

# Gaming in the Classroom - Lesson Plan

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## Wii Sports – Baseball

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Grades: 4-6 Subject Area: Math

### Overview

In this lesson, students will be able to review multi-digit addition problems, multi-digit by one digit division & review the process and concept of averaging.

### A. Topic: Finding an Average of a Set of Data

### B. Objectives: Common Core Standards

CCS 4.OA	Use the four operations with whole numbers to solve problems.
CCS 4.OA	Generate and analyze patterns.
CCS 4.NBT	Perform operations with multi-digit whole numbers and with decimals to hundredths.
CCS 4.NBT	Use place value understanding and properties of operations to perform multi-digit arithmetic.
CCS 5.MD	Represent and interpret data.

### C. Instructional Resources:

Wii Gaming System	Wii Sports Game with Baseball training activity
Projector/White board	Wii remote
Paper/pencil for students	Pre/Post tests if desired

### D. Game Procedures:

1. Play the Homerun Hitter option in the Baseball Training section of Wii Sports and choose a student to come up and take the first swing (there are only 10 swings no matter how many homeruns are hit). When a student makes a homerun, have all the students write down how many feet the ball was hit (this number is only on the screen for a short time, so have someone in charge of watching for it and documenting it).
2. Have a new student come up for each swing and each time a homerun is hit, document the number of feet hit and add in the this new set of data to keep a running total.
3. At the end of all ten swings, the total number of feet hit (only counting the homerun hits) will be shown on the screen, so the students can check their running total math.
4. Finally, have the students average the total number of feet hit by the number of homeruns hit (this data is also on the screen). This data will contain larger numbers than the Bowling game lesson also available.
5. You could also average the total number of feet hit by the total number of swings (10) and get the average feet hit for the total number of swings (that would be the average of the 10 swings instead of the average of the home run distances).

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## Wii Sports – Baseball

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### Teach:

\*Suggestion: Teacher stands at the board and works first problems and then as students become comfortable, invite students to come up to the board to do problems as models for the class.

\*Students who are not actively participating in the game play should be at their seats doing problems. Collect papers at end of class and review for engagement and understanding.

\*Suggestion: Have an order in place so students know who goes next- this will free up time during the lesson.

\*If Pre/Post tests are going to be given, plan for these assessments during a different class time, this lesson will last for the full 45-50 minute period (in order for all students to hit the ball and fully participate).

### Closure:

1. Review averaging skill and concept- make real world connections for the use of averaging (bowling, grades, test scores, traffic speeds and baseball statistics)
2. Review addition and division skills
3. Post test plans if desired

### Assessment:

1. Teacher observation
2. Collect student seat work and evaluate for participation or for correct computation
3. Conduct Pre/Post tests covering averaging skills

### Connections:

\*Connection with averaging and baseball statistics to encourage application of skills and enrichment activity opportunities

\*Have students keep track of math quiz grades and find their average over a set period of time so averaging has personal meaning to them

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## Wii Sports – Bowling

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Grades: 4-6 Subject Area: Math

### Overview

In this lesson, students will be able to review multi-digit addition problems, multi-digit by one digit division & review the process and concept of averaging.

### A. Topic: Finding an Average of a Set of Data

### B. Objectives: Common Core Standards

CCS 4.OA	Use the four operations with whole numbers to solve problems.
CCS 4.OA	Generate and analyze patterns.
CCS 4.NBT	Perform operations with multi-digit whole numbers and with decimals to hundredths.
CCS 4.NBT	Use place value understanding and properties of operations to perform multi-digit arithmetic.
CCS 5.MD	Represent and interpret data.

### C. Instructional Resources:

Wii Gaming System	Wii Sports Game with Bowling game
Projector/White board	Wii remote
Paper/pencil for students	Pre/Post tests if desired

### D. Game Procedures: \*We utilized a training option in the game, however, you could always play a straight bowling game to practice averaging as well.

1. Play the Power Throw option in Bowling Training section of Wii Sports and choose one student to begin at the first level with 10 pins. They throw the ball and try to knock down as many pins as they can.
2. Once they throw, have everyone at their seats write down how many pins the student knocked down.
3. Next, a new student comes up to throw the ball for the 2nd level.
4. Repeat step #2 and then add the first and second throw totals together to obtain a running total of pins knocked down.
5. Continue repeating steps 3 and 4 through all through all ten levels.
6. At any step pause the game (using the plus button) and have all the students average the total number of pins knocked down (for example: after level 5, pause and have the students use their running total to average (divide by 5) the total number of pins knocked down so far).

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### Teach:

\*Suggestion: Teacher stands at the board and works first problems and then as students become comfortable, invite students to come up to the board to do problems as models for the class.

