

FIRE SAFETY SURVEY				Student/Class Goal As part of the unit on writing a safety brochure, students wondered if their friends and neighbors were following fire safety rules in their homes and apartments.	
Outcome (lesson objective) Students will develop a survey, construct graphs, compute fractions and percents and use the information for a safety brochure.				Time Frame Two 30-45 minute sessions	
Standard Use Math to Solve Problems and Communicate				NRS EFL 2-6	
Number Sense	Benchmarks	Geometry & Measurement	Benchmarks	Processes	Benchmarks
Words to numbers connection		Geometric figures		Word problems	
Calculation	3.2, 4.2, 5.1, 6.1	Coordinate system		Problem solving strategies	
Order of operations		Perimeter/area/volume formulas		Solutions analysis	
Compare/order numbers		Graphing two-dimensional figures		Calculator	
Estimation	3.4, 4.5, 5.4, 6.4	Measurement relationships		Mathematical terminology/symbols	
Exponents/radical expressions		Pythagorean theorem		Logical progression	3.24, 4.30, 5.30, 6.31
Algebra & Patterns	Benchmarks	Measurement applications		Contextual situations	4.31, 5.31, 6.32
Patterns/sequences		Measurement conversions		Mathematical material	
Equations/expressions		Rounding		Logical terms	
Linear/nonlinear representations		Data Analysis & Probability	Benchmarks	Accuracy/precision	
Graphing		Data interpretation	4.20, 5.20, 6.21	Real-life applications	2.22, 3.27, 4.34, 5.35, 6.36
Linear equations		Data displays construction	2.16, 3.17, 4.21, 5.21, 6.22	Independence/range/fluency	4.35, 5.36, 6.37
Quadratic equations		Central tendency	3.18, 4.22, 5.22, 6.23		
		Probabilities			
		Contextual probability			
Materials Home Safety Council Safety Guide Graph paper					
Learner Prior Knowledge Since many classes are multilevel, some students will have worked with fractions while others may have worked with percents. Students will have read information on fire safety and will use what they learned to construct the survey. Students may or may not have worked with graphs.					
Instructional Activities Step 1 - Students will work as a class to develop questions for a fire safety survey using information they learned by reading fire safety materials. Once the survey is finalized and copies made, students will distribute the survey to friends and neighbors.  Step 2 - When the completed surveys have been collected by the students and returned to class, the whole class can begin tabulating the results. The teacher can use the board, an overhead, or a flip chart to show the math processes – total number of answers for each question, etc. If the students have not constructed a graph before, the teacher can model for the students how a graph is constructed. If the students have worked with graphs before, pairs or small groups can construct a graph based on the information from the surveys. The graph might illustrate how many people are practicing fire safety in each category – smoke alarms, escape plan, meeting place, etc  Step 3 – Students can work in pairs or small groups to use the survey totals to determine the fraction and percent of: number of					

completed surveys to number distributed; number of respondents for each question who are practicing fire safety compared to those who are not; total number of respondents who are practicing fire safety compared to those who are not.

**TEACHER NOTE** Students can perform the computations (fractions or percents) that they are familiar with. More advanced students might be encouraged to help other students.

Step 4 - Students can use the information from the survey to prioritize the fire safety information in the safety brochure they are developing. They can also include the survey results in the brochure using numbers, graphs, or both.

**Assessment/Evidence** *(based on outcome)*

Student-made Fire Safety Surveys and Results

Graphs and charts of the Survey Results

**Teacher Reflection/Lesson Evaluation**

*Not yet completed.*

**Next Steps**

**Technology Integration**

Home Safety Council: Family <http://www.homesafetycouncil.org/family/family.aspx>

Home Safety Council Safety Guide [http://www.homesafetycouncil.org/safety\\_guide/safetyguide.aspx](http://www.homesafetycouncil.org/safety_guide/safetyguide.aspx)

**Purposeful/Transparent**

As the teacher models how to create graphs, she is being very explicit about demonstrating a tool to show family safety results from the survey.

**Contextual**

As the teacher models how to create graphs, she is being very explicit about demonstrating a tool to show family safety results from the survey.

**Building Expertise**

Some students will have had experience analyzing data, creating charts and graphs and computing percentages. The teacher will scaffold this activity by modeling and having students work in pairs or groups