For the purposes of this document, the resources have been categorized into 3 categories: Planning & Lessons, Opening/Warm-Up, and Student Activities. Planning & Lessons refers to resources for teacher reference in standard understanding and lesson ideas. Opening/warm-up resources are used activate a lesson and encourage student to student discourse. Student activities are tasks that support students understanding and logical thinking.

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| **Resource Category** | **Website** | **Web Address** | **Description** | **K-5** | **6-8** | **9-12** |
| **Planning & Lessons** | **3 Act Tasks** | (See Description) | 3 Act Tasks are engaging, student-centered lessons in which students build the need to engage in mathematics discourse to solve a question that they a curious about. This is done in 3 parts: Act 1- get the students interested and identifying the question they want to answer, Act 2- students struggle and the teacher provides with some additional information that regenerates their thinking, Act 3- students share their thinking and see the big reveal (which often fuels more questions and additional math thinking). Where to find these lessons:* Andres Stadel’s site (4-8):

<http://www.estimation180.com/lessons.html> * Dan Meyer’s site (6-12):

<https://docs.google.com/spreadsheets/d/1jXSt_CoDzyDFeJimZxnhgwOVsWkTQEsfqouLWNNC6Z4/edit#gid=0> * Graham Fletcher’s site (K-7): <https://gfletchy.com/3-act-lessons/>
* Mike Wiernicki’s site (K-8): <https://mikewiernicki.com/3-act-tasks/>
* Robert Kaplinsky’s site (K-12): <http://robertkaplinsky.com/lessons/>
 | ✓ | ✓ | ✓ |
| **Planning & Lessons** | **Coherence Maps** | <https://achievethecore.org/page/1118/coherence-map>  | Achieve the Core has built a web of how the math standards are interconnected. This resource will visible connect the standard with the prerequisite understandings needed and future standards that will be built. This site will also provide you with tasks and Smarter Balance items. | ✓ | ✓ |  |
| **Planning & Lessons** | **Georgia Frameworks and Resources** | <https://www.georgiastandards.org/Georgia-Standards/Pages/Math.aspx> | This link is the main page for the GaDOE Georgia Frameworks. From this you will need to select your grade band: K-5, 6-8, or 9-12. Once you select the appropriate grade band you will have access to the frameworks, links to videos of instruction of your appropriate standards and professional development. | ✓ | ✓ | ✓ |
| **Planning & Lessons** | **Howard County Public School System Offices of Mathematics** | <https://hcpss.instructure.com/courses/1609> | This website is a “one stop shop” for mathematical resources at all grade levels. It provides the teacher with unpacked standards, conversation prompts, learning targets, literature connections, resources, and student-centered stations (including web links). | ✓ | ✓ | ✓ |
| **Resource Category** | **Website** | **Web Address** | **Description** | **K-5** | **6-8** | **9-12** |
| **Planning & Lessons** | **Illustrative Mathematics** | <https://www.illustrativemathematics.org/> | Once you select the appropriate standard, it will provide you with tasks aligned to that standard including commentary. These tasks will need to be printed but they are organized so that they are easily retrieved. | ✓ | ✓ | ✓ |
| **Planning & Lessons** | **Implementing the Mathematical Practice Standards** | <http://mathpractices.edc.org/browse-by-mps.html> | This website provides a variety of activities organized by Standard for Mathematical Practice (SMP). These activities will need to be printed for student use, but includes the entire lesson plan including example student dialogue to showcase the appropriate SMO. These are geared towards Middle and High School and upper Elementary. | ✓ | ✓ | ✓ |
| **Planning & Lessons** | **Howard County Public School System****Offices of Mathematics** | <https://hcpss.instructure.com/courses/1609> | This website is a “one stop shop” for mathematical resources at all grade levels. It provides the teacher with unpacked standards, conversation prompts, learning targets, literature connections, resources, and student-centered stations (including weblinks). | ✓ | ✓ | ✓ |
| **Planning & Lessons** | **Progression Documents** | <http://ime.math.arizona.edu/progressions/#products>  |  This publication was put out by the University of Arizona and provides the reader with content specific progressions within each mathematical domain. This is a great resource to better understand the standard expectations within your grade level, but also the vertical alignment of the skill. | ✓ | ✓ | ✓ |
| **Opening/****Warm-Up** | **Collaborative Mathematics** | <http://www.collaborativemathematics.org/> | Students are provided a video that introduces a mathematical challenge. Once students have a response and discussion has occurred, they have the opportunity to view (and submit) responses to the challenge. There is an online component that allows students to submit to the website, but it is not necessary to hold a classroom conversation. |  | ✓ | ✓ |
| **Opening/****Warm-Up** | **Estimation 180** | <http://www.estimation180.com/> | This website displays a photo and students are challenged to estimate the answer to the given question. Each day there is a different photo, often building on information that they learned the day prior. There is an online component that allows students to submit to the website, but it is not necessary to hold a classroom conversation. | ✓ | ✓ | ✓ |
