EMARTIN'S Math club Lesson Plan

Season 4

Kindergarten

Number Sense

5 Players on the Court

Objective:

By the end of the lesson/activity, the students will be able to:

• Determine whether one group of objects is more than, less than, or equal to another group of objects by matching and counting objects.

Materials:

- "Sport Figures" activity sheet
- "More Than and Less Than" student handout
- Pom-poms, counters, ping pong balls, or any other manipulatives
- Sealable plastic bags
- Picture or short clip of a basketball game
- Number line

Teacher Preparation:

- Copy and cut the "Sport Figures" sheet.
- Place any amount (up to ten) of two different manipulatives or "Sports Figures" cutouts into the sealable bags.

Introduction:

- Show the picture or short clip of a basketball game. If you are showing a clip, pause at the scene where you can see all 10 players on the court.
- "Let's count how many players are on the court for the [Team Name]. Now let's count the number of players on the team for [Team Name]. What do you notice about these two numbers? During most basketball games, each player can have only five teammates on the court. Since these are the same numbers, we say they are equal."
- You may choose to model examples of more than and less than in pictures.

South Carolina College- and Career-Ready Standards for Mathematics:

K.NS.7 Determine whether the number of up to ten objects in one group is more than, less than, or equal to the number of up to ten objects in another group using matching and counting strategies.

Activity:

- Have the students open their first sealable bag and sort the items by likeness.
- Then, instruct each student to count the number of objects in each group.
- Allow the students to tell what they have more of, less of, or if they have the same number of both objects.

Question(s):

- "How do we know if we have equal amounts of each object/picture?"
- "How do we know we have more/less [object type] than [object type]?"
- "Can you show me where this number is on our number line?" Be sure to discuss what side of the number line shows the larger number.

Extensions:

- Make as few or as many bags, depending on how long you would like the activity to last.
- Add this activity to your station and allow students to glue pictures under the "More Than and Less Than" activity sheet.



More Than and Less Than

Directions: Glue the pictures that you have more of under "More Than." Glue the pictures you have less of under "Less Than."

More Than	Less Than

Sports Figures



EMARTIN'S Math club Lesson Plan

Season 4

1st Grade

Algebraic Thinking and Operations

Backward and Forward Jump Shots

Objective:

By the end of the lesson/activity, the students will be able to:

• Recognize how counting relates to addition and subtraction.

Materials:

- Number Lines
- Basketball, ping pong ball or any other ball
- Basket or hoop
- "Numbers for the Court" sheet
- "Take it to the Court" handout

Teacher Preparation:

- Create the number line on the floor by writing the numbers (0-20) and placing them from one end of the classroom to the other.
- Place the basket at the number 20 on the floor number line.
- Copy and cut the "Numbers for the Court" sheet and place them in an opaque container.
- Copy enough "Take it to the Court" handouts for each student.

Introduction:

• Show a mini clip of a basketball player making a jump shot. Let the students know they will be attempting their own jump shots today in class.

Question(s):

- "Do think that jump shot was easy or difficult to make? Why?"
- "What do you think makes a shot easier to make?"

Activity:

• Allow the student to choose a number to stand above on the classroom number line.

South Carolina College- and Career-Ready Standards for Mathematics:

1.ATO.5 Recognize how counting relates to addition and subtraction.

• Allow a student to choose a random number from your "Basketball Numbers" container and move forward or backward that many times. From this spot, allow the student to make a basket as a reward.

Equation: 10 - 5 = 5

Question(s):

- "[Student Name], pulled a negative/positive number. What direction should he/she move? How do you know?"
- "Do you think [Student Name] will be able to make this jump shot from [number the student is standing on]? Why?"
- "What math problem can we create when [Student Name] moved [forward/backward] on the number line?"

Activity (continued):

• Demonstrate how to make a math problem from each student's attempt and allow them to show the process on their "Numbers for the Court" sheet.

Extensions:

• You may scaffold this activity by separating the negative and positive numbers or mixing them together.







Number for the Court

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
-1	-2	-3	-4	-5
-6	-7	-8	-9	-10
-11	-12	-13	-14	-15

EMARTIN'S Lesson Plan math club

Season 4

2nd Grade

Measurement and Data Analysis

Halftime Break?

