



## Online and At-Home Math Resource Sheet

With the social distancing and closure of school sites as recommended by the Centers for Disease Control and various local Departments of Health, the Kansas Association of Teachers of Mathematics (KATM) board offers the following list of resources to teachers and guardians. For many teachers instruction will resume at (near) scheduled times and the learning will shift from class-centric to home-centric. Schools opting for extended breaks instead of shifting to online learning means guardians will have the opportunity to take on the role of “math teacher” - and we sincerely hope they give it a try! (We bet both guardians and their students will learn much this way.) In either situation, the items below will hopefully be of value.

The form is separated into grade bands along the left and by learning experience along the top. Every grade band has at least one item listed in each learning experience type.

KATM wants all parties to extract the most from this document. We will note here that this document has been neither vetted nor assembled as a complete curriculum. We would also be remiss if we did not remind teachers that this is a time of relative tumult and disruption. Students, especially those in delicate situations under normal circumstances, may be facing increased pressures and uncertainty. Heads are taught only after hearts are secure, so we encourage heightened patience and understanding. If you need additional guidance or support, you are welcomed and encouraged to contact the board through its president, Dr. Janet Stramel, at [janetstramel@katm.org](mailto:janetstramel@katm.org). We look forward to serving our members through this unique experience.

Sincerely,  
The KATM Board

Grade Band	Type of Learning Experience				
	<i>Curricular Math</i>	<i>Math Discussions</i>	<i>Problem Solving</i>	<i>Open Exploration/ Informational</i>	<i>Games/Play</i>
<b>K - 3</b>	<p><a href="#">PBS Learning Media</a> There are a variety of videos and interactive activities related to all math content areas organized by grade level.</p>	<p><a href="#">Would You Rather? Math</a> There are questions posed in four grade bands (K-2, 3-5, 6-8, and 9-12). The goal is to choose the better of two options, and defend/justify your choice mathematically. There is no “answer sheet.”</p>	<p><a href="#">Open Middle</a> There are tasks for students from K - HS. in different math focus areas. The tasks start with specific beginnings and specific endings, but with multiple ways to approach the problem allowing students to forge their own path/method to solve the problem. It is not interactive. Students solve using paper/pencil. There are hints and some answers given.</p>	<p><a href="#">Math Playground</a> A variety of math games available for elementary grade levels covering various topics.</p>	<p><a href="#">Games for Young Minds</a> There are suggestions on how to make classic games more mathematical. There are free games and ideas about working on math skills at home. Some games are not free..</p>
	<p><a href="#">Edpuzzle</a> Teachers can upload videos (self-made or found on the internet) and embed questions. Students answer as they watch. Analytics exist to view student engagement and performance.</p>	<p><a href="#">Which One Doesn't Belong?</a> Choose which one of four options “doesn’t belong”. Explain why. There are four categories of problems: Shapes, Numbers, Graphs &amp; Equations, and Incomplete Sets. In each case the students choose which one of four options “doesn’t belong”. Explain why. The problems do not go in order of difficulty. There is no answer guide because there are multiple correct answers.</p>		<p><a href="#">ABCya.com</a> A variety of math games available for elementary grade levels covering various topics.</p>	<p><a href="#">Greg Tang Math Games</a> Online Game options and Teaching Game options for elementary grades.</p>
		<p><a href="#">Math Before Bed</a> Simple pictures and questions to use to talk about math and to think mathematically at home. There is an example of a question and discussion under Start Here.</p>			<p><a href="#">Prodigy</a> Fun games to practice a variety of math skills</p>





