

# Middle School Math Modeling Outreach

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# Outline

- ▶ **Background** – and why we switched
- ▶ **New Competition** – and how it's going
- ▶ **Results** – and the winners
- ▶ **Future Plans** – and how you may get involved

## History of Middle School Math Outreach at VMI

VMI started hosting the AMC 8 and Fun Math Day in 2012.

Approximately 300 students on each of two days attended.

Teachers may participate in workshop for CE credit.

Time	Event
9:00	Arrival and Seating
9:30	AMC Directions and Testing
11:00	Fun Math Talk
11:30	Lunch
12:00	VMI campus tours

# Motivation for Change

1. COVID
2. Changes to AMC administration, timeline
3. Re-evaluation of our goals

## Our Goals for Middle School Math Outreach

- ▶ Appropriate mathematics for learners at a variety of levels
  - ▶ Honors students
  - ▶ Entire 8<sup>th</sup>-grade class
- ▶ Accessible problem(s), low stakes
- ▶ Enjoyable!
- ▶ Preserve the general schedule
- ▶ Lean into skill set of our Applied Mathematics Dept.

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Solution: Create our own modeling competition

(HR: Jen Hall, Instructional Technology Resource Teacher)



## General Guidance and Help

- ▶ Students are given a brief overview of math modeling
  - ▶ Defining their problem
  - ▶ Making simplifying assumptions
  - ▶ The importance of communicating results
- ▶ Given the problem, they are told:
  - ▶ You may use some, all, or none of the data provided.
  - ▶ You may make any assumptions you need.
  - ▶ Be able to explain your answer.

# Our Middle School Modeling Competition Problems

2023: How many people are streaming video right now?

2024: What's the best trip to Washington, D.C.?

## The Schedule

Time	Event
9:40	Welcome and Instructions
9:50	Open Envelopes!
9:55	Additional Explanation
10:00	Work on solution
10:45	Extend time (expected)
10:55	Work on presentations
11:15	Sharing presentations
11:25	Lunch and fun math talk
12:15	VMI campus tours

## A Win for the Middle School Math Outreach

- ▶ For the middle school students
  - ▶ They had fun!
- ▶ For the middle school students
  - ▶ Overall first prize
  - ▶ Overall second prize
  - ▶ First prize for each school
  - ▶ Most creative presentation
- ▶ For the educators
- ▶ For VMI



Photo courtesy of Greg Hartman

## The Best Result

The students were actively working on the problem and wanted to continue working!



Photo courtesy of Olivia Polumbo, VMI Communications and Marketing

## Winning Presentation

# An Estimate Of the Number of People Streaming TV Right Now

Group # 12-04-06



# Winning Presentation

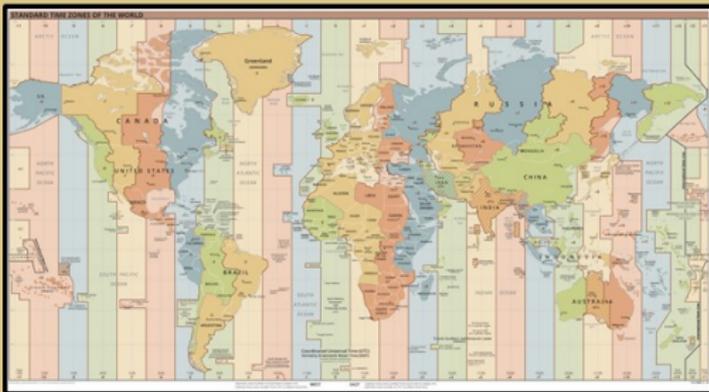
## Introduction

At first we weren't sure what statistic we wanted to look for. After a few minutes of deciding we chose: Amount of People Worldwide watching/streaming Television at this moment. After deciding we all started working on evaluating the provided sources for information. One of our members decided that we should only use provided sources for information. We were not sure of the legitimacy of outside sources.

# Winning Presentation

## Number of People That have Internet Access That are Awake

First, we needed an estimate of how many people were awake that had internet. We assumed that 7:00 Am to 11:00 PM is a reasonable estimate of the hours most people are awake. Next we looked at the number of people who have internet access in the time zones within our "awake range," assuming that it is 10:00 Eastern US Time. With this info, we could conclude that the total population that have internet connection that are awake is around 1,295,660,000 People.



# Winning Presentation

## Refining The Previous Answer to The True Answer

However, the number that we got on the previous slide is about who has internet access, not who is streaming right now. First, we needed to account for the number of people who stream. The world percentage of the population that stream TV, according to the data provided, is 93.5%. 93.5% of the previous number is  $1.2114421 \times 10^9$  people. Next, we needed to guess what percentage of those people are streaming right now. We took the number of hours spent globally on average on devices, and divided that number by the number of hours in the day. That means that the average human spends 28% of their day on devices. We took 28% of  $1.211 \times 10^9$  and got 339,203,788 people who are awake, have access to internet, stream TV, and are on their devices right now!

# Winning Presentation

## Conclusion

To conclude, the an estimate of the average number of people streaming TV right now is 339,203,788. Granted, It is not 100% correct but is the best estimate we could calculate with the information given. Thank you for the amazing opportunity.

## Challenges to Address

- ▶ Appropriate use of technology
- ▶ Student presentations

## Moving to More Colleges and Universities

**We would like to expand this beyond VMI.**

- ▶ Low cost (middle school students could bring lunches)
- ▶ Does not require much time to prepare
- ▶ Outreach opportunity with many possible variations
  - ▶ SK Day @ Hood College (contact Jill Tysse: [tysse@hood.edu](mailto:tysse@hood.edu))

## Contact Information

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Photo courtesy of Greg Hartman