Objective:

By the end of the lesson/activity, the students will be able to:

• Represent whole number differences on a number line with real-world scenarios.

Materials:

- "Concessions" activity sheet
- "One Dollar Bills" activity sheet
- "Number Line" activity sheet

Teacher Preparation:

- Copy and cut the "Number Line" sheet for each student.
- Copy the "Concessions" sheet for each student.
- Copy and cut enough money from the "One Dollar Bills" sheet for each student to have \$15.

Introduction:

• Show the students a picture of the Colonial Life Arena and various concessions.

Question(s):

- "When you go to a basketball game or any sports game, what do you do when you get hungry?"
- "Have you heard of a concession stand? What is it?"
- "How do you pay for your food and drinks when you purchase items from a concession stand?"

Activity:

• Give each student \$15 money and allow them to count and determine how much they have during the activity. Show this number as the starting point on their number line. Require the students

South Carolina College- and Career-Ready Standards for Mathematics:

2.MDA.5. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences through 99 on a number line diagram.

to circle the number 15 and label it as their starting point. Walk around to check that each student followed your instructions.

Question(s):

- "I want to purchase a slice of pizza, fries, and a bottle of water. How much money is a slice of pizza? How much do fries cost? How much will I have to pay for a bottle of water? How do you know this is the correct price?"
- "How much money should I give to the cashier? How did you figure this out?"

Teacher Model:

- Take out enough money for each item and model the rule of subtraction on your number line.
- Allow the students to demonstrate additional ways to make subtract. Be sure to show the students that they can add all of the items to find out how much to subtract instead of subtracting each item individually.

Question(s):

- "Will I have enough money to buy more food from the concession stand?"
- "How much money will I have left to buy more food or drinks?"





Extensions:

- Give the student more or less money to complete this activity, adjusting the money line accordingly.
- To teach addition, allow the students to use the money and number line to see how much money they will need to purchase items.
- Create your own concession stand and allow the students to purchase items from their peers and justify their payment.

CONCESSIONS



One Dollar Bills





Number Line



EMARTIN'S Math club Lesson Plan

Season 4

3rd Grade

Number Sense and Base Ten

Headed to the Basketball Game

Objective:

By the end of the lesson/activity, the students will be able to:

• Use place value to understand rounding whole numbers to the nearest hundreds place.

Materials:

- "Arena" picture/map
- "Arena Seating" handout
- "Ticket Pricing" activity sheet

Teacher Preparation:

- Copy and cut the "Ticket Pricing" sheet for each student.
- Copy the "Arena Seating" handout for each student.

Introduction:

• Show the students the picture/map of the Colonial Life Arena seating.

Question(s):

- "Where is the best place to sit to watch the basketball game? Why?"
- "Do you think it costs more of less to sit near the court?"
- "Where do you think the most expensive seat are located? Why?"

Introduction (continued):

- Discuss the various ticket pricing and have the students label the areas on their map as you label the areas on your larger map. Talk about what it means to have a season pass.
- Show the "Ticket Pricing" sheet and use a think aloud to model what ticket you would like. Circle the area on your map and use a place value chart to

South Carolina College- and Career-Ready Standards for Mathematics: 3.NSBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

show how to round to the nearest tens or hundreds place.

Question(s):

- "When I figure out where I wanted to sit, what do I do next?"
- "Did I use my place value chart to determine how to round?"

Activity:

- 1. Allow the students to circle where they would like to sit to watch the game on their "Arena Seating" handout.
- 2. Pass out the "Ticket Pricing" handout and have the students determine whether they want a season pass or plan to go to only one game. Once they have determined what type of ticket they would like, circle the price on their "Ticket Pricing" handout.
- 3. Place the number where it will best fit on your number line. Model how to use the number line to round to the nearest hundreds. Check for student understanding of the model by asking questions.
- 4. Have the students begin filling out the information on their "Arena Seating" handout, and allow them time to determine the number when it is rounded.

Extensions:

- Adjust how much of the activity you model to vary the difficulty of the activity.
- Present the ticket pricing without the use of the season tickets to simplify the activity.



