OBJECTIVES

1. To share with you my own experience with Exeter Math and give you the chance to experience it for yourselves
2. To show how inquiry-based instruction helps students to develop mathematical habits of mind
WHAT IS EXETER MATH?

An inquiry-based model of instruction involving...

• **CURRICULUM** that is entirely *problem-based*
• **CLASSES** that are almost entirely *discussion-based*
HOW ARE CLASSES RUN?

1. 4-6 homework problems per night
2. Groups of 2-3
3. Presentations
4. Summaries
HOW DOES EXETER MATH COMPARE?

<table>
<thead>
<tr>
<th>Traditional Math Class</th>
<th>Exeter Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson taught to students</td>
<td>Students teaching each other</td>
</tr>
</tbody>
</table>

HABIT OF MIND #1: “Construct viable arguments and critique the reasoning of others” (CCSS.Math.Practice.MP3)

- “Mathematically proficient students justify their conclusions, communicate them to others, and respond to the arguments of others.”
- “Elementary students can construct arguments using concrete referents. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades.”
- “Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.”
“Tell me and I’ll forget; show me and I may remember; involve me and I’ll understand.”
CAUTION #1

Students may need practice in order to learn to communicate effectively
**HOW DOES EXETER MATH COMPARE?**

<table>
<thead>
<tr>
<th>Traditional Math Class</th>
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</tr>
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<tbody>
<tr>
<td>Formulas and theorems derived and proved for students</td>
<td>Students participating in the process themselves</td>
</tr>
</tbody>
</table>

**HABIT OF MIND #2**: “Reason abstractly and quantitatively” (CCSS.Math.Practice.MP2)

- “Mathematically proficient students...bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved.”
CAUTION #2

Students may need the general conclusion to be highlighted for them.
HOW DOES EXETER MATH COMPARE?

<table>
<thead>
<tr>
<th>Traditional Math Class</th>
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<tbody>
<tr>
<td>Sample problems done in class and repeated for homework</td>
<td>Students bringing prior knowledge to bear on new problems</td>
</tr>
</tbody>
</table>

**HABIT OF MIND #3**: “Look for and express regularity in repeated reasoning” (CCSS.Math.Practice.MP8)
- “Mathematically proficient students notice if calculations are repeated and look both for general methods and for shortcuts.”
CAUTION #3

Students may need added practice