Academic Growth Charts Eighth Grade

Adult & Child

Therapeutic Foster Care Licensing Program

Academic Benchmarks

* **States across the country are implementing new standards for student achievement, designed to better prepare young people for careers and college.**
  * **These academic benchmarks are meant to help parents understand the course material for each grade.**
  * **They are based on the standards in most of the country and are intended as a general resource for parents, not as a comprehensive breakdown of the contents of your child's curriculum.**
* http://www.parenttoolkit.com/

Eighth Grade Overview

* **The work your 8th grader is doing in reading and writing emphasizes critical analysis skills, the importance of evaluating sources for accuracy and trustworthiness, and effective argumentation.**
* **Math continues to build upon the work in earlier grades, with an emphasis on representing concepts and relationships in equations and graphs.**

English/Language Arts

* In 8th grade, students read and understand a variety of informational texts including essays, speeches, biographies, and other types of historical, scientific, and technical material.
* Students also read and understand a wide range of literature such as stories, plays, and poems from across cultures and time periods.
* In writing and class discussions, 8th graders continue to gather information from multiple sources, and evaluate whether the sources are credible and accurate.
* Students write both short, focused compositions, and longer papers that involve research, reflection, and revision over time.

Reading

* Rich & Challenging Texts
  * Read rich and challenging 8th grade level texts closely, proficiently, and independently.
* Citing Evidence
  * Cite evidence that best supports what a literary or informational text says, as well as what it implies or suggests.
* Analyzing Themes
  * Analyze the way an author develops the theme or central idea of a text, noting how the characters, setting, and plot are connected.
  * Summarize the text objectively.

Reading

* Outlining Arguments
  * Outline the argument and specific claims in a text.
  * Evaluate whether the reasoning is sound and whether there is enough relevant and meaningful evidence to support the claims.
  * Note when evidence may be irrelevant or misleading.
* Understanding Vocabulary
  * Read and understand 8th grade vocabulary, and determine how an author's word choices, including the use of analogies and allusion, impact the meaning and tone of a text.
    * An analogy is a comparison of two different things that have some similarities. (*When he moved to town, he was a fish out of water.*)
    * An allusion is a reference to a person, place, or event. (*He has a Midas touch* is a reference to the Greek myth of King Midas, whose touch turned everything to gold.)

Reading

* Learning New Words & Phrases
  * Use different strategies to understand new words and phrases; for example, use context as a clue; use common Greek and Latin roots as a clue; consult a dictionary online or in print.
    * Examples of common Greek roots: *biblio* (book) as in bibliography; *therm* (heat) as in thermometer.
    * Examples of common Latin roots: *aqua* (water), as in aquarium; *cent* (hundred), as in century.

Writing

* Making Supported Arguments
  * Write arguments that state a claim, differentiate the claim from alternate or opposing views, and support the claim with reasons and evidence from accurate and credible sources.
* Informative Papers
  * Write informative or explanatory papers that examine a topic and express ideas by carefully selecting and analyzing information.
  * Use facts, details, and other information to develop the topic.
* Creating Stories
  * Write stories or narratives about real or imaginary experiences.
  * Establish a context and point of view, and develop story elements such as characters, a well-sequenced plot, and descriptive details.

Writing

* Including Evidence
  * Include evidence from text to support thinking and research.
* Producing & Publishing
  * Use technology to produce and publish writing, and to work with others on writing.
* Using Basic Grammar Rules
  * Use basic rules of English grammar, capitalization, punctuation, and spelling in written work.
    * For example, use a comma, dash, or ellipsis (…) to indicate a pause.
    * Use verbs in the active and passive voices (Active: *He is eating chicken.* Passive: *Chicken is being eaten by him.*)

Listening & Speaking

* Class Discussion
  * Participate in class discussions about complex 8th-grade topics, texts, and issues.
  * Be prepared to refer to evidence in a text when discussing ideas, and be open to explaining and modifying a viewpoint in response to the ideas of others.
* Evaluating Others' Arguments
  * Listen to another speaker's argument and evaluate whether the claims are based on sound reasoning and evidence, identifying evidence that is irrelevant or unrelated.
* Giving a Presentation
  * Give a well-organized presentation to construct an argument or explain a research finding, highlighting the key points and supporting with evidence clearly.