Name:

Date:

Arena Seats

Arena Map:



Number Line:



Place Value Chart:

Hundreds	Tens	Ones	
Place Values			

What is your ticket price rounded to the nearest hundreds place?



Ticket Pricing

Student	\$8
Lower Level	\$25
Upper Level	\$12
Mobile Passes (preassigned seats for all game)	\$69
Mobile Passes (preassigned lower level seats for all game)	\$150
VIP Suite Season Pass	\$750

Ticket Pricing

Student	\$8
Lower Level	\$25
Upper Level	\$12
Mobile Passes (preassigned seats for all game)	\$69
Mobile Passes (preassigned lower level seats for all game)	\$ 150
VIP Suite Season Pass	\$750

EMARTIN'S Lesson Plan math club

Season 4

4th Grade

Number Sense and Base Ten

Make Those Baskets

Objective:

By the end of the lesson/activity, the students will be able to:

• Recognize math periods and number patterns to read and write in standard form.

Materials:

- "Rearrange the Basketballs" handout
- "Basketball Numbers" activity sheet
- Resealable bags

Teacher Preparation:

- Copy and cut the "Basketball Numbers" sheet for each student and place in the resealable bags.
- Copy the "Rearrange the Basketballs" handout for each student.

Activity:

- Allow the students to choose 6 numbers from the bag and place them at the top of their "Rearrange the Basketballs" handout.
- Before the students complete their place-value charts, require them to rearrange the basketballs to determine the best answer.
- Facilitate this activity by walking around, asking questions, and assisting as needed.

Question(s):

- "[Student Name], how many times did you have to rearrange your basketballs to find out whether this number is the largest/smallest?"
- "[Student Name], how do you know this arrangement makes this the largest/smallest possible number?"
- "[Student Name], I noticed you wrote [number] in the hundred thousands place. What number did you not pick that could go there and make the number larger?"

South Carolina College- and Career-Ready Standards for Mathematics: 4.NSBT.2 Recognize math periods and number patterns within each period to read and write in standard form large numbers through 999,999,999.

Extensions:

- Model the activity with a think aloud if the activity is an introduction to a lesson.
- Require the students apply the algorithm, as well as, the place value to add the values.





Date: _____ Period: ____

_____ Rearrange the Basketballs

Directions: Pick 6 numbers and place them in the space below.

Pick 1	Pick 2	Pick 3	Pick 4	Pick 5	Pick 6

Directions: Rearranged the numbers to make the biggest number possible. Write it the space below.

	Millions		T	nousands			Ones	
Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Directions: Rearranged the numbers to make the biggest number possible. Write it the space below.

	Millions			nousands			Ones	2
Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
				X				

Directions: Rearranged the numbers to make a number closest to 3,000 without going over. Write it the space below.

	Millions		Т	nousands			Ones	
Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Basketball Numbers



































EMARTIN'S Lesson Plan math club

Season 4

5th Grade

Geometry

Make Those Baskets

Objective:

By the end of the lesson/activity, the students will be able to:

• Plot and interpret points in the first quadrant to represent real world situations.

Materials:

- Painter's tape
- Ping pong balls or any other suitable balls
- Baskets or hoops
- "Make Those Baskets" handout

Teacher Preparation:

- Use the painter's tape to layout the free throw lines and a 3-point line throughout your classroom.
- Copy the "Make Those Baskets" handout for each student.

Activity:

- Have students find an area to start collecting their data. Allow them to record their data in their "Make Those Baskets" handout.
- At the end, have students walk around to analyze each other's data to determine who made the most shots within the four attempts.
- Facilitate this activity by walking around, asking probing questions, and assisting as needed.

Question(s):

- "[Student Name], how are you figuring out your total number of shots?"
- "[Student Name], how do you know where to plot the first number in your coordinate plane?"
- "How can we determine who made the greatest number of shots within their four attempts?"

South Carolina College- and Career-Ready Standards for Mathematics:

5.G.2 Plot and interpret points in the first quadrant of the coordinate plane to represent real world and mathematical situations.

Extensions:

- Allow the students to construct their own graph to increase the rigor.
- If this activity is being used to start the lesson, provide a teacher model with a clear think aloud.





