

Sports Mathematics. Basketball

Topic: ACC Basketball: Comparing Statistics

Content Standards (NC Standard Course of Study):

Middle Grades (6-8): Data, Probability, and Statistics.

Students investigate more complex data sets using technologies such as spreadsheets, data bases, and graphing calculators.

High School Introductory Mathematics:

1.02 Estimate and compute with rational numbers.

1.12 Analyze problem situations, select appropriate strategies, and use an organized approach to solve multi-step problems.

4.04 Evaluate arguments based on data.

Process Standards (NCTM): Problem Solving, Reasoning, Communication, Connections, Representation

Description of Activity: This is a WebQuest, where students will obtain ACC basketball statistics on the Internet, and then organize and interpret this data. Students will be asked to predict the relationship between points scored, opponents' points scored and win-loss record. Students will work in groups. Data will be represented in tables and graphs. Conclusions will be presented orally to the class.

Teacher Notes:

- After introducing the activity, student groups should be given the handout with websites for ACC athletics and instructed to complete the data table. This could be done during class time if a computer lab is available, or could be an outside assignment.
- Groups should then meet to organize and analyze data. Data should be represented in tables and graphs, which may be created using Excel or other spreadsheet, or on graph paper.
- Groups should draw conclusions from the data, and plan a presentation to the class that clearly states conclusions and supporting data. This presentation could be done with poster boards or with PowerPoint, if available.
- This activity will take at least two class periods, and might be used as a project spanning two or three weeks, where different parts are due at different times: Data tables, graphs, conclusions and justifications, and then the presentation.

Additional Information:

This lesson: <http://www.wfu.edu/~mccoy/NCTM00/amy.html>

Other WebQuests: <http://www.wfu.edu/~mccoy/NCTM00/examples.html>

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Atlantic Coast Conference Basketball: Comparing Statistics
<http://www.wfu.edu/~mccoy/NCTM00/amy.html>

1. Data Table:

Men or Women Year _____

	Clemson	Duke	Fl.St.	GTech	UMd	UNC	NCSU	UVa	Wake
ACC Rank									
W/L Record									
W/L Percent									
Points Scored									
Opponents' Points									
Field Goal Percent									
3-Point Percent									
Free Throw Percent									

(For some teams, you may have to calculate some stats based on the information on the website. You should decide if you want to use stats from ACC games or all games, or both. You may also collect other data to support your conclusions.)

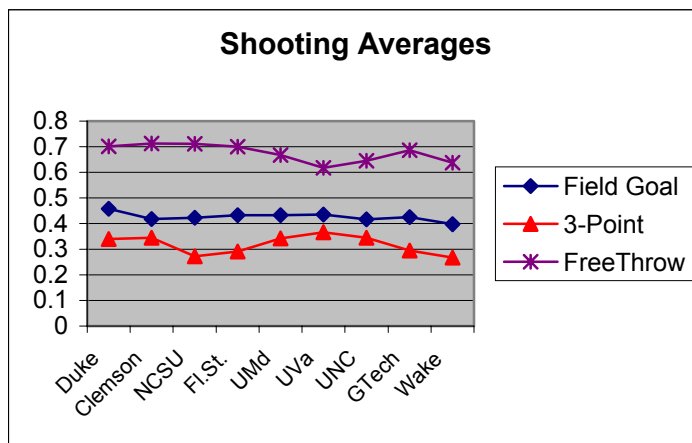
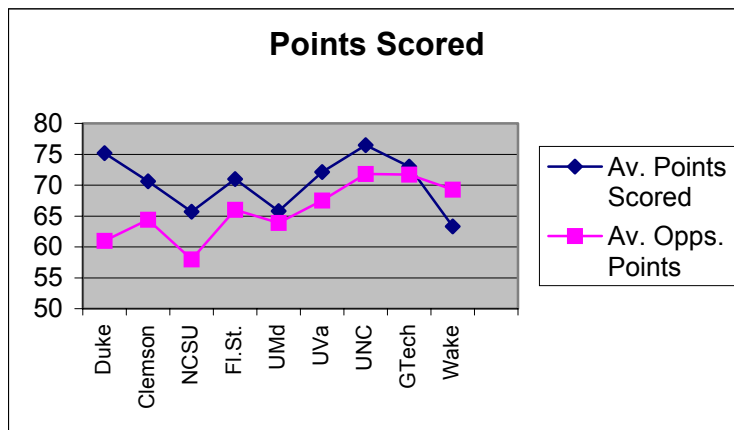
2. Organize the above data in appropriate graphs to assist your interpretation. Use Excel.
3. Explain what the data means. Assist your group in preparing a presentation to answer the following questions. Make sure that you can justify each conclusion with data.
 - Do you think a team can have a greater average number of points scored by it's opponents each game than it's average scoring per game and still have a winning record?
 - Is it more important to score points or to keep your opponents from scoring?
 - How important are field goals, 3-point scores, and free throws?
 - What else makes a team successful or unsuccessful?
4. Evaluate the WebQuest by writing a journal entry. You will explain what you learned from the assignment, what you liked and disliked about the assignment, and if you feel the assignment had educational value.

SAMPLE STUDENT WORK
Atlantic Coast Conference Basketball: Comparing Statistics

5. Data Table:

Men or Women Year 2000-2001

	Clemson	Duke	Fl.St.	GTech	UMd	UNC	NCSU	UVa	Wake
ACC Rank	2	1	4	8	5	7	3	6	9
W/L Record	21-10	30-4	19-12	14-15	17-12	15-14	22-11	18-14	11-17
W/L Percent	.68	.88	.61	.48	.59	.52	.67	.56	.39
Av. Points Scored	70.6	75.2	71.0	73.0	65.8	76.5	65.7	72.1	63.3
Av. Opps. Points	64.4	61.0	66.0	71.7	63.9	71.8	58.0	67.5	69.3
Field Goal Percent	.418	.458	.433	.425	.432	.416	.423	.435	.397
3-Point Percent	.345	.340	.291	.295	.343	.345	.273	.366	.268
FreeThrow Percent	.712	.701	.700	.686	.667	.645	.711	.618	.637



- Duke did not score the most points, and their opponents did not score the least, but they were second in both cases.
- GaTech scored more than their opponents and still had a losing record.
- All teams had higher FG percentage, followed by FG and FT.
- There are no patterns in the shooting to account for winning.
- The ACC ranking was the same as the order of the winning percentage.