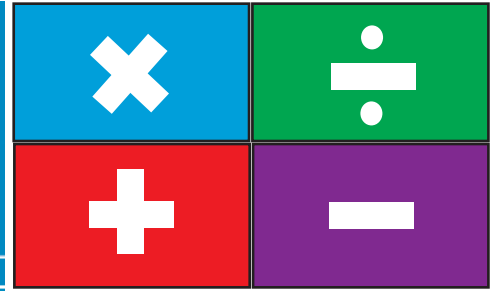


Math TODAY™

Teacher Edition

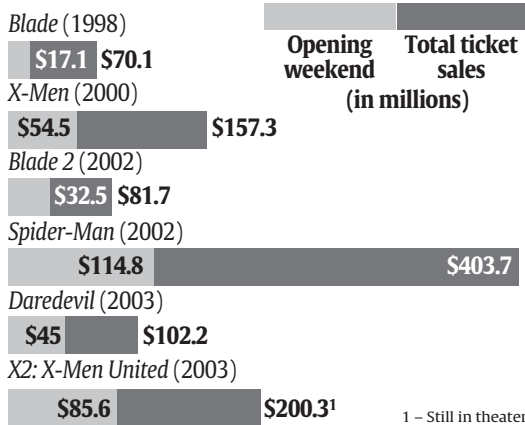


Super Ticket Sales

By: Brenda Perkins

Super ticket sales

Marvel Studio's Avi Arad is on a hot streak, having produced six consecutive No. 1 hits at the box office.



Source: Nielsen EDI

By Julie Snider, USA TODAY

Activity Overview:

Students will create two box and whisker plots of the data in the USA TODAY Snapshot® "Super ticket sales." Students will calculate central tendencies for both sets of data. Students will compare the two sets of data by analyzing the differences in the box and whisker plots.

Concepts:

- Measuring central tendencies (mean, median and mode)
- Creating and interpreting box and whisker
- Gathering data entries from a graphical source
- Evaluating, synthesizing and analyzing real world data

Objectives:

Students will:

- gather data from a graphical source.
- calculate mean, median and mode for each set of data.
- create a box and whisker for each set of data.

Activity at a Glance:

- Grade level: 6-8
- Subject: Pre-Algebra
- Estimated time required: 30-40 minutes

Materials:

- TI-73 Explorer, TI-83 Plus or TI-83 Plus Silver Edition
- Overhead view screen handheld for instruction/demonstration
- Student handout
- Transparency

Prerequisites:

Students should be able to:

- calculate mean, median and mode.
- enter a list into the list editor.
- construct a box and whisker plot.

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This activity was created for use with Texas Instruments handheld technology.

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Super Ticket Sales

Background:

In this activity students will compare ticket sales from movies based on Marvel Comic characters and produced by Marvel Studios as shown in the USA TODAY Snapshot “Super Ticket Sales.” This activity starts with the gleaning of data from a graphical source. The students must read the USA TODAY Snapshot carefully as the data placement is not obvious. Students will explore the relationship of the ticket sales from the opening weekend and the total ticket sales by calculating their central tendencies as well as using their box and whisker plots. Students will be able to explore a box and whisker plot with an outlier and without an outlier.

Since this is real world data, the students get to work with imperfect mathematical models. The box and whisker plots are not textbook perfect. Having the two pieces of data in the same graphic allows students to practice analyzing and comparing.

The corresponding USA TODAY article, “Conquering comic heroes,” helps make the data more concrete and allows for reading in the mathematics classroom.

Preparation:

- Provide one graphing handheld for each student.
- Each student should have a copy of the corresponding student activity sheet.

Classroom Management Tips:

- Students will have a better understanding of how to read the graphic and retrieve data if you use the transparency for a class discussion before the students start working.
- Remind students to carefully read all parts of the graphic before they start collecting data.
- Students can work individually or in small groups on this activity.
- Students can work individually or in groups to assist each other as they learn the various features of the handheld.
- Allow students to talk about the “how” and “why” approach they used to find the solution.
- This activity can be used as a review of concepts or a culminating activity with the class.

Data Source:

Nielsen EDI

National Council of Teachers of Mathematics (NCTM) Standards*:

Number and Operations Standard

- Compute fluently and make reasonable estimates.

Data Analysis and Probability Standard

- Select and use appropriate statistical methods to analyze data.
- Develop and evaluate inferences and predictions that are based on data.

Problem Solving Standard

- Solve problems that arise in mathematics and in other contexts.

Communications Standard

- Organize and consolidate their mathematical thinking through communications.
- Communicate their mathematical thinking coherently and clearly to peers, teachers and others.

