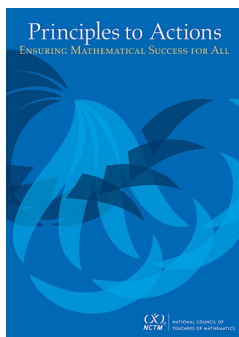


## Support Productive Struggle In Learning Mathematics: Teacher and Student Actions

What are teachers doing?	What are students doing?
<ul style="list-style-type: none"> <li>• Anticipating what students might struggle with during a lesson and being prepared to support them productively through the struggle.</li> <li>• Giving students time to struggle with tasks, and asking questions that scaffold students' thinking without stepping in to do the work for them.</li> <li>• Helping students realize that confusion and errors are a natural part of learning, by facilitating discussions on mistakes, misconceptions, and struggles.</li> <li>• Praising students for their efforts in making sense of mathematical ideas and perseverance in reasoning through problems.</li> </ul>	<ul style="list-style-type: none"> <li>• Struggling at times with mathematics tasks but knowing that breakthroughs often emerge from confusion and struggle.</li> <li>• Asking questions that are related to the sources of their struggles and will help them make progress in understanding and solving tasks.</li> <li>• Persevering in solving problems and realizing that is acceptable to say, "I don't know how to proceed here," but it is not acceptable to give up.</li> <li>• Helping one another without telling their classmates what the answer is or how to solve the problem.</li> </ul>



National Council of Teachers of Mathematics. (2014). *Principles to actions: Ensuring mathematical success for all*. Reston, VA: Author.

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