Date:

Period:

Make Those Baskets

The way to win a basketball game is to get the highest score. Making a 3-point shot can have you achieve your goal. Try to make 4 baskets from the free throw or 3-point line. Record the total number of baskets made in the third column.

Ordered Pair	Shot Attempt	Total Number of Shots Made
(0,0)	0	0
(,)	1	
(,)	2	
(,)	3	
(,)	4	

1) Fill-in the chart as you attempt to make four baskets.

2) Label each axis of your graph. Then, graph your ordered pairs.



3) Who made the most shots? Explain your answer.

EMARTIN'S Lesson Plan math club

Season 4

6th Grade

Number System

Quest for the Net

Objective:

By the end of the lesson/activity, the students will be able to:

• Divide multi-digit whole numbers with fluency.

Materials:

- Light, round balls (i.e. ping pongs or soft sponge balls)
- Baskets
- "Basketball Numbers" document
- Whiteboards with markers
- Two resalable plastic bags

Teacher Preparation:

- Label one plastic bag as the "numerators" and the other bag as the "denominators".
- Copy and cut the "Basketball Numbers" document. Place 1 or 2 set of numbers in each resealable plastic bag.
- Place the desk in rows to create groups.
- Place a basket and ball at the front of each group.
- Place a whiteboard and dry erase marker at the first desk in each row.

Directions:

- Assign seating or allow the students to sit in the row of their choice to create their teams.
- If needed, model the game for the students. As the students play, require everyone to work out the problem presented.

South Carolina College- and Career-Ready Standards for Mathematics:

6.NS.2 Fluently divide multi-digit whole numbers using a standard algorithmic approach.

- Choose 2 basketball numbers from each bag. Write the fractions on the board as a division problem and require the students to solve it.
- 2. The student at the first desk of each row is in charge of solving the problem correctly to get a point without the help of their teammates.
- 3. Each student with the correct answer on their whiteboard will earn a point for their team. These players can attempt to make a basket to earn an additional point for their team.
- 4. The student will rotate to their back of their row, while their teammates move forward one seat.
- 5. Repeat this process. You will need to set a timer, and the team with the most points when the buzzer goes off is the winner.

Extensions:

- You, or a student, can pull two numbers to make the problem more difficult.
- Scaffold the learning by only adding smaller digits to the resealable bags and gradually increasing the difficulty of the problems by adding more digits.
- Make each student turn in their work for a classwork grade to make sure each student is held accountable for attempting all problems.



Basketball Numbers



EMARTIN'S Lesson Plan math club

Season 4

7th Grade

Expressions, Equations, and Inequalities

Take a Shot for the Team

Objective:

By the end of the lesson/activity, the students will be able to:

• Write and solve multi-step linear equalities.

Materials:

- Light, round balls (i.e. ping pongs or soft sponge balls)
- Baskets
- "Solving Equations" documents
- Whiteboards with markers

Teacher Preparation:

- Place the desk in rows to create groups.
- Place a basket and ball at the front of each group.
- Copy and paste the "Solving Equations" document to PowerPoint.
- Place a whiteboard and dry erase marker at the first desk in each row.

Directions:

- Assign seating or allow the students to sit in the row of their choice to create their teams.
- If needed, model the game for the students. As the students play, require everyone to work out the problem presented.
- 1. The student at the first desk of each row is in charge of solving the problem correctly to get a point without the help of their teammates.
- 2. Each student with the correct answer and work on their whiteboard for their problem will earn a point for their team. If their answer is correct, the

South Carolina College- and Career-Ready Standards for Mathematics:

7.EEI.4 Apply the concepts of linear equations and inequalities in one variable to real-world and mathematical situations.

> a. Write and solve multi-step linear equations that include the use of the distributive property and combining like terms. Exclude equations that contain variables on both sides.

student can attempt to make a basket to earn an additional point for their teammates.

- 3. The student will rotate to their back of their row, while their teammates move one seat up.
- 4. Repeat this until the class has reached the end of the game.

Question(s):

• Show the students a whiteboard of a correctly worked problem. "Did you all solve this problem the same way [Student Name] solved his/her problem? How did you solve it differently?"

