

# GRASPS

## UNIT: RATE/RATIO/PERCENTAGE

### SUBJECT: Math – Grade 8

#### ESSENTIAL QUESTION(s):

- What is the best way to represent a quantity?
- What is the role of reasoning when making decisions?

| G R A S P S |   |
|-------------|---|
| Goal        | <p><b>Goal:</b></p> <p>Understand the application of fire code regulations based on type or room or floor area and area per person meter squared.</p>   |
| Role        | <p><b>Role:</b></p> <p>Fire Code Enforcement Officer—Determining if Fire Codes are followed in buildings in public spaces.</p>  |
| Audience    | <p><b>Audience:</b></p> <p>Administration of the school.</p>  |
| Situation   | <p><b>Situation:</b></p> <p>Your school will be hosting an open house event for Christmas. It will be an exciting time as friends and family of the school will have an opportunity to tour the school. However, we do need to determine safe numbers of attendance per room based on the fire code regulations.</p> <p><a href="#">See this table.</a></p> |

Select five spaces in your school to host events. Determine the measurements of the room and calculate the maximum room capacity.

Imaging that there were ten more people in the room than the maximum allowable. What percent would all of the people in the room be compared with the maximum allowable? If the school wanted to limit registration to 75% to allow walk-ins at the event, how many people should they allow? If the room had double the number of people allowed, what percent would this represent? Why do you think there are regulations about the maximum allowable capacity of the room? How could the rooms be monitored to ensure that the maximum is not exceeded?

Assessment: This question allows students to make decisions that will impact safety of the event. Students should be able to organize their data in a table so it can be used and understood. Students should be able to justify their decisions. Students should be able to apply the correct ratio to the correct space and calculate capacity correctly. Students should start to understand that math is a decision making tool in the 'real world' and calculation accuracy is required.

**Performance or Product:**

Performance  
or Product

Create a report for the Administration showing the spaces that would be appropriate for events and the maximum capacity of each space. Include a table with suggested headings (space, length, width, area, Fire Code, Maximum capacity. Measurements can be taken in meters or converted to meters.

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|------------------------|--|
| <b>Standards</b>       | <b>Standards:</b><br>N/A.  |
| <b>Differentiation</b> | <b>Differentiation:</b><br>Pair up students to complete measurement calculations. Estimations skills may be required such as learning their pace distance, using a trundle wheel, using an App that track distances. |