**Carolina Panthers Controversy**

|  |
| --- |
| In this lesson, students apply their knowledge of place value to compare multi-digit whole numbers. |

**NC Mathematics Standard:**

**Number and Operations in Base Ten**

**NC.4.NBT.7** Compare two multi-digit numbers up to and including 100,000 based on the values of the digits in each place, using >, +, and < symbols to record the results of the comparisons.

**Standards for Mathematical Practice:**

1. Make sense of problems and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments and critique the reasoning of others.

4. Model with mathematics.

6. Attend to precision.

**Student Outcomes:**

* I can compare multi-digit numbers.
* I can use symbols such as >, =, and < to compare.

**Math Language:**

* compare (less than, greater than, equal to)

**Materials:**

* student handout – Carolina Panthers Controversy (1 per student)
* pictures and videos of various football players from the Carolina Panthers football team

**Advance Preparation**:

* Collect pictures of the various football players from the Carolina Panthers football team.
* Make copies of the student handout.

**Launch:**

1. Introduce Problem (10 - 15 minutes)

Begin the lesson by asking a few students to name their favorite football team and football player. Have students to describe what they like best about the team and why they like that particular player.

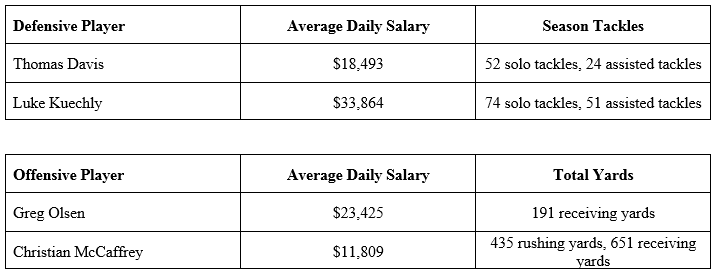
Provide students with the handout – Carolina Panthers Controversy and read the following scenario to students.

*The fourth grade teachers at North Elementary were so excited for the start of the NFL season. One afternoon, they began arguing over which players on the Carolina Panthers football team are the most important. Mr. Jones and Ms. Carnegie were arguing over the best defensive player, while Mrs. Phillips and Mr. Cox were in a heated discussion over the best offensive player (not including Cam Newton). Mr. Jones said Thomas Davis was the best defensive player, whereas Ms. Carnegie said Luke Kuechly was the best defensive player. Mrs. Phillips said Greg Olsen was the best offensive player, whereas Mr. Cox said Christian McCaffrey was the best offensive player.*

At this time, you can show defensive plays by Thomas Davis and Luke Kuechly and offensive plays by Greg Olsen and Christian McCaffrey if you like. These can be found on youtube.com.

Next, show the data provided in the chart. Read through the chart and discuss what average daily salary, solo and assisted tackles, and receiving and rushing yards means.

* Solo Tackles - made by one’s self
* Assisted Tackles - made with the help of someone else
* Receiving Yards - caught the ball
* Rushing Yards - ran with the ball



Tell students that they will use these statistics to determine which teacher was correct and which players they feel are the best. Encourage students to use numbers, symbols (<, >, or =), and words to justify their answers.

**Explore:**

1. Solving the Problem (15 – 20 minutes)

Allow students time to work with partners in order to solve the task. Encourage students to share their strategies with one another and defend their selection with numbers, symbols, and words. As students work, observe students to see how they are solving the task.

Observe:

* How are students organizing and representing their thinking?
* How do students make sense of the question?
* How do students prove which player is better?
* How do they decide which player is better? Salary or yards and tackles?
* Can students use numbers and symbols to show which player is better? Can they justify and defend their selection?

Carefully select students to present to the class. Look for students who modeled the problem and used comparison sentences to show their understanding. Choose students that can help extend the understanding of place value and comparing numbers.

**Discuss:**

1. Discussion of Solutions (20 – 25 minutes)

Bring the group back together and have selected students share their strategies for solving the task.