Extensions:

- Create your own problems. Scaffold the learning by gradually increasing the difficulty of the problems, and include decimals and fractions to challenge your students.
- Make each student turns in their work for a classwork grade to make sure each student is held accountable for attempting all problems.





Problem

What value of g makes the statement true?

2g + 3 = 17

Answer

2g + 3 = 17

9 || ~

Problem

Solve for X.

12 - 3x = 24

Answer

2 - 3× = 24

×

Problem

What value of **b** makes the statement true?

5 - 4<mark>b =</mark> 17

Answer

5 - 4b = 17

С II I

Problem

Solve for t.

5(15 - t) = 150

Answer

5(15 - t) = 150

statement true? 56 = -2(3y - 10)

What value of y makes the

Problem

Answer

56 = -2(3y - 10)

×

Problem

-3(7 - z) = 22

Solve for z.



$\begin{bmatrix} -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -3 \\ -1 \\ -2 \\ -$

Problem

What value of a makes the statement true?

0 = -(-4a - 12)



-(-s + 12) = 48

Solve for s.

Problem



-(-5 + 12) = 48

S

-46 = -(4f - 10)

statement true?

What value of f makes the

Problem

Answer

-46 = -(4f - 10)

14

Problem

9(h + 11) = -126

Solve for h.

Answer

9(h + 11) = -126

EMARTIN'S Lesson Plan math club

Season 4

8th Grade

Expressions, Equations, and Inequalities

A Power Play

Objective:

By the end of the lesson/activity, the students will be able to:

• Understand and apply the product and power to power rule to simplify numerical expression.

Materials:

- "Basketball Bases" activity sheet
- "Power Play" handout
- Glue sticks
- Scissors

Teacher Preparation:

- Copy the "Basketball Bases" activity sheet. You may want to pre-cut to alleviate losing instructional time.
- Copy the "Power Play" handout for each student.
- You may choose to group students or have them work individually with imbedded pair-share moments.

Whole Group Mini-Lesson:

- Have the students analyze the numerical expression in an example of one of the "Power Play" handouts.
- Read the problem aloud and allow the students to read it aloud as well.

Question(s):

- "How would you read this expression?"
- "How do you differentiate an exponent from a base?"
- "What do exponents tell you to do?"

Whole Group Mini-Lesson (continued):

• "Using your cutouts, place the number of basketballs you think represents the expression 53 on your desk." South Carolina College- and Career-Ready Standards for Mathematics:

8.EEI.1 Understand and apply the laws of exponents (i.e., product rule, quotient rule, power to a power, product to a power, quotient to a power, zero power property, negative exponents) to simplify numerical expressions that include integer exponents.

- "Discuss with a classmate [or members in your group] why you chose that number of basketballs. If you agree on the answer, do you have the same reasoning for your answer?"
- "What operation should go between each base when you glue them to your handout?"
- Check for student understanding and the use of key vocabulary. *Do not forget to have the students write the multiplication symbol between each basketball because the role of the exponent is to showhow many times to multiply the base to itself.*

Activity:

- At this point, allow the students to work in their groups or individually to complete the self-guided activity. Your role as facilitator is to assist students who need more support and check for student mastery.
- Depending on the level of your students mastery, you may want to allow them to go ahead and glue their basketballs onto their handout or wait for you to check before the gluing process takes place.

Extensions:

- You can apply the "Power Play" power rule handout to continue the concepts of exponents.
- Have the students analyze a short cut in finding the products of bases that are the same.



Name:	Date:	Period:
	Power Play	

Example 1: Display an understanding of exponents by showing 5³ in expanded form using the basketballs.

Glue your basketball bases here.

What is the value of the 5³ in standard form?

Show your calculations here.

Answer:

Example 2: Display an understanding of multiplying bases by showing $5^3 \times 5^2$ in expanded form using the basketballs.

Glue your basketball bases here.

What is the value of the $5^3\times 5^2\,\text{in}$ standard form?

Show your calculations here.

Answer:

Name:	Date:	Period:
	Power Play	

Example 3: Display an understanding of raising a power to a power (5³)² in expanded form using the basketballs.

What is the value of the $(5^3)^2$ in standard form?

Show your calculations here.

Glue your basketball bases here.

Answer:

Basketball Bases

