

Developing Understanding of Statistical Variability - Using Range

Grade Level: 6

Competency: H8-Demonstrate the ability to advocate for personal, family and community health.

Objective: To promote awareness to students about the dangers of texting while driving and the laws that regulate texting in Mississippi.

Content Strand: Math (Data Analysis)
Science (Physical Science – force and motion)

2018 College and Career Readiness Standards for Science

GRADE SIX: Physical Science

P.6.6 Motions, Forces, and Energy Conceptual Understanding: Newton's Laws describe forces and motion affecting substances in various environments and situations. Motion is determined by the amount of force applied. Focusing on magnetic, frictional, and gravitational forces will provide an understanding of the relationship between distance and contact forces. MISSISSIPPI COLLEGE- and CAREER-READINESS STANDARDS for SCIENCE 2018 51 Grade Six Science

P.6.6 Students will demonstrate an understanding of Newton's laws of motion using real world models and examples.

P.6.6.1 Use an engineering design process to create or improve safety devices (e.g., seat belts, car seats, helmets) by applying Newton's Laws of motion. Use an engineering design process to define the problem, design, construct, evaluate, and improve the safety device.*

Common Core:

CCSS.Math.Content.6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.

Duration: 10 - 20 minutes (depending on teacher)

Materials: Paper, pencil, (can also be done with dry erase boards and markers), access to White Board, (2) stopwatches or a phone to record time, access to YOUTUBE for video

Description:

- 1) Teacher will ask students to get out a pencil and piece of paper for today's activity.
- 2) Students will then be instructed to read the message shown on the whiteboard.
"Your life matters. Make wise choices."
- 3) Teacher will ask students to close their eyes (no peeking at all) and write this message when instructed to do so. Reinforce that it must be done without looking and that spelling is not an issue!
- 4) Students will be asked to raise their hand as they finish!
- 5) Teacher will begin students with.....
On your mark – get ready – write!

- 6) When the first student raises their hand, click the first stop watch. When the last student raises their hand, click the second stop watch.
- 7) The teacher will walk around and observe the messages. (This will be a time to look and see how messy or neat they were....talk about how difficult or easy this task was....discuss how it made them feel to write without being able to see what they were doing.)
- 8) The teacher will write on the board the range of time it took the class to write the message “Your life matters. Make wise choices.” You take the student’s slowest time in your class and subtract the fastest student in your class from it.

Ex: 4,5,8,10,11,12

You find the range by taking 12 (the slowest)-4 (fastest)

$12-4=8$ so the range would be 8.

_____ seconds to _____ seconds. Range _____

- 9) Now, ask them questions and give them the stats!

Let them know that the exercise they just experienced is just like driving while texting!

Give them the facts: Sending or reading a text takes your eyes off the road for 4.6 seconds. If you are traveling at the speed of 55 mph, you have traveled 100 yards (the length of a football field) without even looking up. Let them respond. How far would they have traveled if this was a real texting scenario?

Ask if they can define distracted driving. Distracted driving is any activity that could divert a person’s attention away for the primary task of driving. There are three main types of distraction:

1. Manual – taking your hands off the wheel
2. Visual – taking your eyes off the road
3. Cognitive – taking your mind off the driving

Text messaging increases the risk of a crash or near crash by 23 times over a driver who wasn’t distracted.

Extensions:

1. Research Mississippi texting laws
2. Show the video, “Texting while Driving” found on NHTSA’s Distracted Driving Site - <http://www.distraction.gov/content/lets-talk/>

Resources:

Current Mississippi Texting Laws

<http://www.ghsa.org/html/stateinfo/bystate/ms.html>

Distracted Driving Fact Sheet

<http://www.distraction.gov/content/get-the-facts/facts-and-statistics.html>