

Table 5.1

## QUESTIONS STUDENTS USE TO DEVELOP THEIR MATHEMATICAL THINKING SKILLS

Mathematical Thinking	Question Prompts
<b>Determine the problem.</b>	<ul style="list-style-type: none"> <li>• What is the problem we are trying to solve?</li> <li>• Why is this problem important?</li> <li>• How is it similar to other things we have done?</li> </ul>
<b>Demonstrate mathematical reasoning.</b>	<ul style="list-style-type: none"> <li>• What do we need to do to solve the problem?</li> <li>• What predictions can we make before we begin?</li> <li>• What will we need to do to justify and explain our problem-solving approach and solution?</li> </ul>
<b>Organize data and draw conclusions.</b>	<ul style="list-style-type: none"> <li>• How can we organize our data?</li> <li>• What conclusions can we draw?</li> </ul>
<b>Check results and correct mistakes.</b>	<ul style="list-style-type: none"> <li>• What mathematics principles did we use to design our plan?</li> <li>• Do these results make sense?</li> <li>• Is anything missing?</li> <li>• How do we know this solution is correct?</li> </ul>
<b>Model and define new concepts.</b>	<ul style="list-style-type: none"> <li>• Do these conclusions pose questions for further exploration?</li> <li>• What have we learned?</li> </ul>
<b>Make judgments and create proofs.</b>	<ul style="list-style-type: none"> <li>• Why do we think this is the best plan?</li> <li>• What examples and counterexamples can we provide to support our reasoning?</li> <li>• Is our proof logical?</li> <li>• Is there any part of our proof that we cannot support with a rational argument?</li> </ul>
<b>Communicate problem and solution to others.</b>	<ul style="list-style-type: none"> <li>• How can we share our work of solving the problem along with our solution so it makes sense to others?</li> <li>• What is the best method to communicate our findings?</li> </ul>