Research & Inquiry

* Research Projects
  * Conduct short research projects to answer a research question, including a self-created question.
  * Gather information from print and online sources, and generate additional questions for further exploration.
* Locating Information
  * Locate information efficiently; use effective search terms online.
* Evaluating Sources
  * Evaluate whether sources are accurate and can be trusted.
  * Quote or paraphrase material correctly without plagiarizing or copying.
  * Cite sources appropriately.

Tips & Advice

* ***Ask Your Teen's Opinion***
  * Encourage discussion as much as possible in your house. Ask your child for his/her opinion about political and social issues, or about books, movies, and TV shows. Listen carefully and prompt him/her to express his/her ideas thoughtfully, backing up his/her claims with evidence. Having dinner together as a family may be harder to do as your child gets older and there are more demands on his/her time, but this is one of the best ways to stimulate these kinds of conversations.
* ***Encourage Keeping a Diary***
  * Give your child a journal or diary and encourage him/her to update it regularly. Assure him/her that his/her privacy will be respected and that you will not read his journal.

Tips & Advice

* ***Suggest Writing Projects***
  * Suggest some writing projects for your child that would be of interest to the entire family. Perhaps he/she could research and write about some aspect of your family's history, using personal interviews, books, and online information. He/she could share what he/she writes with other family members.
* ***Encourage Reading Aloud***
  * Encourage your adolescent to read aloud to and tell stories to younger siblings.
* ***Encourage Note-Taking***
  * There is strong evidence that, despite the popularity of highlighters, highlighting or underlining text as we read is not an effective way of learning information. Instead, encourage your child to take notes of key ideas, perhaps on Post-its or colored index cards, as he/she reads. When he/she has finished a reading assignment, he/she can compile all the notes and he/she'll have a ready-made study guide.

Tips & Advice

* ***Discuss The News***
  * Encourage your child to become a more discerning consumer of news and information. Have an ongoing discussion with him/her about how you get your news and how you decide which sources to trust. Point out examples of misleading information you see, such as in ads, so that your child learns to be skeptical of some sources. Bookmark some Internet sites that you consider to be reliable and that he/she can use as reference or information sources.
* ***Help Develop a Homework Routine***
  * Help your child develop a consistent homework routine. Make sure that he/she not only reviews what was covered in school that day, but also help him/her learn how to keep track of long-term assignments and plan ahead. By this age, he/she should have a system for managing his/her workload, but continue to help him/her by asking what he/she's working on, how he/she's progressing with long-term assignments, and whether he/she needs any help.

Mathematics

* **In 8th grade, students focus on connecting their understanding of unit rates and proportional relationships to points on a line, using linear equations and functions to represent, analyze, and solve a variety of problems, and learning about the Pythagorean Theorem and congruence and similarity of geometric shapes.**

Numbers

* Rational & Irrational Numbers
  * Understand rational and irrational numbers.
  * Know that a rational number can be written as a fraction or decimal (for example: ½, 0.5, 2, or -2), but that an irrational number – for example, the square root of 2, or √2 – cannot be written as a fraction.
  * When written in decimal form, an irrational number does not repeat or end.

Expressions & Equations

* Working With Radicals
  * Work with radicals – mathematical expressions including square roots (symbol:√), cube roots (symbol: $\sqrt[3]{}$), etc.
  * Determine the square roots of small perfect squares – for example: √49 = 7 (7 x 7 = 49).
  * Determine the cube roots of small perfect cubes – for example: $\sqrt[3]{64} = 4$ (4 x 4 x 4 = 64).
* Equations With Exponents
  * Solve simple equations involving exponents, including exponents with negative bases and exponents with decimal and fraction bases.

Expressions & Equations

* Scientific Notation
  * Understand scientific notation as a way of writing numbers that are too big or too small to be easily written and read in decimal form – for example, convert 7,120,000,000 (standard decimal notation) to 7.12×10^9 (scientific notation).
  * Add, subtract, multiply, and divide with numbers expressed in scientific notation.
* Proportional Relationships
  * Compare different proportional relationships, expressed in different forms: equations, graphs, verbal expressions, tables, etc.