	<b>Curricular Math</b>	<b>Math Discussions</b>	<b>Problem Solving</b>	<b>Open Exploration/ Informational</b>	<b>Games/Play</b>
<b>4 - 5</b>	<p><a href="#">PBS Learning Media</a> There are a variety of videos and interactive activities related to all math content areas organized by grade level.</p>	<p><a href="#">Would You Rather? Math</a> There are questions posed in four grade bands (K-2, 3-5, 6-8, and 9-12). The goal is to choose the better of two options, and defend/justify your choice mathematically. There is no "answer sheet."</p>	<p><a href="#">Open Middle</a> There are tasks for students from K - HS. in different math focus areas. The tasks start with specific beginnings and specific endings, but with multiple ways to approach the problem allowing students to forge their own path/method to solve the problem. It is not interactive. Students solve using paper/pencil. There are hints and some answers given.</p>	<p><a href="#">Math Playground</a> A variety of math games available for elementary grade levels covering various topics</p>	<p><a href="#">Games for Young Minds</a> There are suggestions on how to make classic games more mathematical. There are free games and ideas about working on math skills at home. Some games are not free.</p>
	<p><a href="#">Estimation 180</a> Students use estimation skills based on visual clues. There are three sections: Days, Lessons, and Clothesline Activities. Each provides guidance and builds towards good estimation and number sense.</p>	<p><a href="#">Which One Doesn't Belong?</a> Choose which one of four options "doesn't belong". Explain why. There are four categories of problems: Shapes, Numbers, Graphs &amp; Equations, and Incomplete Sets. In each case the students choose which one of four options "doesn't belong". Explain why. The problems do not go in order of difficulty. There is no answer guide because there are multiple correct answers.</p>	<p><a href="#">Robert Kaplinsky</a> A wide variety of problem-solving lessons based on real life math scenarios.</p>	<p><a href="#">Shodor</a> A website with a wide variety of math games and simulations covering various topics.</p>	<p><a href="#">Greg Tang Math Games</a> Online Game options and Teaching Game options for elementary grades..</p>
	<p><a href="#">.Edpuzzle</a> Teachers can upload videos (self-made or found on the internet) and embed questions. Students answer as they watch. Analytics exist to view student engagement and performance.</p>	<p><a href="#">Same But Different</a> It is important to read the Steps to Use under the heading About. Students analyze two situations, comparing what is the same about them and what is different between them. It is optimum to have a group discussion but not imperative.</p>			<p><a href="#">Prodigy</a> Fun games to practice a variety of math skills</p>
		<p><a href="#">Math Before Bed</a> Simple pictures and questions to</p>			<p><a href="#">Illuminations NCTM</a> Although membership in</p>





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	<b>Curricular Math</b>	<b>Math Discussions</b>	<b>Problem Solving</b>	<b>Open Exploration/ Informational</b>	<b>Games/Play</b>
<b>Middle School</b>	<p><a href="#">Estimation 180</a> Students use estimation skills based on visual clues. There are three sections: Days, Lessons, and Clothesline Activities. Each provides guidance and builds towards good estimation and number sense.</p>	<p><a href="#">Would You Rather? Math</a> There are questions posed in four grade bands (K-2, 3-5, 6-8, and 9-12). The goal is to choose the better of two options, and defend/justify your choice mathematically. There is no "answer sheet."</p>	<p><a href="#">Figure This</a> Take a Challenge! has sets of 4 challenge problems per page. For each there is a Hint, Getting Started, and the Solution.</p>	<p><a href="#">Peter Liljedahl's Good Questions</a> Good math questions that invite student thinking. Very open to student-defined paths to successful resolution.</p>	<p><a href="#">Games for Young Minds</a> There are suggestions on how to make classic games more mathematical. There are free games and ideas about working on math skills at home. Some games are not free.s.</p>
	<p><a href="#">Desmos.com (Activity Library)</a> Guided online activities that promote student sensemaking. Graphing and equation writing abound. Going to Classroom Activities and then most popular would be a great way to start.</p>	<p><a href="#">Which One Doesn't Belong?</a> Choose which one of four options "doesn't belong". Explain why. There are four categories of problems: Shapes, Numbers, Graphs &amp; Equations, and Incomplete Sets. In each case the students choose which one of four options "doesn't belong". Explain why. The problems do not go in order of difficulty. There is no answer guide because there are multiple correct answers.</p>	<p><a href="#">Open Middle</a> There are tasks for students from K - HS. in different math focus areas. The tasks start with specific beginnings and specific endings, but with multiple ways to approach the problem allowing students to forge their own path/method to solve the problem. It is not interactive. Students solve using paper/pencil. There are hints and some answers given.</p>	<p><a href="#">Math Playground</a> A variety of Math Games, Logic Games, Math Arcade, and Story Math available for elementary grade levels covering. Interactive with solutions shared.</p>	<p><a href="#">Prodigy</a> Fun games to practice a variety of math skills</p>
	<p><a href="#">PBS Learning Media</a> There are a variety of videos and interactive activities related to all math content areas organized by grade level.</p>	<p><a href="#">Same But Different</a> It is important to read the Steps to Use under the heading About. Students analyze two situations, comparing what is the same about them and what is different between them. It is optimum to have a group discussion but not imperative.</p>	<p><a href="#">Solve Me Mobiles</a> There are three levels of mobiles: Explorer, Puzzler, and Master. Each level has multiple puzzles and increases in difficulty. Good visual puzzles that encourage algebraic thinking.</p>	<p><a href="#">Math Interactives</a> A variety of interactive math activities and videos related to multiple middle school topics including Number, Patterns/Relationship, Shapes/Space, and Statistics/Probability</p>	<p><a href="#">Illuminations NCTM</a> Although membership in NCTM gives you full use of this resource there are many interactives that you can use for free. Under Interactive you can search by grade band. There are many interactives</p>
	<p><a href="#">Graphing Stories</a> Short videos help students connect graphs with a real-life situations</p>		<p><a href="#">3-Act Tasks</a> When the link is clicked you will see a spreadsheet. The spreadsheet will list the task. If you scan over you will see</p>	<p><a href="#">Phet</a> Go to Math. Then you may choose either concepts or applications. Both have a variety of interactive simulations related to Number</p>	<p><a href="#">Hour of Code</a>. There are lots of different Hour of Code activities...some are more math-centered, but all require students to use</p>