*Standards are listed with the permission of the National Council of Teachers of mathematics (NCTM), www.nctm.org. NCTM does not endorse the content or validity of these alignments.

Super Ticket Sales

Activity Extension:

- Ask the students to calculate the percent of increase. Using the opening weekend sales, calculate the mean and median and use these to predict a movie's total ticket sales.
- Ask the students to develop a marketing strategy for the opening of Marvel Studios' next movie. Ask them to create ads for USA TODAY and posters to promote the premiere. This would be an appropriate place to practice some of the geometry standards such as symmetry, proportionality and drawing the specific geometric figures.
- Before beginning this activity, ask the students to locate a movie review in today's USA TODAY or other newspaper. Then, have students answer the following questions: What does the reviewer like about the movie? Dislike? How do you know? Based on the review, what do you think the movie is about? What doesn't the reviewer tell you about the movie? Why do you think that is?
- A movie review is not simply a plot summary or an unsupported opinion of how well the viewer did or did not like a film. Movie reviews contain information about the movie (plot, characters, setting, etc.) and the writer's opinion of how well the actors and director have presented an effective storyline. A good review presents evidence to support this opinion, and in the process helps the reader gain an insight into the story. A review should not reveal too much about a movie so as to spoil any major events, such as the ending. Watch a movie on video, on TV, or attend a showing at your local theater. After, write a movie review using the above guidelines.

Curriculum Connections:

- Business/Marketing/Economics

Additional Resources:

Student Handout

Transparency

TI Technology Guide, for information on the following:

- TI-73 Explorer
- TI-83 Plus
- List Editor

Teacher Notes:

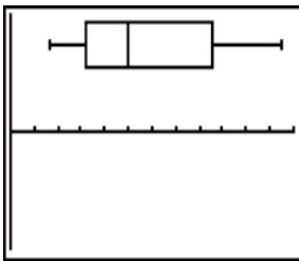
Super Ticket Sales

Assessment and Evaluation:

Q. Complete the table with the information from the USA TODAY Snapshot "Super ticket sales."

Movie title	Opening weekend sales	Total ticket sales
Blade	17.1	70.1
X-Men	54.5	157.3
Blade 2	32.5	81.7
Spider-Man	114.8	403.7
Daredevil	45.0	102.2
X2: X-Men United	85.6	200.3

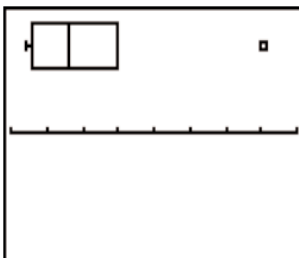
Q. Create a box and whisker plot from the opening weekend data.



```

WINDOW
Xmin=0
Xmax=120
Xscl=10
Ymin=-100
Ymax=100
Yscl=0
Xres=1
    
```

Q. Create a box and whisker plot from the total ticket sales.



```

WINDOW
Xmin=50
Xmax=450
Xscl=50
Ymin=-10
Ymax=10
Yscl=0
Xres=1
    
```

Q. How are the two box and whisker plots alike and how are they different?

A. Answers will vary.

Q. What are the mean, median and mode values for opening weekend?

A. mean = \$58.3 million, median = \$49.8 million, mode = none

Q. What are the mean, median and mode values for total ticket sales?

A. mean = \$169.2 million, median = \$129.8 million, mode = none

Super Ticket Sales

Assessment and Evaluation (continued):

- Q.** Find what percent of total ticket sales are represented by the total opening weekend ticket sales by dividing L1 by L2 (store the results in L3). List the results in the table.

Movie title	% of total sales
Blade	24%
X-Men	35%
Blade 2	40%
Spider-Man	28%
Daredevil	44%
X2: X-Men United	43%

- Q.** What percent of total ticket sales for the six movies, on average, is represented by the first weekend ticket sales?

A. The income from the ticket sales from the opening weekend is 36% of the movies' total ticket sales.

Reading Comprehension:

- Q.** What types of directors are being put in charge of making the movies based on Marvel and DC Comics?

A. The studios are looking for distinctive filmmakers. Directors who respect the the material's modern-day myths yet carry enough confidence to lend a personal sensibility.

- Q.** What numbers appeared in the article as well as in the USA TODAY Snapshot, "Super Ticket Sales"?

A. The article refers to the \$157 million total box office income for X-Men and \$32.5 million opening weekend for Blade II.

- Q.** What was the original superhero blockbuster and in what year was it released?

A. The original superhero blockbuster was *Superman*, released in 1978.

- Q.** Bryan Singer brought about a Marvel-led genre revival by remembering that the movies based on comics needed to be about what?

A. Singer remembered to focus on the human, not the hero.