

How Long is 30 Seconds?

Utah Secondary Mathematics Core Curriculum Standards

Writing results of a probability experiment, displaying data, collecting and interpreting data

GAISE Guidelines for Assessment and Instruction in Statistics Education

Level B Understanding – formulate questions, collect data, analyze data, and interpret the results

Teacher generated question – How well can individuals estimate time?

Student generated questions – Who is the most accurate with mentally counting time? Are girls and boys different at estimating time?

Learning Outcomes

- Students become interested in statistics
- Students understand how to collect and interpret statistical information
- Students create and conduct a statistical investigation

Specific Skills

- Students collect and record data
- Students chart results
- Students analyze results
- Students calculate differences

Materials Needed

- Stopwatches (or wristwatches or even a wall clock with a second hand)

Directions

Ask the students if they think they are good judges of time. Guide the students in creating an investigation to discover how well the class is at telling when 30 seconds go by. Among other issues, they should consider how to make sure the students cannot see a clock in the classroom while being timed and that those not being timed are not practicing by “shadowing” other students being timed. Should only one person operate the stopwatch? Can a person measure his/her own time? Establish all of the procedures before handing out the stopwatches. Divide the class into groups so that each group has one stop watch. Have them perform the experiment and record the data. Display and analyze the class data. Make comparative boxplots. Discuss the results.

Created for the American Statistical Association Meeting Within a Meeting Program (2008) for Middle School Teachers

Our Class Data: How Much Time Passed? (seconds)		
Karen	21	F
Joshua	26	M
Jamal	35	M
Trevor	36	M
Alicia	32	F
John	18	M
Bob	40	M
Barb	34	F
Kathi	14	F
Joannie	33	F
Mary	37	F
Lee	19	M
Jamie	19	F
Leilani	20	F
Reid	15	M

Prompt the students to generate and answer data analysis questions.

On average, how close were the students in our class at estimating when 30 seconds had passed?

How do the boxplots of the data compare?

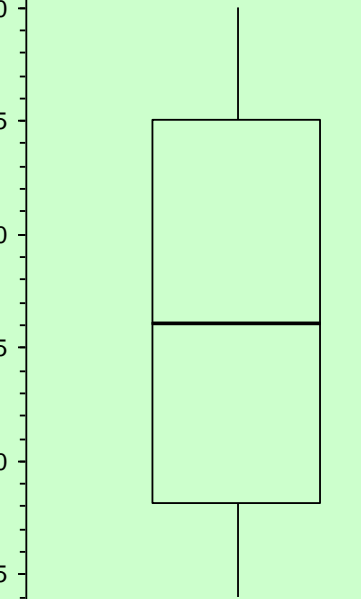
Were the girls and boys different in estimating time? Calculate and compare the means, medians and ranges of times.

What generalizations, if any, can we make using the results from this experiment? Why or why not?

How Long is 30 Seconds?

45
40
35
30
25
20
15
10

Time Estimate (seconds)



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45
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Time Estimate (seconds)

Girls

Boys