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			the standard. If the standard code starts with a 6 it is a sixth grade task, etc. . If there is a letter that means it is a high school standard. A is Algebra and so on. The tasks include a hook that engages elicits questions, an opportunity to resolve the questions, and a conclusion to check against student work.	topics, Algebra, Probability and more.	problem solving skills. The Frozen Hour of Code activity is a great introduction to coding and draws on student knowledge of angles. No coding experience required!
	<a href="#">Edpuzzle</a> Teachers can upload videos (self-made or found on the internet) and embed questions. Students answer as they watch. Analytics exist to view student engagement and performance.		<a href="#">MathCounts</a> Under Resources there are a series of Problems of the Week and Videos on math content areas. Sign up for a free account to get access to a wide variety of problems and solutions to high-level math problem solving.	<a href="#">Shodor</a> A website with a wide variety of math games and simulations covering various topics.	<a href="#">Math Snacks</a> Animations and games are available over a variety of middle school math topics.
			<a href="#">Robert Kaplinsky</a> A wide variety of problem-solving lessons based on real life math scenarios.	<a href="#">Math for Grown Ups</a> Under the heading Math for Parents you will find the Math at Work Monday series, where the author interviews people in a variety of professions about how they use math. There is also a section on "Why Math?"	<a href="#">Polyup</a> Interactive activities that encourage computation thinking
			<a href="#">Visual Patterns</a> Pictorial patterns are presented. Learners examine how the patterns change, and articulate that growth multiple ways (including formulaically).	<a href="#">New York Times Graph of the Day</a> A different graph posted each day gives students opportunities to see statistics in the real world and analyze the message of a graph	<a href="#">Skyscrapers</a> One person game (though it can be done as a small team). Players are given a grid with numbers along the sides. Across each row and column, the number specifies how many skyscrapers can be seen from that vantage (smaller skyscrapers cannot be seen behind taller ones). Players use blocks to build the



