@ Home Math Ideas[1]

Asking Questions (continued) . . . .

- Is there someone you can call to get help? Can you discuss the problem with a classmate?

- Would using a calculator help you solve the problem?

- Would it help to go on to another problem and come back to this one later?

- Is there a homework hotline at your school? What is the phone number for it?

- Why don't we look for some help on the Internet?

- If you do only part of a problem, will the teacher give you some credit?

- Can you go in before or after school for help from the teacher?

Homework Reminder . . . .

Remember, *support* **homework—don't do it!**

Besides supporting your child on homework, show the importance of learning math by helping your child connect math with daily life. Point out your own activities that involve mathematics, such as deciding if you have enough money to buy items on a shopping list, estimating how long it will take to make a trip, determining how much carpet or wallpaper to buy for a room, or developing a schedule to complete a series of tasks. Talking about these everyday situations will give you a chance to increase your child's appreciation for the usefulness of math!

[1] National Council of Teachers of Mathematics (NCTM), "Tips for Families - Homework Help", online article @ nctm.org/resources/families.aspx

www.aMathsDictionaryforKids.com
An animated, interactive dictionary for students which explains over 600 common mathematical terms in simple language.

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Source Documents:

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Adapted from North Dakota Content Standards: "I Can" Statements

Adapted from Arizona Department of Education Mathematics Standards, 2010

Grade 7

CCSS Math Expectations Checklist

- Ratio and Proportional Relationships
- The Number System
- Expressions and Equations
- Geometry, Statistics and Probability
- Mathematical Practices

COMMON CORE STATE STANDARDS INITIATIVE
PREPARING AMERICA'S STUDENTS FOR COLLEGE & CAREER

Middle School

Homework Tips . . . .

Homework causes trouble in many households. Relax—remember whose homework it is! Think of yourself as more of a guide than a teacher. Don't take over for your child. Doing that only encourages him or her to give up easily or to ask for help when a problem becomes difficult.

The best thing you can do is ask questions. Then listen to what your child says. Often, simply explaining something out loud can help your child figure out the problem. Encourage your child to show all work, complete with written descriptions of all thinking processes. This record will give your child something to look back on, either to review or to fix a mistake, and can also help the teacher understand how the problem was solved.

Asking Questions . . . .

Asking the following kinds of questions can help you and your child tackle the challenges of math homework:

- What is the problem that you're working on?

- Are there instructions or directions? What do they say?

- Are there words in the directions or the problem that you do not understand?

- Where do you think you should begin?

- Is there anything that you already know that can help you work through the problem?

- What have you done so far?

- Can you find help in your textbook or notes?

- Do you have other problems like this one? Can we look at one of those together?

- Can you draw a picture or make a diagram to show how you solved a problem like this one?

- What is your teacher asking you to do? Can you explain it to me?

- Can you tell me where you are stuck?

My checklist of what I can do in 7ᵗʰ grade math . . . .

☐ I understand that it is important to apply the mathematical practices (identified on the inside cover) on a regular basis.

Ratios and Proportional Relationships . .

Analyze proportional relationships and use them to solve real-world and mathematical problems: (7.RP.1, 7.RP.2, 7.RP.3)

☐ I can draw a model for a proportional relationship and connect it to an equation to solve a proportion.

☐ I can compute unit rates with ratios of fractions, including lengths, areas and different units.

☐ I can determine whether two quantities are proportional from either a table or graph.

☐ I can identify the unit rate in tables, graphs, equations, diagrams, and verbal descriptions.

☐ I can represent proportional relationships by equations.

☐ I can interpret and explain what a point (x,y) means on a proportional graph, paying special attention to (0,0) and (1,r), where r is the unit rate.

☐ I can use proportions to solve multi-step ratio and percent problems, including interest, tax, discounts, tips.

The Number System . . . .

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers: (7.NS.1, 7.NS.2, 7.NS.3)

☐ I can explain the solutions for operations on integers. I can explain why -2 times -3 is +6 or why -2 – (-6) is positive 4.

