Do You Want This To Be Said of Your Child/Students?

**They make sense of problems and persevere in solving them. YES/NO?**

They:

* Can start by explaining to themselves the meaning of a problem and looking for entry points to its solution
* Analyze givens, constraints, relationships, and goals
* Make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt
* Consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution Monitor and evaluate their progress and change course if necessary
* May, with age and experience, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need
* Can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends, younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem
* Check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?”
* Can understand the approaches of others to solving complex problems and identify correspondences between different approaches

**They reason abstractly and quantitatively. YES/NO?**

They:

* Make sense of quantities and their relationships in problem situations
* 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.

**They construct viable arguments and critique the reasoning of others. YES/NO?**

They:

* Understand and use stated assumptions, definitions, and previously established results in constructing arguments
* Make conjectures and build a logical progression of statements to explore the truth of their conjectures
* Are able to analyze situations by breaking them into cases, and can recognize and use counterexamples
* Justify their conclusions, communicate them to others, and respond to the arguments of others
* Reason inductively about data, making plausible arguments that take into account the context from which the data arose
* Are able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is
* Can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments

**They model with mathematics. YES/NO?**

They

* Can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace
* Are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later
* Are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two- way tables, graphs, flowcharts and formulas; can analyse those relationships mathematically to draw conclusions
* Routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense

**They use appropriate tools strategically. YES/NO?**

They:

* Consider the available tools when solving a mathematical problem
* Are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations
* Know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data
* Are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems
* Are able to use technological tools to explore and deepen their understanding of concepts

**They attend to precision. YES/NO?**

They

* Communicate precisely to others
* Use clear definitions in discussion with others and in their own reasoning
* State the meaning of the symbols they choose, including using the equal sign consistently and appropriately
* Are careful about specifying units of measure, and labelling axes to clarify the correspondence with quantities in a problem
* Calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context.

**They look for and make use of structure. YES/NO?**

They

* Look closely to discern a pattern or structure
* Look for patterns in their environment expect things to make sense and develop a habit of finding relationships and making predictions

**They look for and express regularity in repeated reasoning. YES/NO?**

They:

* Notice if calculations are repeated, and look both for general methods and for shortcuts
* Maintain oversight of the process, while attending to the details
* Continually evaluate the reasonableness of their intermediate results

This resource was developed by the MISIC District Support Team in response to a request by members to support and engage teachers in

thoughtful conversations about the intent of the Common Core. The text of this document was taken from the Introduction to the Iowa Common Core were the authors of the CCSS defined what they meant by College and Career Ready in Reading, Writing, Speaking, Listening and Language, and Mathematics, [http://www.educateiowa.gov.](http://www.educateiowa.gov/) This resource may be used by MISIC members if attribution of source and logo are left intact. Any other use without permission would violate that intent. (NL‐2013), [www.misiciowa.org](http://www.misiciowa.org/) .