\*Students who are not actively participating in the game play should be at their seats doing problems. Collect papers at end of class and review for engagement and understanding.

\*Suggestion: Have an order in place so students know who goes next- this will free up time during the lesson.

\*If Pre/Post tests are going to be given, plan for these assessments during a different class time, this lesson will last for the full 45-50 minute period (in order for all students to throw the ball and fully participate).

### \*Sample game play:

10 pins begin, 1<sup>st</sup> student throws a strike 10 pins x2 do the math

Next 15 pins, student throws and there are 12 pins hit  $12 + 20 = 32$

21 pins up in 3<sup>rd</sup> level and third student shoots and there are 20 pins hit  $32 + 20 = 52$

28 pins in the 4<sup>th</sup> level and the next student knocks down 27 pins  $52 + 27 = 79$

36 pins at the 5<sup>th</sup> level and the student knocks down 35 pins  $79 + 35 = 114$

45 pins at the 6<sup>th</sup> level and the student hits 44 pins  $44 + 114 = 158$

55 pins at the 7<sup>th</sup> level and this time the student knocks down 50 pins  $158 + 50 = 208$

66 pins at the 8<sup>th</sup> level and the student hits 64 pins  $208 + 64 = 272$  total pins

78 pins at the 9<sup>th</sup> level and only 68 pins hit  $272 + 68 = 340$  total

91 pins at the 10<sup>th</sup> and last level and the student knocks down 87 pins  $340 + 87 = 427$  pins

Average the number of pins hit = 427 pins divided by 10 and get 42 pins

### Closure:

1. Review averaging skill and concept- make real world connections for the use of averaging (bowling, grades, test scores, traffic speeds and baseball statistics)
2. Review addition and division skills
3. Post test plans if desired

### Assessment:

1. Teacher observation
2. Collect student seat work and evaluate for participation or for correct computation
3. Conduct Pre/Post tests covering averaging skills

### Connections:

\*Possible connection with averaging and baseball statistics to encourage application of skills and enrichment activity opportunities

\*Have students keep track of math quiz grades and find their average over a set period of time so averaging has personal meaning to them

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## Wii Sports – Golf

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Grades: 4-5 Subject Area: Math

### Overview

In this lesson, students will be able to review multi-digit subtraction problems, review place value of whole number digits & convert measurements in the customary system.

### A. Topic: Subtraction/Place Value/ Measurement Conversion

### B. Objectives: Common Core Standards

CCS 4.OA	Use the four operations with whole numbers to solve problems.
CCS 4.NBT	Generalize place value understanding for multi-digit whole numbers.
CCS 4.NBT	Use place value understanding and properties of operations to perform multi-digit arithmetic.
CCS 5.NBT	Understand the place value system.
CCS 5.NBT	Perform operations with multi-digit whole numbers and with decimals to hundredths.
CCS 5.MD	Convert like measurement units within a given measurement system.

### C. Instructional Resources:

Wii Gaming System	Wii Sports Game with Golf game
Projector/White board	Wii remote
Paper/pencil for students	Pre/Post tests if desired

### D. Procedures:

1. Use the 3 Hole Beginner golf course game.
2. Before the first student hits the ball have all students mark down how many yards to go to the hole (this number is on the screen). Have a student begin by hitting the first ball towards hole #1.
3. Once the first student has hit the ball, the screen will show you how many yards are still to go to the hole. This is the # the student subtracts from what they initially wrote on their paper in step2. This answer shows how many yards the ball traveled. Have the students convert the total number of yards to feet and the same with the yards remaining. Then subtract to find out how many yards/feet the student hit the ball.
4. Continue these steps until a hitter reaches the green.
5. Once this happens the distance is calculated in feet. The student will have to convert yards to feet by knowing there are 3 feet in a yard.
6. Continue subtraction in feet until the ball is hit into the hole. There is a chance that a student might hit the ball too hard, and you will have to convert back to yards again.

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## Wii Sports – Golf

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7. Once the ball is in the hole, have the students add up the total distance the ball was hit and have them compare this number to the total written down at the beginning of the game. How can the actual distance hit be greater than the total distance to the hole? (Because the ball was hit past the hole or to the right and left of the hole).

### Teach:

\*Suggestion: Teacher stands at the board and works first problems and then as students become comfortable, invite students to come up to the board to do problems as models for the class.

\*Students who are not up hitting the ball should be at their seats doing problems. Collect papers at end of class and review for engagement and understanding.

\*Suggestion: Have an order in place so students know who goes next- this will free up time during the lesson.

\*If Pre/Post tests are going to be given, plan for these assessments during a different class time, this lesson will last for the full 45-50 minute period (in order for all students to hit the ball and fully participate).

