each other?"

Authentic Production-

1. Children will produce authentic representations of farm life on a chicken farm.

"Does your picture of a chicken farm have a variety of chicken breeds?"
"Does your picture of chickens represent real chicken breeds?"
"How do breeds differ in the color of their feathers, body size, and egg color?"
"Do your chicken's nesting boxes represent a realistic number of eggs given the number of chickens on your farm?"
"Does your equation accurately represent the data from your farm?"

3. ***Promoting Opportunities for Integration:***

Science Connections Animal Observations Discussion Questions:
"Why do you think farmers get fewer eggs than the number of chickens on the farm?"
"Are there some chickens that do not lay an egg every day?"
"Do some breeds of chickens lay more eggs than other breeds?"
"What is the name of a chicken who never lays eggs?"
"What is the rooster's role in the chicken yard if he never lays an egg?"
"Do you want roosters in your chick yard?" "Why or Why not?"

4. ***Promoting Opportunities for Connections to the Real World:***

Egg Collection:
"Do farmers daily collect eggs on a farm?"
"If a family has chickens, do children ever help with this chore?"
"Do you have to be careful when you collect eggs?" "Why or why not?"
"Would you like to gather eggs every morning?" "Why or why not"

Egg Characteristics:
"If eggs have a hard shell, how do you get the inside out?"
"Do we eat eggs raw?" "Why or why not?"
"What happens when you cook a raw egg?"

"What would you do with your eggs?"

Egg Production:
"Do farmers calculate egg production?"
"Do farmers make changes to help chickens lay more eggs?"
(light in chicken coop in the winter, nutritious diet, oyster shells provide calcium for shell, more bedding in nesting boxes, keep scary coyotes away, talk nice to your chickens)
"Do farmers want to increase their egg production?" "Why or why not?"
"Would you want to increase your egg production?" "Why or why not?"

I certify that the lesson I am submitting does not utilize a worksheet or rote learning experience. My lesson is focusing on promoting concept development through high quality interactions and everyday materials easily obtained in a family's home or surrounding outdoor environment. The outcome of my lesson is not a "cookie cutter" product.

__x__ Yes

____ No