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<b>High School</b>	<p><a href="#">Desmos.com (Activity Library)</a> Guided online activities that promote student sensemaking. Graphing and equation writing abound. Going to Classroom Activities and then most popular would be a great way to start.</p>	<p><a href="#">Would You Rather? Math</a> There are questions posed in four grade bands (K-2, 3-5, 6-8, and 9-12). The goal is to choose the better of two options, and defend/justify your choice mathematically. There is no "answer sheet."</p>	<p><a href="#">Open Middle</a> There are tasks for students from K - HS. in different math focus areas. The tasks start with specific beginnings and specific endings, but with multiple ways to approach the problem allowing students to forge their own path/method to solve the problem. It is not interactive. Students solve using paper/pencil. There are hints and some answers given.</p>	<p><a href="#">Peter Liljedahl's Good Questions</a> Go to the "For Teachers" tab and click on it. Under the cartoon there are Numeracy Tasks, Card Tricks, and Good Problems. Numeracy Tasks have problems for grade bands on K - HS. Card Tasks has youtube videos for students to watch and potentially perform. Good Problems questions invite student thinking and are very open to student-defined methods to successful solutions.</p>	<p><a href="#">Hooda Math</a> Online games to practice various high school math skills and procedures. There is no fee if you do not mind ads. For a \$2 annual fee you can use the games ad fee.</p>
	<p><a href="#">Graphing Stories</a> Short videos help students connect graphs with a real-life situations</p>	<p><a href="#">Which One Doesn't Belong?</a> Choose which one of four options "doesn't belong". Explain why. There are four categories of problems: Shapes, Numbers, Graphs &amp; Equations, and Incomplete Sets. In each case the students choose which one of four options "doesn't belong". Explain why. The problems do not go in order of difficulty. There is no answer guide because there are multiple correct answers.</p>	<p><a href="#">Solve Me Mobiles</a> There are three levels of mobiles: Explorer, Puzzler, and Master. Each level has multiple puzzles and increases in difficulty. Good visual puzzles that encourage algebraic thinking.</p>	<p><a href="#">Shodor</a> A website with a wide variety of math games and simulations covering various topics.</p>	<p><a href="#">Illuminations NCTM</a> Although membership in NCTM gives you full use of this resource there are many interactives that you can use for free. Under Interactive you can search by grade band. There are many interactives.</p>
	<p><a href="#">Edpuzzle</a> Teachers can upload videos (self-made or found on the internet) and embed questions. Students answer as they watch. Analytics exist to view student engagement and performance.</p>	<p><a href="#">Same But Different</a> It is important to read the Steps to Use under the heading About. Students analyze two situations, comparing what is the same about them and what is different between them. It is optimum to have a group discussion but not imperative.</p>	<p><a href="#">3-Act Tasks</a> When the link is clicked you will see a spreadsheet. The spreadsheet will list the task. If you scan over you will see the standard. If the standard code starts with a 6 it is a sixth grade task, etc. . If there is a letter that means it is a high school standard. A is Algebra and so on. The tasks include a hook that engages</p>	<p><a href="#">Phet</a> Go to Math. Then you may choose either concepts or applications. Both have a variety of interactive simulations related to Number topics, Algebra, Probability and more.</p>	<p><a href="#">Polyup</a> Interactive activities that encourage computation thinking</p>



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			elicits questions, an opportunity to resolve the questions, and a conclusion to check against student work.		
			<a href="#">MathCounts</a> Under Resources there are a series of Problems of the Week and Videos on math content areas. Sign up for a free account to get access to a wide variety of problems and solutions to high-level math problem solving.	<a href="#">Math for Grown Ups</a> Under the heading Math for Parents you will find the Math at Work Monday series, where the author interviews people in a variety of professions about how they use math. There is also a section on “Why Math?”	<a href="#">Skyscrapers</a> One person game (though it can be done as a small team). Players are given a grid with numbers along the sides. Across each row and column, the number specifies how many skyscrapers can be seen from that vantage (smaller skyscrapers cannot be seen behind taller ones). Players use blocks to build the skyscrapers that satisfy each row and column.
			<a href="#">Robert Kaplinsky</a> A wide variety of problem-solving lessons based on real life math scenarios.	<a href="#">New York Times Graph of the Day</a> A different graph posted each day gives students opportunities to see statistics in the real world and analyze the message of a graph	
			<a href="#">Visual Patterns</a> Pictorial patterns are presented. Learners examine how the patterns change, and articulate that growth multiple ways (including formulaically).	<a href="#">Vi Hart YouTube Channel</a> These videos give a different and interesting perspective on how math shows up in the world. Her math doodle videos are fun!	
				<a href="#">Pixar in a Box</a> Great resource about all different aspects of animation from Pixar, both math related as well as other fields	