| **Resource Category** | **Website** | **Web Address** | **Description** | **K-5** | **6-8** | **9-12** |
| **Opening/****Warm-Up** | **Google Trends** | <https://trends.google.com/trends/> | Search a topic for interest for your students on Google Trends or use one of Google’s Featured Insights and have an open and transparent discussion with the students about the data they find. The trending stories will show up first. Question students, “What do your students notice? What do they wonder?” This is a user friendly way to incorporate data using real-world information. *Be mindful of what data the students are viewing, so data may include inappropriate topics.* | ✓ | ✓ | ✓ |
| **Opening/****Warm-Up** | **Graphing Stories** | <http://graphingstories.com/> | Using a short real-world video, students collect data and using a coordinate grid, they create a graph to explain the data. The conversations that this inspires will foster understanding of the graphing and algebraic relationships. |  | ✓ | ✓ |
| **Opening/****Warm-Up** | **Open Middle** | <http://www.openmiddle.com/> | The problems found on this website are “open middle”, meaning that there are multiple ways to solve them. These activities require a higher depth of knowledge, with supports imbedded to meet the needs of all learners. This website does require printing the selected problems out for students to use, but all problems are organized by grade level and concept making it is easily accessible. | ✓ | ✓ | ✓ |
| **Opening/****Warm-Up** | **Same or Different Images** | <https://samedifferentimages.wordpress.com/> | Students are shown images and they must argue if they feel the images are the same or different. This will challenge students to explain their thinking and hold mathematical arguments even at a very young age. | ✓ |  |  |
| **Opening/****Warm-Up** | **Steve Wyborney’s SPLAT!** | <http://www.stevewyborney.com/?p=893> | Splat! Is a downloadable progressive PowerPoint that demonstrates the part-part-whole understanding. Students will first be shown a cluster of dots, then a Splat! (or spot) will cover a portion of them. The students will then use their understanding to decide how many dots are covered. Splats come in a variety of levels including: splat within 10, splat within 20, multiple splat, 2-color splat, 2-variable splat, number splat, and fraction splat. | ✓ |  |  |
| **Planning & Lessons** | **TEDEd** | <https://ed.ted.com/lessons?content_type=originals&category=mathematics&direction=desc&sort=publish-date>  | TEDEd is a search platform that provides informational background for mathematical concepts. A brief video is provided along with some summarizing questions and additional resources. These activities would make great lesson openings. |  | ✓ | ✓ |
| **Resource Category** | **Website** | **Web Address** | **Description** | **K-5** | **6-8** | **9-12** |
| **Opening/****Warm-Up** | **Visual Patterns** | <http://www.visualpatterns.org/> | Students are provided the first three steps of a pattern and the total number of step 43 and students are challenged to create an equation to represent this pattern. |  | ✓ | ✓ |
| **Opening/****Warm-Up** | **Which One Doesn’t Belong** | <http://wodb.ca/> | Students are shown four items and they have to decide which one of the four does not belong with the other three. There is no “correct answer” but rather numerous ways to look at each set. Challenge students to find ways to make each of the four possible solutions work. Puzzle categories include: shapes, numbers, or graphs & equations. This is best used if students have the opportunity to create an independent estimate and then share with others. | ✓ | ✓ | ✓ |
| **Opening/****Warm-Up** | **Would You Rather?** | <http://www.wouldyourathermath.com/> | This website provides you two options and you have to justify which option you would select and why. One example would be: Would you rather purchase a pair of jeans from a store that you got 30% off or $30 off? Then the students are provided with additional information to consider. The photos and scenarios are real world and vary in complexity. | ✓ | ✓ | ✓ |
| **Student Activities** | **4 Numbers** | <http://www.4nums.com/> | Students must +, -, x, or ÷ to build the value of 24. | ✓ |  |  |
| **Student Activities** | **Bite Size** | <http://www.bbc.co.uk/bitesize/ks1/maths/> | Interactive math games for students to play to work towards fluency. | ✓ |  |  |
| **Student Activities** | **SolveMe Mobiles** | <https://solveme.edc.org/mobiles/> | These are online puzzles in which students are shown a mobile and they have to solve for the value of each shape. Within the mobile, anytime a horizontal line is shown, this means that every string connected is equivalent. These start off easy and then progress. This website can be used independently or in groups. | ✓ | ✓ | ✓ |
| **Resource Category** | **Website** | **Web Address** | **Description** | **K-5** | **6-8** | **9-12** |
| **Student Activities** | **SolveMe Mystery Grid** | <https://solveme.edc.org/mysterygrid/> | These puzzles begin similarly to Sudoku. Students must place numbers within an array so that each number does not repeat in a row or column. These puzzles eventually progress to challenge students to meet specific requirements such as an indicated sum. | ✓ | ✓ | ✓ |
| **Student Activities** | **SolveMe Who Am I?** | <https://solveme.edc.org/whoami/> | Students are given number riddles and they must find a number that meets all the criteria. The first few puzzles are general place value, however they quickly progress into exponents. | ✓ | ✓ | ✓ |