☐ I can add and subtract natural and whole numbers, integers, fractions, and decimals, individually and combining more than one type of number. (1/3 + 0.625 combines fraction and decimal)

☐ I can multiply and divide natural and whole numbers, integers, fractions, and decimals, individually and combining more than one type of number. (combines fraction and negative decimals)

☐ I can solve real-world problems involving all four operations on rational numbers.

☐ I can apply the properties of operations (commutative, associative, identity, distributive, and inverse properties, along with order of operations) to operations with rational numbers. (8 ÷ ¾ is (8 x 4) ÷ by 3 or (8 ÷3) x 4)

Expressions and Equations . . . .

Use properties of operations to generate equivalent expressions: (7.EE.1, 7.EE.2)

☐ I can add and subtract linear expressions with rational coefficients.

☐ I can explain simplification of algebraic expressions. (explain why $3x + x = 4x$, but $(3x)(x)$ is $3x^2$ OR why $3x + 2y$ cannot be simplified further but $(3x)(2y)$ can be simplified)

☐ I can draw representations for addition, subtraction, multiplication, and factoring of algebraic expressions and connect these drawings to symbolic representation.

☐ I can factor and expand linear expressions with rational coefficients.

☐ I can restate expressions to make sense of real-life situations. (the perimeter of a rectangle can be l+l+w+w or 2l+2w)

Solve real-life and mathematical problems using numerical and algebraic expressions and equations: (7.EE.3, 7.EE.4)

☐ I can solve multi-step real-life and mathematical problems posed with positive and negative rational numbers.

☐ In multi-step real-life problems, I can convert between rational number forms (fractions, decimals, and percents) if appropriate.

☐ In multi-step real-life problems, I can determine if and explain why an answer is reasonable using estimation and mental math.

☐ I can solve a multi-step equation, including those using the distributive property.

☐ I can solve a multi-step equation using real-life examples.

☐ I can solve a multi-step inequality, graph the solution on a number line (including those using the distributive property).

☐ I can solve a multi-step inequality using real-life examples and interpret the solution in the context of the problem.

Geometry . . . .

Draw, construct, and describe geometrical figures and describe the relationships between them: (7.G.1, 7.G.2, 7.G.3)

☐ I can solve problems with scale drawings of geometric figures, compute actual lengths and area from a scale drawing, and reproduce a scale drawing using a different scale.

☐ I can draw (freehand, with ruler and protractor, with technology) geometric shapes with given conditions (focus on triangles).

☐ I can describe the two-dimensional figures that result from slicing three-dimensional figures.

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume: (7.G.4, 7.G.5, 7.G.6)

☐ I can give an informal derivation of the relationship between the circumference and area of a circle.

☐ I can solve real-world and mathematical problems involving 2-dimensional area (triangles, quadrilaterals, polygons) and 3-dimensional volume and surface area (cubes, right prisms).

☐ I can use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

Statistics and Probability . . . .

Use random sampling to draw inferences about a population: (7.SP.1, 7.SP.2)

☐ I can make generalizations from statistical data about a population sample.

☐ I can answer questions related to sample size and validity: for example, "How large is a large enough sample size?", "What makes a sample valid?"

☐ I can make reasonable arguments about whether or not conclusions drawn from a sample are valid.

Draw informal comparative inferences about two populations: (7.SP.3, 7.SP.4)

☐ I can compare and draw informal inferences about two populations using measures of center (median, mean) and measures of variation (range, quartiles, interquartile range), visual overlap, and mean absolute deviation (dot plots, box plots, histograms are applicable).

☐ I can compare the degree of visual overlap of two data plots.

☐ I can describe the visual difference and explain what that difference means.

Investigate chance processes and develop, use, and evaluate probability models: (7.SP.5, 7.SP.6, 7.SP.7, 7.SP.8)

☐ I can explain why the numeric probability of an event must be between 0 and 1.

☐ I can explain the likeliness of an event occurring based on probability near 0, ½, and 1.

☐ I can predict probability from collecting data (experimental).

☐ I can also establish the theoretical probability by determining the sample space.

☐ I can find the probability of compound events by constructing models, i.e., lists, tables, tree diagrams, and simulation.

☐ I can design and use a simulation to generate frequencies for compound events.

How to use checklist:

• Show the date of when you were able to do the math expectation.

• Show an example of what you did in a journal.