Expressions & Equations

* Graph Proportional Relationships
  * Graph proportional relationships. Interpret the unit rate as the slope of the graph – how steep or flat the line is.
* Slope-Intercept
  * Work with the slope-intercept (or y-intercept) form of linear equations (equations that make a straight line when graphed): $y = mx + b$.
    * Understand that the values of x and y on the graph are the solutions of the equation, and m is the slope of the line.
    * Understand slope (m) as the change in y over the change in x (called rise over run): if the x-coordinate changes by A, the y-coordinate changes by $m \times A$.

Expressions & Equations

* Linear Equations
  * Solve single-variable linear equations (both one-step and two-step).
* Simultaneous Linear Equations
  * Solve simultaneous linear equations (linear equations involving the same set of variables).
  * Find the point of intersection of two lines.

Functions

* Functions as Rules
  * Understand functions as rules assigning to each value of x exactly one value of y (to each input exactly one output).
  * Use functions to describe relationships between numbers (quantities) and situations where one quantity determines another. For example, y = 2x is a way to express the relationship between the numbers 3 and 6, or 4 and 8, or -2 and -4.
* Comparing Function Properties
  * Using function tables, graphs, equations, or descriptions, compare the properties of two functions.
  * Understand that linear equations are functions.

Geometry

* Congruence & Similarity
  * For two-dimensional figures (including lines and angles), understand and determine congruence (objects of equal size and shape) and similarity (objects of the same shape but different sizes).
* The Pythagorean Theorem
  * Understand the Pythagorean Theorem, a relationship unique to right triangles.
  * The Pythagorean Theorem can be expressed as an equation to determine unknown side lengths in right triangles: $a^2 + b^2 = c^2$.
  * In a right-angled triangle, the square of the hypotenuse (the longest side of the triangle, c) is equal to the sum of the squares of the other two sides (a and b).

Geometry

* Distance Between Two Points
  * Use the Pythagorean Theorem to find the distance between two points in a coordinate system.
* Pythagorean Theorem Problems
  * Use the Pythagorean Theorem to solve real-world and mathematical problems.
* Transformations
  * Recognize and identify transformations of two-dimensional figures
    * translations – a sliding movement of the figure in any direction.
    * dilations – shrinking or expanding the figure.
    * rotations – turning the figure.
    * reflections – mirror images of the figure.

Tips & Advice

* ***Highlight Math in Sports***
  * Sports provide an engaging way of exploring a host of mathematical concepts. Any hard-core baseball fan knows that the game can't truly be appreciated without an understanding of some essential statistics, like a player's batting average and runs batted in. Football is also full of statistics, such as the percentage of passes a quarterback completed. If your child is passionate about a sport, encourage him/her to explore it through math.
* ***Use Shopping to Practice Math***
  * Make a habit of asking your child to help out with the shopping by calculating which items are better buys. For example, is it better to purchase 2 six-packs of 12 oz. cans or two 2-liter bottles that cost the same price? How much do you save per item when something is priced as buy two get one free? This will help develop his/her facility with these kinds of calculations as well as good long-term shopping habits.

Tips & Advice

* ***Seek Out Help from Online Resources***
  * If your child is struggling with math, help him/her find resources online that may be useful. Sites such as Khan Academy or IXL offer extensive opportunities to review and practice math skills.
* ***Highlight The Ways Math is Used in Different Careers***
  * Encourage your child to explore the specific ways in which math is used in different careers. Do doctors use math? Engineers? Bankers? What is he/she starting to think of as career goals. Help him/her explore, perhaps by researching online or talking to other adults, what role math plays in the fields he/she is starting to consider?

Tips & Advice

* ***Seek Out Films Featuring Math***
  * Help your child become aware of the many career paths and disciplines that incorporate math, such as engineering or economics or weather forecasting. One way to do this is by watching movies that highlight math and help your child understand how math can be put to use in the real world, such as *Apollo 13* or *Jurassic Park*.