Lesson Plan 6
"How Much Time Has Elapsed?"

Children will learn to determine how much time has passed during given events and grasp the use of clocks and telling time.

Students will be able to:
l Use mental, paper and pencil, and physical strategies to determine how much time elapsed.

Objectives:
Child will use a variety of strategies to solve problems regarding time and telling time.

Materials:
Clock or watch, paper, pencil, calendars

Before the Game:
Explore different time pieces - watches, clocks (including digital), an hourglass, etc. Discuss "elapsed time" using the classroom clock with an example of the day. (i.e.: school day began at 8:30 am and now its 10:00 am, how much time has elapsed?) Have students give examples of their own.
Pass out calendars and discuss how many days, months have "elapsed" since the school year began, since a field trip, since a holiday, etc...or how long is it until an event will occur? Use birth-days or even a student's favorite television show. As a class predict how long the game, certain innings, or the National Anthem will take. How long will it take to get to the game?

At the Game:
Break students into groups having them responsible for a particular inning and note the beginning and ending times of their assigned inning. Students would also be responsible for noting when the National Anthem began, how long it took to get to the game, what time the 7th Inning Stretch occured and what time the last out occurred.

Beyond the Game:
Develop classroom chart of how long each inning was. Each group will record the data that they collected.
Compare the class predictions versus the actual times and create graphs to show the similarities or differences.
Class discussion about how long the season is using days and months.
How much time "elapses" until the next season?
Using the class chart that is made the students will answer:
- What was the shortest/longest inning?
- How much time elapsed between 1st and 3rd inning?
- How much time elapsed between beginning of game and the 7th Inning Stretch?

Using a calendar:
- How much time "elapses" between the school year beginning and ending?
- Summer vacation?

Teachers may wish to graph student data using a line or bar graph.

Lesson Plan 7
"Baseball IS Math!"

"Mathematics is the Alphabet with which God has written the Universe!" - Galileo
"ALL Things Exist Through Mathematics." - Author unknown

Students Will Be Able To:
- Recognize parallel, intersecting, and perpendicular lines, and right angles in geometric figures.
- Recognize, classify, and/or use characteristics of lines and simple two-dimensional figures including circles; and apply models and properties to characterize and/or contrast different classes of figures including three-dimensional figures.

Objectives:
To identify all the ways math is used in baseball.

Materials:
Paper and pencil

Before the Game:
Write the above quotes on the board. Allow students to share their thoughts regarding the quotes. Chart the responses.

At the Game and Beyond the Game:
Students may work in small groups to develop a list of all the different ways mathematics is used in the game of baseball (each student group should generate a list of at least 10 examples.). Remind
students to think about before the game and after the game…back in the classroom, compare lists. Identify: Who has the longest list? Who has the most unique response? Add to student generated lists.

Lesson Plan 8
"Locating the Opponents"

The Daytona Cubs play in an 12-team Single "A" baseball league known as the "Florida State League." Teams are located throughout the State of Florida.

Students will be able to:

- Demonstrate map skills by measuring distance on a map, and a direction indicator.

Objectives:

To interpret a map of the Florida State League teams. To estimate the distance from Daytona Beach, Florida to each opposing teams. Students will complete the given chart and calculate the actual distances.

Materials:

Appendix H (Map of Florida State League teams) and Appendix K (Florida State Leage Mileage Chart)

Before the Game:

Estimate the distance from Daytona Beach, Florida to each opposing team. Fill in the chart below with your estimates. Ask students to compare their measurements with classmates. Next, measure the actual distance. Using Appendix K, how close were your estimates?

TEAM NAME	ESTIMATION (miles)	MEASUREMENT (miles)
Brevard County Manatees		
Clearwater Phillies		
Dunedin Blue Jays		
Ft. Myers Miracles		
Jupiter Hammerheads		
Lakeland Flying Tigers		
Palm Beach Cardinals		
Sarasota Reds		
St. Lucie Mets		
Tampa Yankees		
Vero Beach Rays		

Beyond the Game:

Using a Daytona Cubs 2008 schedule (Appendix L) and Appendix K, calculate the total number of miles the Daytona Cubs will travel this season.

Lesson Plan 9
"Making Change"

Students will be able to:

- Apply the counting of coins and bills in a buying situation.
- Select appropriate notation and methods for symbolizing a problem situation, translate real-life situations involving addition and subtraction into conventional symbols of mathematics, and represent operations using models, conventional symbols, and words.

Objectives:

To find solutions to story problems involving the use of money (decimals). Make a budget plan and evaluate spending.

Materials:

Appendix D (concessions price list), story problem worksheet (teacher will create), lined paper

Before the Game:

Give Appendix D. Distribute story problems created by the teacher made from Appendix D. For example: If you brought $16.00 to the game, could you afford...?
How much would it cost if you, your brother, and your uncle purchased Cubs tickets?
What would your change be if you bought...?
Using Appendix D, have the students create their own story problems.
After looking over Appendix D, have students create their own budget plan. Include what they intend to purchase at the game and how much money they will need.

At the Game:

Students should record and track their purchases, and make note of other prices throughout Jackie Robinson Ballpark, including Merchandise, Game Programs, etc.

Beyond the Game:

Students evaluate their own purchases. Did they stick to their budget plan? Was the plan unrealistic or sound? How could money have been better spent? Teachers may wish to graph student individual expenditures compared to their classmates or graph totals of items purchased (number of cotton candy, number of popcorn, number of hot chocolates, etc.).

Lesson Plan 10
"Show me what this means"

Students will be able to:

- Select appropriate notation and methods for symbolizing a problem situation, translate real-life situations involving addition and/or subtraction into conventional symbols of mathematics, and represent operations using models, conventional symbols, and words.

Objectives:
To interpret statistics and create graphs and pie charts.

Materials:
Appendix P (Cubs Demographics), Graph paper, pencil, colored pencils or markers

Before the Game:
Examine Appendix P and from that information, create with the class, or have students in groups, or have students individually create graphs and pie charts that visually display these statistics. Create by hand, or on computers if available.

At the Game:
Have students observe the crowd to estimate attendance using categories:

1. Male/Female
2. Age (0-2, 3-18, 19-50, 51 or older)
3. The number of innings people stay at the game
4. The number of fans wearing team apparel

Jot down some notes...Does the crowd match the findings on our graphs? What is different?

Beyond the Game:
Estimate the changes that occur on Education Days with the Cubs demographics. Create new graphs that might better demonstrate demographic break downs on Education Days.