### \*Sample game play:

Hole 1 401 yards to go- first player hits the ball

Remaining 119 yards

Figure out how far the first player hit  $401 - 119 = 282$

1st player hit 282 yards

Next time a player goes the game shows 119 yards to go- begin with that number on the student's page

Then after the hit it says 7 yards to go - we can figure out that the student shot 112 yards

Next time it said the student was 41.9 feet away (shot past the hole) so you can convert to yards - you can also convert yards to feet and back again.

### Closure:

1. Review conversion skills/formulas
2. Review borrowing skills in multi-digit subtraction
3. Post test plans if desired

### Assessment:

1. Teacher observation
2. Collect student seat work and evaluate for participation or for correct computation
3. Conduct Pre/Post tests covering conversions in the customary system or multi-digit subtraction skills

### Differentiation:

\*Conversion skills can be made more challenging by introducing different measurements

\*Conversions can be made easier if distances are rounded

### Connections:

\*Integers can be introduced when/if students shoot past the golf hole

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## Wii Sports – Bowling

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Grades: 4-5 Subject Area: Math (Fractions)

### Overview

In this series of lessons, students will be able to write fractions using the terminology numerator and denominator, subtract fractions with like denominators equal to or less than 10, & simplify fractions.

### A. Topic: Simplifying Fractions

### B. Objectives: Common Core Standards

4.NF.1.	Explain why one fraction is equivalent to another fraction using division.
4.NF.3	Understand addition and subtraction of fractions as joining and separating parts referring to the same whole

### C. Instructional Resources:

Wii Gaming System	Wii Sports Game with Bowling game
Projector/White board	Wii remote
Paper/pencil for students	Pre/Post tests if desired

### D. Procedures:

1. Use the bowling game of Wii Sports.
2. Before the first student bowls, have the students fold their paper in half long ways. Label one side “pins knocked down” and the other “pins remaining”.
3. Have a student come up to bowl one frame. After each throw, the students write down the number of pins knocked down as a fraction of 10.
4. In the second column, the students would write the number of pins remaining as a fraction of 10.
5. Underneath the 2 fractions the students just wrote, I have them write out the subtraction sentence.
6. Next, students look back at both columns to see if they can simplify either fraction.
7. The same student then throws the second ball for that frame.
8. All students start out number 2 by recording how many pins out of the remaining pins the student knocks down. If the student bowled a strike, they wouldn't do this step.
9. In the second column, the students would write a fraction of the pins remaining.
10. Underneath the 2 fractions the students just wrote, I have them write out the subtraction sentence.
11. Next, students look back at both columns to see if they can simplify either fraction.
12. Continue this until all students have had a turn.

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### 2. Teach:

\*Suggestion: Teacher stands at the board and works first problems and then as students become comfortable, invite students to come up to the board to do problems as models for the class.

\*Students who are not up rolling the ball should be at their seats doing problems. Collect papers at end of class and review for engagement and understanding.

\*Suggestion: Have an order in place so students know who goes next- this will free up time during the lesson.

\*If Pre/Post tests are going to be given, plan for these assessments during a different class time, this lesson will last for the full 40-45 minute period (in order for all students to roll the ball and fully participate).

#### \*Sample game play:

Roll 1: Student knocks down 6 pins.

Students write  $6/10$  in the “pins knocked down” column.

Students write  $4/10$  in the “pins remaining” column.

Students write the sentence  $10/10$  minus  $6/10$  equals  $4/10$ .

Students go back and simplify  $6/10$  to  $3/5$ , and  $4/10$  to  $2/5$ .

Roll 2: Student knocks down 3 pins.

Students write  $3/4$  in the first column since the bowler knocked down 3 out of the 4 remaining pins.

Students write  $1/4$  in the second column since the bowler left 1 out of the 4 pins standing.

Students write the sentence  $4/4$  minus  $3/4$  equals  $1/4$ .

There isn't anything to simplify in these columns.

### 3. Closure:

1. Review subtracting fractions with like denominators.

2. Review simplifying fractions.

3. Post test plans if desired.

### 4. Assessment:

1. Teacher observation

2. Collect student seat work and evaluate for participation or for correct computation

3. Conduct Pre/Post tests covering subtraction of like fractions and simplifying fractions with denominators less than 11.

### 5. Differentiation:

\*Writing equivalent fractions can be more challenging if you have the students make 3 equivalent fractions rather than only simplifying.

\*Subtraction can be made easier if student has manipulative in front of him.

\*Subtraction can be made easier if you only work off of the fractions out of 10.

### 6. Connections:

\*Decimal equivalents and percentages can be introduced when wanting to take this to the next level.

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