Possible points to address and questions to ask:

* How do students prove which player is better?
* How do they decide which is better? Salary or yards and tackles?
* Can students use numbers and symbols to show which player is better and why?
* How do students use place value to explain their understanding?

Close the lesson by returning to today’s learning target: I can compare two multi-digit numbers. Have students describe how they compared numbers today. Review the comparison symbols and add to an anchor chart.

**Evaluation of Student Understanding:**

**Informal Evaluation:**

* Observe students as they work. Consider: Can students compare the salaries of various players to determine which is greater? Can students compare two whole numbers? Can students write comparison sentences to show their understanding? What do students understand about place value?

**Formal Evaluation/Exit Ticket:**

* Give students the following problems to solve:

1. *Meghan was comparing the amount of money she and her husband earn in a month. Meghan earns $3,219 a month. Her husband, Danny, earns $3,117 a month. Write a number sentence to compare Meghan’s earnings to Danny’s.*
2. *Janette was comparing the miles on two different used cars. The red car had 34,987 miles. The blue car had 39,555 miles. Write a number sentence to compare Janette’s two cars.*

**Meeting the Needs of the Range of Learners:**

**Interventions:**

* Discuss how place value can help you compare numbers. What place value is different? How do I determine which number is larger or smaller?
* Discuss which shows the value of the player - their salary of their contribution on the field.
* Have students model numbers with place value blocks.

**Extensions:**

* Write which teacher you agree with and why. Be sure to use mathematics to support your answer.
* Have students research other football players and describe their statistics using comparison symbols.

**Possible Misconceptions/Suggestions:**

|  |  |
| --- | --- |
| **Possible Misconceptions** | **Suggestions** |
| * Students do not understand the problem. * Students can’t decide which is better. * Students just compare one place and not the whole number. | * Discuss the football vocabulary in the problem. * Have students come up with which they think is more important, salary or contributions on the field. * Have students model the numbers with place value blocks. |

**Special Notes:**

* Stats and Salaries found on <https://www.spotrac.com/nfl/>.

**Possible Solutions:**

1) Defensive Players: Thomas Davis’s salary ($18,493) < Luke Kuechly’s salary ($33,864), Thomas Davis’s tackles (76) < Luke Kuechly’s tackles (125)

Offensive Players: Greg Olsen’s salary ($23,425) > Christian McCaffrey’s salary ($11,809), Greg Olsen’s total yards (191) < Christian McCaffrey’s total yards (1,086)

2) Luke Kuechly is paid the most compared to Thomas Davis, Greg Olsen, and Christian McCaffrey’s salaries. Christian McCaffrey is paid the least in comparison.

**Carolina Panthers Controversy**

The fourth grade teachers at North Elementary School were so excited for the start of the NFL season. One afternoon, they began arguing over which players on the Carolina Panthers football team are the most important. Mr. Jones and Ms. Carnegie were arguing over the best defensive player, while Mrs. Phillips and Mr. Cox were in a heated discussion over the best offensive player (not including Cam Newton).

* Mr. Jones said Thomas Davis was the best defensive player, whereas Ms. Carnegie said Luke Kuechly was the best defensive player.
* Mrs. Phillips said Greg Olsen was the best offensive player, whereas Mr. Cox said Christian McCaffrey was the best offensive player.

|  |  |  |
| --- | --- | --- |
| **Defensive Player** | **Average Daily Salary** | **Season Tackles** |
| Thomas Davis | $18,493 | 52 solo tackles  24 assisted tackles |
| Luke Kuechly | $33,864 | 74 solo tackles  51 assisted tackles |

|  |  |  |
| --- | --- | --- |
| **Offensive Player** | **Average Daily Salary** | **Total Yards** |
| Greg Olsen | $23,425 | 191 receiving yards |
| Christian McCaffrey | $11,809 | 435 rushing yards  651 receiving yards |

1. Using the charts above, compare each player’s salary and game statistics to determine which teacher was correct. Use symbols (<, >, or =) to defend your selection.

2. Based on these four salaries, which player is paid the most? Which player is paid the least?